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*Special issue*

# METHODS IN VISUAL POLITICS AND PROTEST:
## DECONSTRUCTION, REFLEXIVITY & FEMMIX

Guest edited by:

*Suay Melisa Özkula, Hadas Schlussel, Tom Divon & Danka Ninković Slavnić*

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# Special issue on methods in visual politics and protest

## Deconstruction, reflexivity & femmix

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### Abstract

This special issue forms the second part of a double issue on methods in visual politics and protest. It draws together five articles that provide new pathways for deconstructing visual political narratives and offers reflexive and nuanced accounts for researching visual data and information shared on social media platforms (here: TikTok, Instagram, Twitter/X, Facebook). They do so through the application of feminist mixed methods (femmix), cross-platform analysis, and context-aware, comparative, and triangulated approaches. Taken together, the double issue offers a substantive compendium of articles exploring the latest methodological developments in visual politics and protest.

Keywords: visual methods; protest; politics; feminist methods; digital methods; reflexivity; social media images

### 1. Methods in visual politics and protest: A double special issue

While visuality has been a longstanding point of interest in political research, this double issue fills a clear gap by addressing it in relation to digital social research, and, above all, platform research (both what has been labelled visual social media and visual data circulating on other platform types - for the full definition of terms see Özkula et al. 2024a). Contributions published in the first part addressed current methodological challenges in visual research and extended extant methodological repertoires. The second part continues these conversations by highlighting the need for transnational investigations, and in itself constitutes a pledge for decolonial research on visual politics. The five articles presented here explore protests in India and Brazil, as well as global issues like climate change across Indonesia, Japan, Pakistan, the Philippines, Thailand, the UK, and the US. These papers touch on key political themes like feminism on social media (Wiens and McDonalds, Gajjala et al.), national elections (Martini), and climate change communication (Yan and Zeng) in relation to a diverse set of visual formats and artefacts (pictures, short videos, carousel reels, tweet networks) and social media platforms (Instagram, Twitter/X, Facebook,


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TikTok). They do so through a range of methodological approaches including feminist, mixed, and digital methods.

These articles complement the five previous ones (see Özkula et al. 2024a), presented in three thematic areas: 1) mixed visual methods that enable researchers to overcome the limitations of a single methodological approach and gain more nuanced and contextualised findings (Caldeira, 2024; Omena et al. 2024; Hohner et al. 2024; Giorgi and Rama, 2024), 2) dataset-building techniques beyond text searches for collecting and curating visual data, such as the use of sound/soundscapes (Geboers and Pilipets, 2024), social cues (Omena et al. 2024), and macros (Giorgi and Rama, 2024), and 3) the development of methodological approaches for capturing anti-democratic visual practices, such as propagandist or far-right videos and bot accounts that represent contemporary anti-publics (Geboers and Pilipets, 2024; Hohner et al. 2024; Omena et al. 2024). Those contributions featured a variety of case studies from different cultural regions (countries: Germany, Italy, Brazil, Portugal, Russia, Ukraine), platforms (TikTok, Instagram, Twitter/X), visual formats (memes, videos, posts), and political themes (war propaganda, political bots, elections, far-right extremism, feminist movements). For an overview of the double issue, see Table 1.

**Table 1.** Overview of Methods in Visual Politics and Protest: the double special issue

| | **Part I** | **Part II** |
|---|---|---|
| ***Main thematic contributions*** | Mixed methods, data curation, anti-publics | Deconstruction, femmix, positionality, reflexivity |
| ***Political themes & practices*** | Far-right extremism<br>War propaganda<br>National elections<br>Political bots<br>Feminist movements | Climate change<br>Feminist movements<br>Political campaigning<br>Political bots |
| ***Case study countries*** | Germany, Italy, Brazil, Russia, Ukraine, Portugal | UK, India, Brazil, US, Japan, Indonesia, Pakistan, Philippines, Thailand |
| ***Platform focus*** | TikTok, Instagram Twitter/X | TikTok, Instagram, Twitter/X, Facebook |
| ***Analysed artefacts*** | short videos, bots, memes, soundscapes, posts, hashtags | carousels, social network maps, memes, bots, photographs |
| ***Proposed methodological approaches & models*** | quali-quanti visual methods, contingent macro analysis, digital dwelling, "extra-hard" data, Leadership Visual Performance Model, feminist mixed visual methods, feminist intersectional small data analysis | |

## 2. Deconstructing visual political narratives

A common challenge across these papers has been understanding how different forms of visual communication (co-)create, construct, and curate visual political narratives, and how such narratives are to be interpreted across diverse contexts of production and dissemination (see challenges in Part I of the double issue). Several of the papers here, therefore, engage in and build on the longstanding tradition of reading, interpreting, and deconstructing meaning-making in social "texts" (a practice common and indeed anchored in semiotics; see Barthes, 1968). Deconstruction is particularly relevant for the interpretation of visual information as the process challenges traditional interpretations of language, texts, and culture based on the premise that their definitions and meanings are not fixed but subject to a range of underlying assumptions and hierarchies (see Derrida, 1974/1976). Deconstructing visuals then involves analysing and breaking down visual elements to understand the underlying messages, assumptions, testimonies, and cultural narratives they convey (Ahmed and Stacey, 2001; Kuppers, 2001;

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Rose, 2022). This may include the deconstruction of the different sites in which the meaning of an image is generated, such as its compositional interpretation, production, circulation, and how it is seen by different audiences (Gries and Hallinan, 2022; Rose, 2022). By doing so, researchers may uncover the otherwise (in)visible ways in which these visuals construct or deconstruct narratives on political conflicts, identities, ideologies, and beliefs (an asset to research applying feminist methods, positionality, and reflexivity as these question dominant and hierarchical practices of meaning-making, cf. subsection 3).

The works presented here add to this body of work through a detailed engagement with communicative practices, social media affordances, and technological attributes tied to the new visualities and visual dynamics produced by social media engagements, including: social cues in the circulation of visuals, image macros, video frames, soundscapes (see part 1 of this double issue), visual performative leadership, Instagram carousel practices, social network maps, polysemy in memes, and visual styles and aesthetics (in this second part). For example, Wiens and MacDonald unpack visual political narratives through an embodied and collaborative approach to curated digital content collections, a process they term "digital dwelling". By prioritising the communicative and networked solidarities integral to feminist activism (and research), this process facilitates a detailed examination of the intricate interplay of affect, histories, culture, politics, and resistance created by feminist activists' practices. Other papers in this special issue focus on content comparisons in image and video collections. For example, Yan and Zeng adopt a multimodal computational analysis to explore climate change narratives on TikTok through two dimensions: visual style, characterised by aesthetic features rooted in primary visual elements, and communicative functions related to the content's intended message or objective. A different approach is taken by Martini, whose work introduces the Leadership Visual Performance Model (LVPM), a model designed specifically for analysing leadership portrayal on visual social media as it highlights differences in leadership styles towards the creation of a leadership typology based on visual narratives. He does so through a systematic exploration of different performative elements within each image, going beyond simple thematic coding by using a range of structural indicators that enable better comparison across different contexts.

Other authors of this special issue have, in Part I, similarly engaged in deconstructive exercises that provide nuanced and contextual meanings to the often implicit nature of individual images; for example through explorations of ephemeral macros in memes circulating on social media, the application of soundscapes in short videos, and the significance of social cues in understanding bot behaviours (Geboers and Pilipets, 2024; Giorgi and Rama, 2024; Omena et al. 2024). They present different entry points and pathways for interpreting visual data, which means that visuals are not analysed in isolation, but within the specific contexts they have been circulated in or on the basis of the multiple meanings they combine, rendering them less implicit for researchers.

## 3. Reflexivity, positionality, & femmix

Another substantial contribution of the work presented in this issue lies in a heightened attention to reflexivity and positionality, which we term *femmix* - feminist mixed visual methods. This is materialised primarily through an embodied and intersectional reflection on research as a craft, thereby making explicit the influences of researchers' identities and bodies (online and offline) on how they ask research questions, approach field sites, share/disseminate knowledge, and, as above, how they read and interpret data - a tenet in feminist research (see Prieto-Blanco, García-Mingo, Fernández-Díaz, 2022; van den Berg and Rezvani, 2022).

These questions are then also relevant for the analysis of visual data as, compared to text, visual information is often implicit, i.e. its readings depend on a range of contextual factors. As such, positionality in visual research acts as a bridge towards acknowledging who "we" are as researchers in digital networks and how we consequently read data that is highly context-dependent. This approach is above all common in feminist methods as these foreground research as embodied and subjective, based

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on the recognition that knowledge is written into the body, the self, and the communities established on this basis (see Dupuis et al. 2022). Positionality in visual research is then both a feminist exercise and a reflection on how researchers' bodies and identities relate to visual political data circulated online, i.e. also in relation to other identity attributes such as their ethnic origin, location in relation to research object, and spoken languages. This means that the regions and sociopolitical contexts in which researchers are physically situated during research matter for how they collect and interpret data - a point made by Wiens and MacDonald, Gajjala et al., and Özkula, Omena, and Gajjala in this issue, as well as in Part I by Caldeira (2024). For example, in their feminist small data analysis, Wiens and MacDonald draw on the method of dwelling not only to observe, but also participate in and affect these situations, and to explore the various possible meanings of those entangled practices and digital communities. The premise for this process is that different researchers may choose to examine different texts or see other relationships between ideas - a form of triangulation.

The papers presented in this double issue are a testament to this *in* and *beyond* feminist research. They document how readings of visual data depend on (a) how bodies are inscribed in online cultures, above all in locally anchored political events, and (b) how the physical and psychological experiences bodies carry affect how politically charged data (visual, network, textual, multimedia, or metadata) are read in chains of de- and re-contextualisation as mediated by digital technologies. Through applications of ethics of care, accountability, affect, reflexivity, and responsibility in research - approaches rooted in feminist research (see Dupuis et al. 2022; Liljeström, 2010; Özkula et al. 2024b; Pedwell, 2010), these approaches acknowledge the intersectional identities and bodies of both those creating or reproducing contents as well as those interpreting them (i.e. researchers). As such, these works illustrate the relevance of feminist principles in other forms of minority ethics of care that consider body politics and the associated biases and power relations underpinning research.

A further contribution of the double issue lies in its combination of digital methods (i.e. approaches drawing on digitally native data and methods, see Rogers, 2019) and qualitative data (both qualitative digital social research and on-the-ground engagement) for visual methods - termed "quali-quanti visual methods" (Omena et al. 2024). In this second part, these methodological approaches are additionally characterised by their embodied and reflexive application, above all in relation to gendered situations, i.e. feminist mixed visual methods (femmix). On the surface level, digital social research may seem less affected by researchers' environmental and bodily circumstances since they do not often contact research subjects directly and large amounts of data are distributed through algorithms and curated by software without the direct engagement of human researchers. However, digital environments are not neutral, nor are the algorithms that distribute content or the software used to generate or scrape it (boyd and Crawford, 2011; Chun, 2021; Crawford and Paglen, 2021; Marres, 2017). Hence, researchers need to be aware of the implications of using software, data, and accounts in light of their own physical circumstances such as login locations (Elmer et al. 2015), their embodied experiences, as well as the biases produced by these. Here, an embodied feminist approach to visual analysis (or its addition to digital methods through femmix) bridges a gap created by research designs focusing on gathering mass data, as it pays more attention to research as a craft and the social experiences and power dynamics that underpin and therefore impact research.

Several authors in this double issue develop and discuss such approaches. For instance, Gajjala et al. point out that even if researchers consider their socio-economic and cultural location, the data remain situated and biased since each platform uses personal settings and preferences even at the stage of scraping. To overcome this challenge, they include interviews with local political activists and 'ground' digital social research within the associated local contexts. In doing so, they offer a reflexive, self-aware analysis, a holistic approach that they define as feminist intersectional small data analysis. The relevance of comparative, contextual, and embodied (here: feminist) readings is also highlighted by Özkula, Omena, and Gajjala (a reflexive account that draws on two case studies applying feminist methods). They draw attention to new potentialities of software-based visual research on protest and politics through rich cross-

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project comparisons, complementing platform data with on-the-ground engagement, and quali-quanti visual methods. These, they say, allow for what they call "extra-hard data", based on rich data journeys underpinned by multi-modality, hybridity, comprehensive data curation, reiterative data collection and interpretation, and the inclusion of contextual reflections in focused visual research. Elements of reflexivity and mixed methods in feminist research have also been addressed by other authors in this issue based on the nuance and context these provide. For example, Caldeira (2024) applies feminist mixed methods (femmix) as a way of complementing practices of high-visibility actors with actors who are not used to broad exposure or high levels of engagement - a particular benefit given that this combination provides both distant and close readings, as well as objective and subjective readings.

These papers therefore add to the growing, albeit scarce (see Özkula et al. 2024b), body of knowledge that applies feminist, body-sensitive, and context-aware approaches (positionality and reflexivity) to visual methods, including femmix. In doing so, the works presented here serve as a vignette for understanding how visuals are embedded in, shaped by, and read based on power dynamics and forms of resistance in visual politics and protest.

## 4. Methods in visual politics & protest revisited

This double issue has brought together ten articles addressing common challenges in visual methods in politics and protest, such as the proliferation of visual social media, the study of newly emerging visual practices, and the growing repertoires and application of digital methods (see Özkula et al. 2024a). They address these through methodological approaches that draw on cross-platform research, regional anchoring, mixed visual methods, slow reading/dwelling, femmix, and wider reflections on researchers' positioning in research. Even so, the articles highlighted a range of challenges that remain in the field. Above all, they draw attention to technological biases (or, in Marres' words, "digital bias"; see Marres, 2017) that remain difficult to bridge and need to be subjected to critical scrutiny. These include algorithmic influences that need to be taken into consideration, biases written into digital methods tools, and other technological effects that may remain invisible to researchers due to the black box of mechanics.

Although the articles propose triangulation efforts to bridge these (e.g. enriching data collected through digital methods through cross-platform research or with qualitative data), they acknowledge that these are time-intensive processes that typically require privileged access or opportunities (see also Özkula, Omena, and Gajjala in this issue). While this special issue does not specifically address this, current trends in access regimes have shown the volatility and shifting terrains in research access to platform data. Changing platform ownership, policies, and their respective access regimes have shown to change how and what types of data researchers may access (above all, the case with Twitter/X, Meta, and TikTok). Thus, where tools are provided and/or controlled by platform providers, political research may likely be subject to more scrutiny and restrictions, e.g. where researchers have to apply for access. This means that researchers will rely even more strongly on gathering qualitative data, triangulating through on-the-ground engagement, and/or supplementing visual data with other forms of contextual or mixed methods readings - challenges for which this double issue provides a range of potential approaches and/or solutions.

Beyond the themes addressed in this double issue, it also remains to be seen how new developments in generative AI will affect visual methods and data collected through these going forward. As a new and evolving field with (at this point with limited research) developments in generative AI pose new prospects, limitations, and challenges for visual research, for example through artificially generated videos, avatars, and memes. On the one hand, these tools may provide new possibilities for ethically visualising data, reading visual data across different contexts, and experiments with visual data. To illustrate, generative AI (= infrastructure, e.g. Chat GPT) may become a research tool in itself, e.g. for data analysis and interpretation. On the other hand, these developments will likely require future research designs and methodologies to adapt towards capturing these complexities. For example, the authenticity

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of visual content created through generative AI may become both a focus and a challenge in future research on mis- or disinformation in political campaigns, witnessing in conflict coverage, and video reliability in sousveillance practices. While some research already addresses these issues through tailored methodological approaches (see, e.g., on bots, Omena et al. 2024, in part I of this double issue), issues of origin and authenticity may become more significant challenges in research to come.

As such, this double issue serves as both a collection of methodological repertoires and a further stepping stone in addressing the shifting terrains of visual methods research.

## 5. Featured in this special issue

In what follows, we briefly outline the individual papers included in this **second** part of the special issue.

**Gajjala et al.** present a case study of the 2020 Shaheen Bagh Protests in India, focusing on the role of social media in amplifying women protesters' voices. Their study employs quantitative and qualitative methods, including "algorithmic ethnography", to analyse the protesters' online presence using social media small data (selected tweets, Instagram posts, and interviews with activists). This use of small data enriches the dataset, allowing for a critical interpretation and nuanced understanding of the online visibility and amplification of the Shaheen Bagh protesters. Gajjala et al.'s approach, which blends ethnographic and computational techniques, is grounded in feminist and postcolonial critiques and emphasises the integration of empathetic technologies and algorithmic ethnography. This allows for an exploration of both the affective and embodied dimensions of technology use, and provides deeper insights into the sensory experiences of individuals in digital environments.

**Wiens and MacDonald** introduce "digital dwelling" as a feminist method for researchers studying digital media artefacts on Instagram. This approach involves immersive engagement with selected curated carousel posts to gain an in-depth understanding of audience interactions with the content and its connections to the current political climate. Their technique highlights the need to consider the personal connections and acts of defiance occurring in digital environments, along with the underlying power imbalances and disparities. They advocate for a critical examination of large datasets and a recognition of the intricate details offered by smaller datasets in feminist media research.

**Özkula, Omena, and Gajjala** present the notion of "extra-hard" data, a possibility afforded by cross-project comparisons, combinations of platform data with on-the-ground engagement, and the application of mixed visual methods - a particular benefit in what has been described as the post-API age. They note that new developments in digital methods have opened up new possibilities for visual data collection and analysis, but are also subject to limitations in capturing the complexity and scale of digital-visual practices. Through a range of case studies, they highlight possibilities for contextualisation in visual research through aligning data curation and collection with the researched digital spaces, considerations of the diverse platform (sub)spaces, user dynamics, and cultures (in- or post-research design), exploratory, iterative, and multi-level analysis of visualisation software, and contextualising statistical or metadata.

**Zeng and Yan** explore climate change communication on TikTok in a cross-cultural study across seven countries. Through an analysis of 7564 videos using computational methods, they reveal key visual characteristics and regional differences, highlighting the influence of cultural and political contexts in shaping climate-related campaigns on TikTok. Their research showcases the potential of computational visual data analysis through the integration of computer vision and topic modelling for exploring visual styles and communicative functions, for example (as in their case) findings on whether these contents are person-centred, nature-centred, or text-centred. They consequently argue in favour of using computational methods for gaining cross-cultural insights into visual storytelling in the context of climate change.

**Martini** develops the Leadership Visual Performance Model (LVPM) to study the visual portrayal of political figures on social media platforms, with a focus on Boris Johnson and Jeremy Corbyn's Instagram

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activities during the 2019 UK General Election. This innovative framework employs structural indicators for analysing leadership styles through leader-follower interactions in visual content. Integrating visual semiotics and the concept of leader distance into social media leadership analysis, Martini offers a detailed method for examining how political leaders craft their digital image, interact with followers, and visually curate their communities.

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## Articles in this special issue

### *Part I Methods in Visual Politics and Protest: mixed methods, data curation & anti-publics*

Caldeira, S. (2024). Exploring feminisms on Instagram: Reflections on the challenges and possibilities of incorporating digital methods strategies in feminist social media research. *Journal of Digital Social Research*, *6*(1), 74-89. https://doi.org/10.33621/jdsr.v6i1.188

Geboers, M., & Pilipets, E. (2024). Networked masterplots: Music, pro-Russian sentiment, and participatory propaganda on TikTok. *Journal of Digital Social Research*, *6*(1), 90-103. https://doi.org/10.33621/jdsr.v6i1.201

Giorgi, G., & Rama, I. (2024). The contingent macro: The ephemerality of memes as discursive devices. *Journal of Digital Social Research*, *6*(1), 31-49. https://doi.org/10.33621/jdsr.v6i1.202

Hohner, J., Kakavand, A., & Rothut, S. (2024). Analyzing Radical Visuals at Scale: How Far-Right Groups Mobilize on TikTok. *Journal of Digital Social Research*, *6*(1), 10-30. https://doi.org/10.33621/jdsr.v6i1.200

Omena, J. J., Lobo, T., Tucci, G., Bitencourt, E., de Keulenaar, E., Kerche, F., Chao, J., Liedtke, M., Li, M., Paschoal, M. L., & Lavrov, I. (2024). Quali-quanti visual methods and political bots: A cross-platform study of pro- & anti-bolsobots. Journal of Digital Social Research, 6(1), 50-73. https://doi.org/10.33621/jdsr.v6i1.215

### *Part II Special issue on methods in visual politics and protest: Deconstruction, reflexivity & femmix*

Gajjala, R., Faniyi, O. M., Rahut, D., Edwards, E., & Ford, S. E. (2024). Get the Hammer Out! Breaking Computational Tools for Feminist, Intersectional "small data" research. *Journal of Digital Social Research* (6)2, 9-26. https://doi.org/10.33621/jdsr.v6i2.193

Martini, M. (2024) Exploring leadership on Instagram: A visual model for online leadership analysis. *Journal of Digital Social Research* (6)2, 85-99. https://doi.org/10.33621/jdsr.v6i2.205

Wiens, B. I., & MacDonald, S. (2024). Dwelling as method: Lingering in/with feminist curated data sets on Instagram. *Journal of Digital Social Research* (6)2, 27-45. 10.33621/jdsr.v6i2.211

Zeng, J., & Yan, X. (2024). Understanding climate change visual storytelling on TikTok: A cross-national multimodal analysis. *Journal of Digital Social Research* (6)2, 66-84. https://doi.org/10.33621/jdsr.v6i2.212

Özkula, S., Omena, J.J., & Gajjala, R. (2024). Researching visual protest and politics with "extra-hard" data. *Journal of Digital Social Research* (6)2, 46-65. https://doi.org/10.33621/jdsr.v6i2.214

## References

Ahmed, S., & Stacey, J. (2001). Testimonial cultures: An introduction. Cultural Values, 5(1), 1–6. https://doi.org/10.1080/14797580109367217

Barthes, R. (1968). Elements of semiology. Macmillan.

boyd, D., & Crawford, K. (2011). Six Provocations for Big Data. A Decade in Internet Time: Symposium on the Dynamics of the Internet and Society, September 2011. http://dx.doi.org/10.2139/ssrn.1926431

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Caldeira, S. P. (2024). Exploring Feminisms on Instagram: Reflections on the challenges and possibilities of incorporating digital methods strategies in feminist social media research. Journal of Digital Social Research, 6(1). https://doi.org/10.33621/jdsr.v6i1.188

Chun, W. H. K. (2021). Discriminating Data: Correlation, Neighborhoods, and the New Politics of Recognition. MIT Press.

Crawford, K., & Paglen, T. (2021). Excavating AI: The politics of images in machine learning training sets. AI & Society, 36(4), 1105–1116. https://doi.org/10.1007/s00146-021-01162-8

Derrida, J. (1974/1976). Of Grammatology. Johns Hopkins University Press.

Dupuis, C., Harcourt, W., Gaybor, J., & van den Berg, K. (2022). Introduction: Feminism as method—navigating theory and practice. In Feminist Methodologies: Experiments, Collaborations and Reflections (pp. 1-20). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-82654-3_1

Elmer, G., Langlois, G., & Redden, J. (Eds.). (2015). Compromised Data: From Social Media to Big Data. Bloomsbury Academic.

Geboers, M., & Pilipets, E. (2024) Networked Masterplots: Music, Pro-Russian Sentiment, and Participatory Propaganda on TikTok. Journal of Digital Social Research, 6(1). https://doi.org/10.33621/jdsr.v6i1.201

Giorgi, G., & Rama, I.(2024) The "Contingent Macro": The ephemerality of memes as discursive devices. Journal of Digital Social Research. https://doi.org/10.33621/jdsr.v6i1.202

Gries, L. E., & Hallinan, B. (2022). Doing Digital Visual Studies: One Image, Multiple Methodologies. Doing Digital Visual Studies: One Image, Multiple Methodologies. https://ccdigitalpress.org/book/ddvs/chapters/garcia.html

Hohner, J., Kakavand, A.E., & Rothut, S. (2024) Analyzing Radical Visuals at Scale: How Far-Right Groups Mobilize on TikTok. Journal of Digital Social Research, 6(1). https://doi.org/10.33621/jdsr.v6i1.200

Kuppers, P. (2001). Deconstructing images: Performing disability. Contemporary Theatre Review, 11(3-4), 25-40. https://doi.org/10.1080/10486800108568636

Liljeström, M. (2010). Crossing the East-West Divide: Feminist Affective Dialogues. In Working with Affect in Feminist Readings, edited by M. Liljeström and S. Paasonen (165–181). London and New York: Routledge.

Marres, N. (2017). Digital Sociology: The Reinvention of Social Research. John Wiley & Sons.

Omena, J. J., Lobo, T., Tucci, T., Bitencourt, E., de Keulenaar, E., Kerche, F., Paschoal, J., Liedtke, M., Li, M., Paschoal,M. L., Lavrov, I. (2024) Quali-quantitative visual methods and political bots: A cross-platform study of pro-& anti-bolsobots. Journal of Digital Social Research, 6(1). https://doi.org/10.33621/jdsr.v6i1.215

Özkula, S. M., Divon, T., Schlussel, H., & Ninković Slavnić, D. (2024a). Special Issue on Methods in Visual Politics and Protest: mixed methods, data curation & anti-publics. Journal of Digital Social Research, 6(1), 1-9. https://doi.org/10.33621/jdsr.v6i1.254

Özkula, S. M. , Prieto-Blanco, P., Tan, X., & Mdege, N. (2024b). Affordances and platformed visual misogyny: a call for feminist approaches in visual methods. Feminist Media Studies. https://doi.org/10.1080/14680777.2024.2311355

Pedwell, C. (2010). Feminism, Culture and Embodied Practice. London and New York: Routledge.

Prieto-Blanco, P., García-Mingo, E., & Fernández, S. D. (2022). Thick Description and Embodied Analysis of Digital Visual Artefacts: The Visual Repertoire of# SisterIDoBelieveYou. Vista, (10), e022014-e022014. https://doi.org/10.21814/vista.4132

Rogers, R.. (2019). Doing digital methods. London: Sage.

Rose, G. (2022). Visual Methodologies. In Research Methods for English (4th ed., Chapter 5). Open University.

van den Berg, K., & Rezvani, L. (2022). Senses of Discomfort: Negotiating Feminist Methods, Theory and Identity. In Feminist Methodologies: Experiments, Collaborations and Reflections (21–45). Cham: Palgrave Macmillan. https://doi.org/10.1007/978-3-030-82654-3_2

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# Get the hammer out!

## Breaking computational tools for feminist, intersectional "small data" research

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### Abstract

This paper focuses on revealing how the interplay between algorithmic interactions and the intuitive ways humans navigate digital environments can be researched through a multi-method approach to collecting and critically examining data from online platforms. We use a case study that looks at the role that social media engagement by transnational activists, local activists and celebrities played in amplifying an offline protest by group of women in India. Grounded in a critical feminist perspective, this paper uses multiple methods to demonstrate how the amplification of local protesters work through an interplay of human action and platform algorithmics. We conduct an algorithmic ethnography involving the examination of computational systems shaping online interactions. We examine the digital emergence and recognition of the women of Shaheen Bagh as subaltern political agents/subjects. Understanding of the interplay between online and offline visibility and strategic planning is highlighted. We conduct close readings of small data clusters that emerge within big data networks. We challenge the overreliance on big data methodologies and the fetishization of in-person ethnography (Bishop 2018) over digital ethnography.

Keywords: multi-methods; feminist methods; algorithmic ethnography; political agents; critical analysis

### 1. Introduction

In this paper, we present a case study that explores how transnational and local activists and celebrities leveraged social media to amplify a group of women protestors in India. We used the globally accessible online data content that was focused on the group of offline protestors to conduct an algorithmic ethnography. The group of women and their allies were protesting onsite in Shaheen Bagh, Delhi, India by initiating a sit-in movement in response to the Citizenship Amendment Act and National Registry of


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Citizens (CAA-NRC)[1] in India. Their presence was made visible to global audiences largely through social media activity. Our research focus overall is on looking at how the amplification occurred through the intertwining of human-machine actions and logics rather than on the actual offline events. In line with the theme of this special issue, we discuss our research methods, which involved the examination of both quantitative and qualitative data through a critical feminist perspective. The amplification of the local protesters, we note, occurred in an algorithmically shaped online space that lends itself to being examined through what Angèle Christin (2020) refers to as "algorithmic ethnography" which, she defines as "the ethnographic study of the computational systems enabling and shaping online interactions" (p. 109). Conducting such an ethnography required that we use select network visualization tools. These tools, while not strictly data analytics tools, have features that draw from the logics of data science and computational tools for analysis. While data science is more concerned with developing predictive models and solving complex problems, often involving unstructured or big data, data analytics is primarily focused on examining historical data to provide insights for informed decision-making. Both fields play important roles in leveraging data for different purposes, and their methodologies and skill sets do overlap.

Our research team in this sense was neither strictly doing data science nor data analytics but the tools we used – Gephi [2] and Netlytic [3]– had some features that overlap with data analytics. Certainly, they are embedded in algorithmic logics that engage with both data science and data analytics. Given the relative largeness of even qualitatively readable data available on Twitter, we felt it necessary to use these tools to parse out this data. The tools also allowed us to extract Twitter data using Twitter API affordances that were available free of cost to academic researchers before the platform changed its policies and was renamed as "X". Using this data and network visualizations as a starting point, our team conducted a multi-method investigation into specific scenarios that became visible to us through this algorithmic exploration. In this article, we describe specific themes made visible through a close look at the data through such an approach. As we proceed, we look at how the human-algorithm interaction amplifies particular fragments of the protest movement. The themes we focus on in this paper are centered on:

a) an example of how we located select transnational social media activists who contributed to the global digital visibility,

b) the impact of celebrity tagging, and,

c) uncertain material/virtual archives.

Overall, our epistemological and theoretical approach is shaped by feminist understandings of knowledge as situated and shaped contextually but also by the location of the researchers.

This article is being written by five researchers. While we started our work from a Midwestern United States University in 2019 – we are all dispersed in various parts of the U.S now as this article is being written. Our collaborators from India who had connected with us via various digital tools have contributed significantly to our thinking and we are grateful for their contributions. We also engaged with various transnational activists to help make sense of the data. The co-authors of this article comprise the lead author, a professor of Indian descent and a U.S. citizen, with a long history of immersion online while

[1] The Citizenship Amendment Act (CAA) was passed by the Government of India in December 2019 and was to be implemented along with a proposed National Register of Citizens (NRC) which was to be an official record of legal citizens in India. This register was to include undocumented migrants of Hindu, Sikh, Jain, Parsi, Buddhist, and Christian religious backgrounds from Pakistan, Afghanistan, and Bangladesh who had entered India before 2014. Muslim undocumented migrants were excluded. Protests against the CAA/NRC happened in various parts of India. Not all the protests shared a common point of contention – but the protests at Shaheen Bagh, Delhi were from a low-income Muslim majority community.

[2] Gephi is an open-source network analysis and visualization software package.

[3] "Netlytic is a cloud-based text and social networks analyzer that can automatically summarize textual data and discover communication networks from publicly accessible social media posts." (https://netlytic.org/)

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doing feminist research in both offline techno-mediated environments across online digital platforms; a doctoral student currently studying in the U.S., with a background as an activist in Nigeria; two white faculty members in the *U*.S who teach and research in areas of digital humanities and one Indian doctoral candidate studying in the U.S. The third co-author, who previously worked as a news journalist, is the only member among the five co-authors who was physically in India during the protests in 2019-2020 and the Covid-19 shutdown in March-April 2020. During this time, she actively engaged in parsing the nuances of what was happening by talking with various actors involved. The diversity of our social locations thus allowed us to discuss and debate different angles and possibilities as we examined the data. It is also important to note that our larger group of collaborators includes activists, scholars and onlookers who were present on site and in India during the protests and our work with them shapes how we write here. The different positionalities that we occupy allowed us to engage in discussion and debate productively around the data we were seeing as we pushed each other on our assumptions. As evident, a majority of the researchers and the co-authors of this article are also transnational audiences of this event. Our experience as transnational participants and/or observers therefore shaped the way we conducted the research. Interpretation of online data, therefore, is not solely based on networked data but is also informed by offline interviews with activists and onlookers onsite.

Similar to scholars such as Yu-Shan Tseng (2022) we reiterate that algorithms impact content visibility, filtering of data that is collected. Therefore, we examined algorithmic rankings and layouts alongside different human practices and adopted a reflexive approach that highlights our awareness that back-end algorithms of the data processing and machine learning models also play a role in the telling of the story. Our intention is also to provide a clear understanding of how qualitative and quantitative approaches can be intentionally used to complement each other when analyzing social media text data. We thus employ techniques like social network analysis while also conducting qualitative interviews. The tenets of data feminism (D'Ignazio and Klein, 2020; Poirier, 2021) and situated data analytics (Rettberg, 2020) as well as several other feminist and postcolonial interventions in the use of computational tools for critical research (Risam 2018, Jackson et al, 2020) inform our approach. These tenets require us to center the experience of human in context through a commitment to action and intersectional feminist approach as we proceed with our algorithmic ethnographic investigation. The Twitter datasets were therefore both collected and curated by our research collective.

To describe the methodological process, we specifically draw on our examination of the dataset around the #womenofshaheenbagh, which captures select Twitter activity during the anti-CAA/NRC protests that happened in Shaheen Bagh, Delhi, India (Gajjala et. al, 2023a and Gajjala et. al, 2023b, Edwards et. al, 2024)[4]. The data cast light on the amplification of the protest movement via social media, while the interviews with activists informed our close reading of the digital data. We have solicited permission to reference our interviewees and their participation. However, the institutional review board confidentiality clause and guidelines, requires that we do not name them. Public figures and organizations such as Bollywood celebrities and globally known activist groups are however mentioned. Regarding such public Twitter user profiles, we follow research methods guidelines provided by Richard Rogers (2019), where he notes that "since the social media user agreed to the terms of service, the researcher can fall back on those terms and use them to cover" (p.33).

Following the introduction, literature review and a methods section, we discuss three main themes that are focused on the transnational amplification of the protests that happened in Shaheen Bagh, Delhi. Two sections of the literature review concentrate on outlining literature around digital ethnography, algorithmic ethnography and on feminist and race theorists' examinations of the hierarchies embedded in

[4] We acknowledge the work of the BGSU "Tooling Around Research Lab" members past and continuing who contributed to our thinking through this project.

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algorithmic infrastructures. A third literature review section refers to relevant work about social media use by transnational activists.

## 2. Literature review

The literature review for this article is structured into four brief sections:

a) An overview of selected literature advocating for digital and algorithmic ethnographic approaches and emphasizing the need to incorporate both qualitative and quantitative tools for data collection and interpretation.

b) A brief discussion of the importance of feminist interventions into such research methods.

c) A summary of relevant literature on the use of social media by transnational activists.

d) A brief overview of academic publications about the Shaheen Bagh protests.

### *2.1 From digital ethnography to algorithmic ethnography*

Scholars such as Antoinette Rouvroy have called for a problematization of the contemporary "infatuation for Big Data and the presentation or the making of the real through its algorithmic modelling" (Rouvroy in Rouvroy & Stiegler, 2016, p. 7). Madeleine Elish and dana boyd (2018), in turn, have suggested that we "reimagine AI as a new form of qualitative inquiry" to understand the potential of machine learning and data science for big social data research. They claim that "such a reframing suggests new opportunities for methodological development" (2018).

Digital environments, thus, have continually compelled researchers to rearticulate methods with each interface and platform that surfaced. The struggles around defining what the "field" is, for field work, when researching online interaction dates back to the late 1980s and early 1990s. Mann & Stewart (2000) have critically explored some of these earlier debates on the suitability of the internet as a field, and the scholar consensus emphasizing the need for new methodologies to address social interaction and self-presentation in computer mediated communication. Qualitative and quantitative researchers alike have had to reframe what it means to do research when examining online social space and networks. In this reframing – where the Internet is simultaneously seen as social space, global/local cultures, extractable big data, and mappable/quantifiable networks - we see that some researchers have argued for methodological approaches such as digital ethnography (Pink et.al, 2015) and more recently algorithmic ethnography (Christin, 2020; Tseng, 2022).

Sarah Pink et al., (2015) note that experience is integral to ethnographic practice, echoing the logic of feminist and indigenous scholars who have argued that lived experience can be an important analytical lens to understand people and communities. In addition, digital media experiences – whether with the gadgets and appliances, digital platforms or while living immersively in digitally mediated environments as described in Secondlife ethnographies (see for instance, Boellstorff, 2015 and Gajjala, 2011) - are increasingly becoming a part of the research process. Hence, self-reflective awareness of the embodied experiences of living through senses - affective digital materialities (Pink et al, 2017) - are also integral to digital ethnography. The ethnographer's immersion in the multiple fields – offline and online – shapes the understanding of the overall research site.

Algorithmic ethnography, in a sense is an extension and variation of digital ethnography – as it responds to the move to closed black boxed algorithm-driven gadgets and platforms. Christin (2020) notes that in doing "algorithmic ethnography," we need to be cognizant of the concept of "platform" and what it entails in conjunction with other digital infrastructures. Ethnographers should examine the data closely while being aware that these digital platforms are never actually neutral. They target users through

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profit-oriented business models that are built-in and designed into environments that direct the users' choices (Pedwell, 2022). Ethnographers should also examine metrics such as platform engagement through actual user practices around given platform features such as "stars, likes, hearts, smiling emojis" (Christin, 2020, p. 110). Context collapse and temporal collapses occur when users are affectively engaging each other across time and geography. When examining platforms, algorithmic interfaces as well as the intertwined human-machine logics and intuition through an ethnographic lens, it becomes crucial for both users and researchers to be attentive to and actively engage with "minor affective registers" (Seigworth and Pedwell, 2023, p. 26).

### *2.2 Data feminism, racial bias, and algorithmic infrastructures*

Feminist researchers using data analytics, data science and machine learning tools have argued that data science needs feminism. Catherine D'Ignazio and Lauren Klein (2020), for instance, argue that in the world of data science, power is not evenly distributed. Lindsay Poirier (2021) also emphasizes that to effectively assess data bias; data analysts must possess the ability to scrutinize datasets as cultural products originating from inherently power-influenced semiotic systems.

Scholars have also written about the importance of paying attention to how representations of race, ethnicity and nation are also algorithmically shaped in online platforms. Safiya Noble (2018) and Ruha Benjamin (2019), for instance, effectively demonstrate how algorithmic interfaces themselves are implicated in reproducing and sustaining uneven social hierarchies based in historical oppressions and negative stereotypes of particular groups of people. Benjamin explores the automation of anti-blackness, arguing that racism is in-built in the technology industry and operates through systemized discrimination that renders Black and other people of color illegible within certain technologies including facial recognition software. Her work explored black representation within technoscientific developments. Noble, on the other hand, deconstructs the myth of neutrality and objectivity associated with algorithms. She notes how biases are normalized when they are embedded into algorithmic platforms by their creators.

### *2.3 Transnational activists use of social media*

Regardless of implicit bias of the algorithms and power hierarchies that shape platform cultures, they have nonetheless facilitated new forms and practices of consciousness-raising. Even as private ownership as well as state control and surveillance continue to restrict, shadow-ban and reroute information – these platforms still have allowed the mobilizing of protests. While digital activism has been critiqued as "slacktivism" (Rotman et. al, 2011), it has been a significant driver of transnational digital protest since the Arab Spring (Howard and Hussain, 2014). There also exists a long tradition of transnational, progressive Indian digital protests (Dey, 2020). It is worth noting, however that this literature is based on examination of protests that predate the current moment of surveillance and banning of some types of activist content. Even though the celebration of the role of social media in earlier movements was critiqued – as in the work of Rebecca Mackinnon (2012) and Ramesh Srinivasan (2013) - the critiques were more about access and use than about the power and control of the platforms and private ownership of the platforms. These protests however predate the contemporary moment where platforms are actively working to shadow-ban content from protest movements.

Thus, while scholars have noted that in a post-2007 world, social media does play a key role in mobilization and visualization of local activism to global audiences, they have also expressed concerns around surveillance that have underpinned tactics for transnational digital activism even as far back as during the Arab Spring.

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### *2.4 The Shaheen Bagh protests*

While the overall activism around the pass of the CAA – whether against or for the ruling party was spread all over India – the Shaheen Bagh protest movement has engaged the interest of academics around the world. From 2020 on a variety of academic researchers have written on this topic. These include local researchers and activists (Salam, 2020; Mustafa, 2020; Sinha et. al, 2023) as well as internationally located researchers interested in global south activist movements, feminist researchers highlight women's political activity (Kadiwal, 2021) as well as researchers intrigued by how digital platforms were used during these protests (such as our team).

There were several protests occurring worldwide around this time when the world was also faced with Covid-19 shutdowns and a massive move to online communication as a primary mode of connecting with local and transnational communities. In addition to the CAA/NRC protests in India a few of these included the Black Lives Matter movement (Jackson et al, 2020) mostly in the U.S. and U.K, the Endsars movement in Nigeria (Faniyi, 2023) and the Farmers' protest in India (Mishra et al., 2021), the continuing protests around the Hijab in Iran (Kermani 2023) among others[5]. These studies shed light on how historically marginalized communities as well as global south activists use Twitter to reach global publics. However, with Twitter's transformation to "X" the scraping of data is too expensive and inaccessible to academics for research.

## 3. Methods employed in our project

The tools we used in our visualization of data around the online amplification of the Shaheen Bagh Protests of 2020 were Gephi and Netlytic. Our overall multi-methods approach however was developed through a series of projects. In this paper, however, we primarily focus on datasets collected from our work between December 2019 and the summer of 2020. These datasets shed light on the community-based, women-led protest movement in Shaheen Bagh, Delhi, India, which had gained significant online visibility. We demonstrate our approach by providing illustrative examples in the next section of this paper.

In December 2019, we were exposed to the surge of social media activity originating from India in response to the passing of the CAA/NRC. Our primary challenge at that time was managing the collection of rapidly proliferating digital data. Our motivation for collecting this data initially was to preserve the ephemeral digital content on these social media platforms. We were concerned about the potential loss of all texts related to the Shaheen Bagh protest due to systematic state erasure and Internet blackouts, a trend we had observed. However, we found ourselves asking questions about how the algorithm was throwing up content selectively. We also observed several transnational actors grouping together via message sharing apps such as WhatsApp in attempts to try and amplify content from the protest site. This led us to enter conversation with such transnational actors and to observe their practices within the algorithmic interface.

Algorithmic conditions rely on an intuition that is a "mode of sensing, knowing, anticipating, and navigating the world that exceeds rational analysis" (Pedwell, 2022, p. 3). As Carolyn Pedwell argues, we are seeing a redistribution of cognition through human and technological engagement with machine learning technologies. This suggests that conducting an algorithmic ethnography requires the honing of intuitive reading through and with the platforms and not just what is seen as the symbolic evidence of human output. Further, as Colman et al., (2018), note, the use of algorithms in societies not only results in a change from practical knowledge generation and acquisition but also creates a symbolic logic that materializes into reality. The double effect here is that the algorithmic interface simultaneously and

[5] While we recognize that our list here is not comprehensive, we have noted some that were globally visible through Twitter and that reflect research interests of our team members.

affectively invites intervention – the user of the tool must intervene by doing different things with the data – while also privileging the symbolic – the text and the statistical results. We therefore develop an approach to algorithmic ethnography that focuses on the interplay between algorithmic interactions and the intuitive ways humans navigate digital environments. We emphasize the tangible impacts of context, affect, and intuition, as well as the underlying logics that either contain or amplify certain bodies online and center the importance of telling this as part of our algorithmic ethnographic narrative.

Our research journey, in essence, formed a cyclical path, commencing with our initial curiosity about Shaheen Bagh. This path then led us to track individual profiles and hashtags, delve deeper into data analysis and visualization, collect relevant contextual information, and ultimately reach a point where we conducted ethnographic interviews. Our subsequent analysis required multiple forms of data collection and a multi methods approach (Murthy, 2017). This approach involved utilizing tools that enabled us to closely examine the networks of users and coalitions and use the information we had gathered through interviews and examinations of news reports. Further, it is an accepted fact that methods for studying digital environments "are often experimental and situational, because they develop in tandem with the medium conditions, and occasionally are built on top of other devices" (Rogers, 2019, p. 49).

We, however, understood that we could not use data analytics tools alone to come to conclusions about how the movement was made visible globally through the use of social media. Our engagement with Twitter involved analyzing both the text and metadata of speech acts that are generated from constantly evolving offline contexts and the users' daily practices, as well as the underlying algorithmic logics that facilitate the textual exchanges on the platform. Thus, we found that taking an either/or approach that dichotomizes research into purely "quantitative" or "qualitative" methods was counterproductive. Rather than isolate knowledge production from the everyday use and development of knowledge by binarizing these two as the only ways to discuss methods, we focused on an iterative process of information gathering to help us with contextual readings. Thus, epistemological concerns (and skepticism toward the flatness of data) guided our approach to the analysis as we gathered evidence through multiple methods. The techniques for data collection followed by methods for organizing the data are therefore linked through an investigation of context and historical understanding. The situated contextual understandings that each of our co-authors and the larger group of collaborators brings to the project are fundamental. Sarah Florini (2019) has emphasized the importance of knowing cultural contexts to understand the specificity of users' practices or how technology shapes users' behaviour.

Donna Haraway in 1988 noted how knowledge production is always already situated. Taking this further into the algorithmic realm, we see that the situatedness is embedded, captured, into the infrastructure and the very ways in which the platforms function. Even if we do not consider the personal socio-economic and cultural location of the researchers –the data itself is very much situated and "biased" even as we scrape it. When using our own devices for data collection, we have already trained the platforms to our own first-person orientation (Elmer et al., 2015), and if we use the platforms on public computers and refuse to log in to any of our accounts while gathering the data, they too are oriented to users somewhere. The gathering of data is always already shaped by the situated knowledge orientations of the tools as much as of the researcher.

For us, as feminist researchers who typically use qualitative methods, the "largeness" of the data was a relative question. However, for this study, "large" meant thousands of Tweets, a division that would eventually show us the arbitrary nature of the dialectic between "small" and "big" data (Strom, 2012; Shahin, 2016). In addition to compiling large datasets, we also employed a feminist methodological principle of close reading of a select number of texts (Lukić and Espinosa, 2011), referring to tweets, Instagram posts, and ethnographic interviews conducted with activists and protesters at Shaheen Bagh in India and in London. Our aim was not to supersede the descriptions provided by the data, but to "thicken" them, allowing for critical interpretations to emerge (Latzko-Toth et al., 2017). For instance, data collection is based on criteria inputted by the researcher, such as the number of retweets or location, even if the said researcher is inattentive to the algorithmic underbelly of digital platforms. Thus, as Rogers

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notes, even the collecting of data is very clearly a "search as research" (Rogers, 2019, p. 43). We maintain that this highlights the contextual gaps in pure quantitative big data archiving/analysis, which creates contexts that prioritize data over users, researcher location and often non-static, shifting narratives.

A meta layer of reflexivity on the part of the researcher involves the awareness of how our own "algorithmic thought" shapes our intuition in the process of examining the data even as we also pay attention to the Twitter users and their specific interactive practices that produce the data that researchers scrape (Pedwell, 2019, p. 3). As Pedwell (2019) notes, "we become increasingly algorithmically mediated by digital capital at the micro-level of affect, gesture and habit" (p. 3).

Yet, for our team the problem with Twitter research is not just centered on access to the data itself. It is also an issue of approach and methodology. We have noticed that the data we work with often appears to be "low hanging fruit" (see Burgess & Bruns, 2015) due to the way it is approached. There is a common assumption that it is easy to analyze data using computational software to run statistics or that we can simply produce topic models and sentiment analysis because we can code and run esoteric software program features. Thinking on this further – even the hands-on steps that are set standardized for us – what to "clean" and how to clean the data, for instance, are standards that we have adapted to, not originally from our creations (we are not data scientists, after all), but specific rules that are already configured into the software we engage.

For instance, when looking at the intersection of #womenofshaheenbagh and #sheinspiresus (which was a counterpart hashtag created to undermine and sugar coat the affective circulation of dadis (grandmothers) raging against the Indian state during CAA-NRC protests), we would typically run the "connected components" feature in statistics feature on Gephi to show how strongly or weakly people and other metadata in the dataset are connected via a path. We would then apply the strongest connected partition to the appearance of our visualized graph and filter each group as needed. While our method of filtering and selecting layout algorithms humanizes our methods, we still act as assistants to this software that inducts us into layered algorithmic automation and conditioning of contexts. As noted by Colman et al., (2018), the algorithmic condition drives us towards privileging the symbolic – whether numbers, image, or text. Therefore, while relying solely on traditional textual or quantitative analysis might give us a sense of discovery and accomplishment, it nonetheless keeps us confined to our symbolic environment.

A feminist algorithmic ethnographic approach to using these tools, however, puts the symbolic environments in perspective. We understand that social network data comes to us in personalized modes through algorithms that have come to "know" us, and through interlocutors whom we summon into interviews, even as we try to mitigate the "exploitative power dynamics" (Sobande, et al., 2020) by centering the significance of speaking with people based on who we were able to access for interviews. Thus, not only do we need to be self-reflexive about how we gather and examine our multi-pronged data, but we also need to become aware of how the machine (and even our interlocutors) likely already present data to us in particular and situated ways.

## 4. Themes visualized

The following key themes show how the different methods we used contributed to our understanding how the online and global visibility of women protesters from Shaheen Bagh was happening through small networks or variously situated and often scattered actors. We note that platform-specific practices and intentional political/activist strategies offline mediate and/or shape the emergence of specific women as globally and publicly visible political agents (see Edwards et al 2024, Gajjala et al 2023a; Gajjala et al 2023b). Examples here are not intended to overshadow nor claim absolute knowledge of the strategy and labor of the offline community members at Shaheen Bagh. Rather, they serve as illustrations of transnational amplification of the movement. The examples here are taken from Twitter data mining tools

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provided by platforms such as Netlytic and Gephi which are designed to mine, organize, and visualize large amounts of data.

The themes also reveal productive tensions and communicative gaps as western-located transnational/diasporic activists connect with geographically distant movements and the struggles of the on-site local activists as they seek to reach out to global/digital audiences. The interaction between individual and text takes place through mobile devices, while each of the bodies in a cluster/network itself may occupy physical space elsewhere. Within the social media archive a tweet initially conveys a sense of urgency and prompts immediate responses. It initially enters the public sphere as an individual textual/visual statement. It then remains there, awaiting revival by another user either as retweets or replies to it. The Twitter archive is both a live representation of the present and serves as a record of a spoken statement, essentially offering a "receipt" of what was said. This unique feature of social media, combining immediacy and archiving, has given rise to the practice of "showing receipts" (Brock, 2020, p. 19). These practices underscore the fluid boundary between public and private, as well as the intertwined but sometimes concealed existence of personal and public aspects in social media space. These practices significantly contribute to the strategies employed by protest movements in using social media, particularly in Twitter's public sphere. However, they also introduce an element of unpredictability over time, as different emotional responses to Twitter posts can influence the algorithmic structures in various ways.

### *4.1 Transnational coalitions amplifying digital visibility*

The process of identifying actors, represented as nodes in the datasets, involved an understanding of the movement acquired through various sources. These included informal discussions with activists and researchers, formal interviews, and attention paid to the coverage of certain actors in mainstream news media. In this sense, our work was inductive as we got information and themes from interviews using a constructivist grounded theory approach (Charmaz, 2006) to contextualize what was visible in the Twitter data.

Once we recognized certain actors and patterns through such a process, we moved recursively back and forth between searching for reports and people to interview further (see figures 1 and 2 below). This is how we learned about transnational coalitions that were involved in trying to nudge the algorithm to make certain hashtags “trend.” For example, an interviewee told us there had a concerted effort to hijack the #sheinspiresus (a hashtag initiated by pro-government actors) and to connect it visibly with #womenofshaheenbagh (a hashtag for amplifying the presence of the protesting women). They were attempting tweet storms so that the latter hashtag would connect and trend. Yet it is worth noting that numerically the number of tweets and the size of the networks around #sheinspiresus was significantly larger than the size of the networks around #womenofshaheenbagh. Yet the transnational visibility of the women of Shaheen Bagh led to them being profiled in international media outlets such as the Times Magazine. The interplay of traditional media and online media internationally therefore points to media amplification strategies that go beyond social media.

Still, as social media researchers we focused on the claims made in interviews regarding transnational activist efforts to make the hashtag trend. One way we did this was by looking through the networked data for what are known as “in-degree” and “out-degree” centralities (that is, the number of inbound and outbound connections directed to a user that establishes them as an authority in a dataset), and strongly connected clusters around the usernames mentioned in the interviews with members of transnational coalitions of activists.

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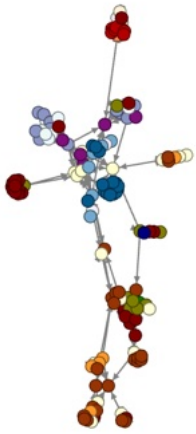

**Figure 1.** A cluster from the larger dataset after running the modularity algorithm and then the ForceAtlas2 layout.
*Running this layout helped us spread out the nodes and identify relationships between users and also to see what they tweeted.*

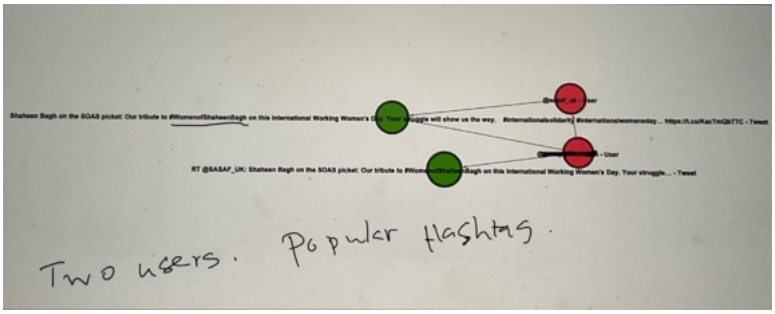


**Figure 2.** A sample of how we Identified users to contact for interviews. We made notes on the figure so in order to map those we would try to interview.

To get at the strongly connected nodes and clusters, we used a range of features in Gephi. First, we ran some statistics through the statistics menu in Gephi – these identified actors with a high frequency of Twitter activity in that cluster and those nodes (not all nodes were Twitter users) connected strongly to each other and so on. Then we ran an algorithm layout called "ForceAtlas2"[6] layout which spatialized the network to visually spread-out nodes and view them relationally. As a result of running this layout algorithm, the nodes were spread out but also clustered together into communities of connected nodes. Then we filtered out strongly connected node cluster to examine each one even more closely. Figures 1 and 2 show a small cluster that filtered from the larger dataset after we had run the modularity and connected components algorithms. The modularity algorithm is usually run to examine how a network is divided into groups/clusters. We then ran degree and eigenvector centrality algorithms to see which specific nodes seemed to connect to each other through the tagging and retweeting of posts. Tagging and retweeting of course did not necessarily signify consensus or disagreement.

[6] "ForceAtlas2" is a force-directed layout close to other algorithms used for network spatialization. It is a default algorithm to use on Gephi. We found that running this algorithm and following it with the running of the "Label Adjust" algorithm to be most useful in helping us closely examine smaller clusters of strongly connected notes to observe how they connected with others – whether through be tagged or retweeted or because they were tagging several others and so on.

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We were, however, less interested in the numbers here because we were not merely doing a description of the network that became visible from the timebound scrape we did. Generalizing from what we saw as activist networks was not as important to us as trying to see which actors were tweeting and retweeting certain content and identifying whether the tweeting and retweeting was being done in support of or in opposition to the messages coming from the community-based activists in Shaheen Bagh. Thus, what we were doing was detailed *small* data work from parts of the larger datasets. Worth noting here that the relationship of the smaller data clusters within the larger datasets was important, however. It would not have been enough to just copy paste select tweets and examine them as texts outside of the context of the larger datasets. Examining the smaller datasets as part of the larger scenario is what allowed us a contextual understanding of these fractured moments of activism.

The numbers alone do not tell the story of the impact or support for the activists. The success or failure of an offline social justice movement cannot be assessed based on just what is tweeted at any moment in time. In fact, any generalizations about the larger protest movements that we might have drawn just from that section of data would have been wrong. Twitter is a dynamic site and actors and content shift in relation to real life events offline. Within the eco-system of Twitter, the movement might encounter context collapse (Marwick & boyd, 2011) or even time collapse as people find old tweets and restart discussion and debate by bringing it into the current moment (Gajjala et al, 2023). This is also why our discussion of the data is centred on questions of intervention in this discursive public space. Were the tweets targeting a global, international audience or a local Indian audience – or both simultaneously? How were they working with and against the platform affordances? While interviewing a range of local and international people involved in creating social media presence for the movement, we tried to get a sense of what these actors were engaged in both online and offline and how they viewed their contributions to the protest movement.

Figure 2 above gives us a closer look at the smaller section after we ran a "Label Adjust" layout so that the labels were spread out. The nodes and connections were more visible to the naked eye. The visualization in Figure 1 was a screenshot taken to share on a WhatsApp group where we were discussing what our next steps should be. One of our collaborators at that time was from U.K. (we refer to her as "Y" in this article). She recognized nodes belonging to members of the activist group that she herself was a part of. She connected us to members of the activist group, and we together interviewed a few of them. Figure 3 below shows a screenshot of us asking Y to connect us with other members of the group once we realized who the nodes represented.

What is significant here in terms of our methods is that it was not until we visualized the data and observed the clusters of nodes that we fully recognized the reality and actuality of the efforts being made by Y and other transnational actors to amplify #womenofshaheenbagh. Thus, the visualization of the nodes representing these actors served to verify the qualitative statements made during the interviews and conversations. Seeing this visual nodal evidence in the data encouraged us to continue interviews with members of the transnational activist group. We were able to understand and historicize the role of transnational/diasporic progressive activists by doing more in-depth interviews, revealing that these transnational/diasporic activists were not just clicktivists who got involved at a surface level, as is sometimes assumed. Rather, they had a long-standing history of providing support to those fighting against oppression in the South Asian subcontinent.

It must be noted, however, that even though in this paper we only write of progressive anti-fascist groups, the role of diasporas in Indian politics is not limited to these types of groups. The conservative right-wing government has a larger diasporic support structure with significantly more financial backing than those who oppose the government. While we discuss strategies deployed by diasporic feminist activists working to amplify the Shaheen Bagh protests on Twitter from afar, to make the movement visible to a sympathetic global audience, these tactics are not exclusive to progressive collectives. Rather, the social media platforms provide these affordances to all users.

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These same principles we have documented are today being utilized by far-right Indian Hindu nationalists coalitions located in the US (Edwards, 2023) There is a vibrant far-right Indian Twittersphere (Bhatia. 2022), and far-right Indian Hindu nationalist users in India and in the diaspora deploy similar strategies to foster transnational connections and visibility (Gajjala et. al in-progress).

Our process demonstrates the utility in deploying a feminist multi methods approach to track and illuminate political movements within and against the algorithmic conditions Twitter presents. Making visible historically marginalized women's political agency is fraught with obstacles – offline and online, in personal space and public space. So, the why question must be raised – why did transnational and other activists work to create visibility for this group of subaltern women from a low-income community in Delhi? Part of the answer lies in the offline movement's strategy. The highlighting of a certain image of an older Indian nationalist peace loving, community-oriented woman was strategic[7] (Gajjala et al., 2023). Thus, it is the offline community-based strategy and actors that ultimately shaped how the movement got amplified. As one of our interviewees noted, this was another strategy to invoke the non-violence resistance of Gandhi to the present times when this protest was termed "anti-national" by certain segments of the present government. Groups like United Against Hate came forth to recognize the "compassionate" and "peaceful" nature of the protest. One such older woman, Bilkis Bano – an elderly woman, became the face of this. Bilkis was included in Time Magazine's list of 100 most influential people in the world in 2020, where she was described as the "voice of the marginalized" and a symbol of resistance.

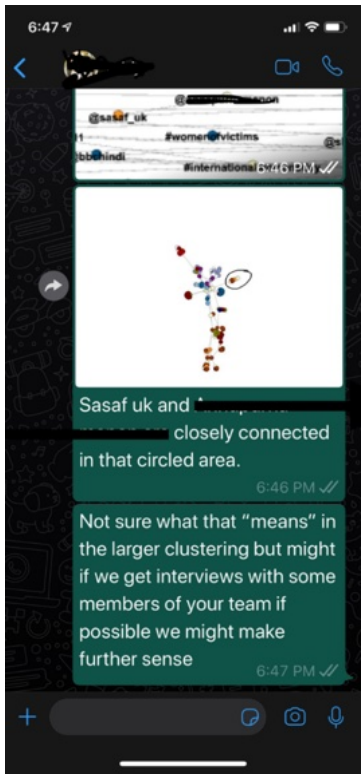


**Figure 3.** Sample message sent by team leader on WhatsApp to an interviewee and co-researcher discussing the cluster from Figure 1.

[7] Once again it must be emphasized that "strategy" does not imply insincerity or something that is not real or intentional and spontaneous.

### *4.2 The internet celebrity*

In the previous theme we noted transnational activist interventions. Here we discuss how we were able to visualize the specifics of how the presence of a perceived local celebrity contributed to the amplification. As other researchers have noted when celebrities either participate in Twitter storms or they are tagged by others there is significant amplification for the cause (see for instance Mishra et al., 2021).

Yet the fractured nature of how the protests happened offline was reflected through the data gathered as well. With various spontaneous actors joining the movement either performatively or by coordinating their efforts with the grassroots activists the protest movement was by no means strategically controlled by one set of activists. One of our interviewees (who also agreed to be a co-author on two of our academic publications) told us that groups of activists on the physical site of protest were also fragmented. She noted that individuals participating in the protest became more noticeable not only because of their physical presence at the site but also because of how social media users on both sides of the political spectrum highlighted their offline statements about the protests. The reasons for why certain offline actors were amplified in social media vary but certainly when celebrities appeared at the protest site there was much social media activity about their presence. When celebrities visited the protest site to show their support crowds quickly gathered around them onsite and several people shared this information while tagging the social media handle of the celebrity. In such cases, if those sharing and tagging also used the hashtag connected with the movement, the amplification was significant. Figure 4 is a visualization from our search for the participation of known celebrities – particularly Bollywood actors. Here the one node that tags several Bollywood actors is a Twitter post node that comes from a user who is clearly pro-CAA/NRC. The text actually calls out these Bollywood actors for supporting the protests. In this instance doing a mere textual/qualitative reading would not have given us an understanding of the larger impact while doing just a quantitative description would have given a wrong impression. The culture of calling out on Twitter leads to this practice – however, since the algorithmic logics of the platform amplify content based on the largesse of follower count among other metrics – the hashtag from the activists still got amplified. The linguistic meaning of the actual tweet – "all these women are part of the ill-famed #womenofshaheenbagh… Losers indeed!" – becomes secondary or irrelevant or differently relevant.

**Figure 4.** Celebrity users tagged to amplify content.
*Tweet by a pro-CAA/NRC Twitter user that tags the Bollywood actresses who supposedly support the women of Shaheen Bagh. The text of the Twitter post states: "all these women are part of the ill-famed #womenofshaheenbagh… Losers indeed!"*

Thus, we see that even at the local site, the movement happened through a combination of spontaneous and planned actions of various smaller groups and individual actors, including celebrities and students who came to the site. The local community and their ethic of care – as they maintained an inviting and peaceful protest site, handing out tea and snacks to visiting protestors – was particularly noted (Gajjala et. al., 2023). The pro-CAA groups started to belittle the activists who came to support the community by accusing them of coming just to have "biryani" - a delectable dish, made of rice and meat, famous in South Asia. One of our interviewees noted this fragmented nature of the overall movement on-site. She said that the protest sites were fractured because of what became visible to outsiders.

It can be argued that the activities and relationships facilitated by social media, both on and off-site, "generate both individual and collective action and conceive of the individual and collective as the result of a socio-technical genesis" (Renzi & Langlois, 2015, p. 205). Thus, the social media praxis cannot be considered extraneous and outside of the local community activism. It is integral to the internal offline community-based activism and the strategic and careful staging of citizenship, community care and loyalty. This is a form of *transindividuation*, which Alessandra Renzi and Ganaele Langlois (2015) describe as the emergence of individual supporters and large crowds, which can be attributed to various factors, including the "data analysis and complex algorithms that extract surplus value from social justice causes (while supporting them), viral information circulation, and the emotions circulating on social media networks converge to establish a new relationship between the one and the many" (p. 206).

Even efforts to erase and silence the events took place both offline and online. Eventually, the Covid-19 shutdown presented authorities with a chance to dismantle and clear the protest site. Ironically, though, while the movement's termination occurred through multiple means offline, the digital images gathered by different activists, whether disseminated on social media or not, became some of the concrete evidence that the movement had taken place.

### *4.3 Uncertain material and virtual archives*

In March 2020, we observed some key actors on Twitter tagging the Delhi police Twitter handle regarding the violence that had occurred as soon as the Covid-19 shelter-at-home was announced in India. The authorities used this as an opportunity to shut down all protests with force. The protest graffiti on the walls of Shaheen Bagh was being erased as there were orders to whitewash the walls. A few of the protestors and onlookers continued to Tweet out these conditions to the world – enabling a virtual witnessing of what was occurring. Some of the Tweets were threaded together with the hashtag "InquilabJaariHai" (the revolution lives). Even though this was a fairly small data set we came to know of this hashtag because one of the transnational activists we were working with called our attention to it. When our attention was drawn towards this hashtag, of course we proceeded to collect data using the key word "InquilabJaariHai." Some of the Twitter handles that had the highest visibility in the dataset scraped, have since then either deleted their accounts or had their accounts suspended. Figure 5 shows how we began to identify the most active accounts. The Twitter handle labels is hidden under the black ink since we do not wish to reveal the activist names whose accounts were subsequently deleted. Figure 6 shows how we narrowed down the search using features available on Netlytic platform, and finally in Figure 7 we see how central the Delhi Police's Twitter handle is to this dataset. However, what is key here is that this moment of violence against the protestors under the guise of Covid-19 lockdown would not have been recorded or known beyond the local community were it not for the Tweet storms that these users organized. The series of images from Figure 5 to Figure 7 thus are meant to illustrate how we combined knowledge gained from interviews to locate data points and get a further understanding of the importance of what might be seen as uncertain archives (Thylstrup et al, 2021).

As Nanna Bonde Thylstrup and co-authors point out, big data archives are uncertain because of the ways in which the private owners of the platforms work with various state actors to suppress and disappear evidence of protest movements. When we examined this cluster again two years after we collected the

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data, we searched for the prominent actors and the hashtag. Some of the content we had in our offline data collection was missing in online publics. Yet in the case of Shaheen Bagh, we saw that material evidence (archives in the form of graffiti and protest art) was also erased. Our team and our collaborators therefore accidentally became archivists holding this evidence of the protest movement in offline digital repositories.


**Figure 5.** Dataset around InquilabJaariHai. Locating the most visible Twitter handles in the data set " InquilabJaariHai"

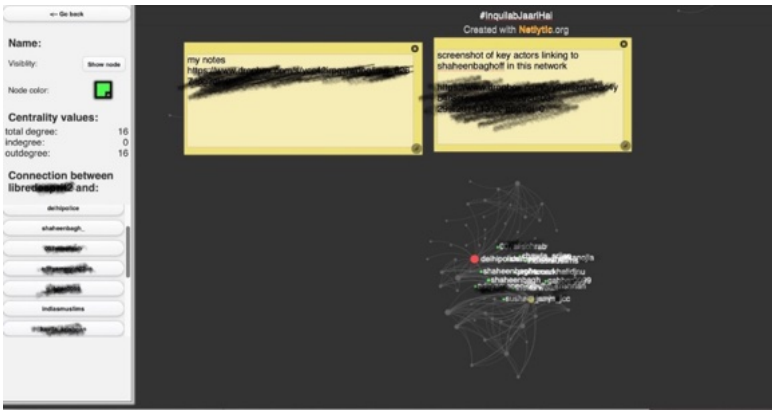


**Figure 6.** Sticky notes used to annotate Netlytic data.
*Sticky note feature on Netlytic used as place markers to take notes while examining the connections between the most visible nodes.*


**Figure 7.** Dataset from Netlytic uploaded to Gephi for closer examination.

*The dataset was downloaded from Netlytic as Graphml file and uploaded to Gephi to highlight the central nodes. Different ways of looking at the data provided insight and help us locate significance as we did follow up interviews.*

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## 5. Conclusion

Our experience as feminist researchers operating in digital spaces has highlighted the importance of adopting a multi-methods approach that encompasses multiple sites. Specifically, in our case, we collected data from both social media platforms and the offline site, thus gathering insights from a diverse range of subjects. These included social media users with varying political affiliations and the protestors on the ground. We were engaged in an algorithmic ethnography that distinguishes itself from normative approaches to tracking and analyzing digital social movements. This nuanced engagement with data distinguishes our research from flattened big data approaches and inspires us to name our approach as a feminist intersectional small data analysis.

By taking this holistic approach, we gained a comprehensive understanding of the sudden emergence and recognition of the women of Shaheen Bagh as subaltern political agents/subjects. Drawing from Dhiraj Murthy's observation that Twitter can be thought of as a "field" in the Bourdieusian sense, we focused on immersing ourselves in the environment and "gaining experiential/cultural knowledge about [the] tweet corpus" (Murthy, 2017, p. 1). Only by entering this digital field were we able to fully consider the practices and social and material capital (access and literacy) needed for engaging with Twitter discussion spaces. Twitter engagement is not accidental, but intentional and an intervention into world views. While Twitter has both naïve and spontaneous everyday users, it also has strategic and planned actors such as influencers and activists who have developed strategies to create algorithmic visibility, and this shifting between on and offline visibility and strategic planning only becomes legible when researchers and collectors look within and beyond data corpuses to actors. Through our feminist intersectional small data analysis, we pushed back against both the reliance on big data methods and what Sophie Bishop refers to as the "fetishization" of "hard" in-person ethnography in comparison to digital ethnographies (Bishop 2018, 143). We do this by placing significant emphasis on our algorithmic intervention which involves a circular process of scraping, immersing, collecting, and then diving back into the data, allowing us to trace these connections outward to the people and collectives engaged in activist work and preservation.

Further, much of public Twitter engagement is planned through WhatsApp groups and other offline modes of group communication. During the anti-CAA/NRC protests, we witnessed some of this unfolding as several groups of supporters gathered in groups on various messaging platforms to discuss and plan responses to the situation and to offer help. Some were collecting visual evidence of police brutality on-site, and others were storing away archives of protest art and signage, fearing that they would be destroyed, confiscated, or whitewashed at any moment. Our findings highlight the significance of digital activist archiving. As Hui (2015) argues, the will to archive transforms both digital and on-site platforms into sites of power. The iterative process of response and collection carried out by supporters becomes identifiable and meaningful when we focus on relational, networked connections as manifested in the data.

By engaging in radical performances of care-oriented context creation and the reconstruction of memories, both online users and on-site actors further underscores the importance of a holistic approach to data collection that captures even the smallest cultural nuances and specificities, such as the hashtag InquilabJaariHai, that constitute the dense mass of big social data. We argue that to access multiple field sites and refrain from privileging or isolating one context requires addressing the imbrication of the online and offline in contexts of digital social movements. It is, therefore, imperative for feminist scholars to embrace an approach to algorithmic ethnography, that narrates how we break through the algorithmic conditions of digital platforms and network analysis tools and situated biases to unveil the nuances of digitally mediated social movements.

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## References


Benjamin, R. (2019). Race after technology: Abolitionist tools for the new Jim code. John Wiley & Sons.

Bhatia, K. V. (2022). Hindu nationalism online: Twitter as discourse and interface. Religions, 13(8), 739.

Bishop, S. (2018). Fetishisation of the "offline" in feminist media research. Feminist Media Studies, 18(1), 143–147. https://doi.org/10.1080/14680777.2018.1407120

Boellstorff, T. (2015). Coming of age in Second Life: An anthropologist explores the virtually human. United States: Princeton University Press.

Brock, A., Jr. (2020). Distributed Blackness. NYU Press.

Burgess, J., & Bruns, A. (2015). Easy Data, Hard Data: The Politics and Pragmatics of Twitter Research After the Computational Turn. In G. Langlois, J. Redden, & G. Elmer (Eds.), Compromised data: From social media to big data (pp. 93–111). Bloomsbury Publishing USA.

Charmaz, K. (2006). Constructing grounded theory: A practical guide through qualitative analysis. Sage.

Christin, A. (2020). Algorithmic ethnography, during and after COVID-19. Communication and the Public, 5(3-4), 108-111.

Colman, F., Bühlmann, V., O'Donnell, A., & van der Tuin, I. (2018). Ethics of coding: A report on the algorithmic condition [EOC]. European Commission. https://dspace.library.uu.nl/handle/1874/396432

D'Ignazio, C., & Klein, L. F. (2020). Data Feminism. MIT Press.

Dey, A., (2020). Sites of exception: Gender violence, digital activism and Nirbhaya's zone of anomie in India. Violence Against Women 26(11), 1423–44

Edwards, E. L. (2023). Digital Islamophobia: Tracking a Far-Right Crisis. Walter de Gruyter GmbH & Co KG.

Edwards, E., Ford, S., Gajjala, R., & Bhatia, K. V. (2024). Shaheen Bagh: Making sense of (re)emerging "Subaltern" feminist political subjectivities in hashtag publics through critical, feminist interventions. New Media & Society, 26(1), 473-494. https://doi-org.ezproxy.bgsu.edu/10.1177/14614448211059121

Elish, M. C., & boyd, danah. (2018). Situating methods in the magic of Big Data and AI. Communication Monographs, 85(1), 57–80. https://doi.org/10.1080/03637751.2017.1375130

Elmer, G., Langlois, G., & Redden, J. (2015). Compromised data: From social media to big data. Bloomsbury Publishing USA.

Faniyi, O. (2023). A herstory of #EndSars: Nuances of intersectionality in Nigeria's movement against police brutality [Master's thesis, Bowling Green State University]. Ohio Link Electronic Theses and Dissertations Center.

Florini, S. (2019). Beyond hashtags: Racial politics and Black digital networks. NYU Press.

Gajjala R (2011) Snapshots from sari trails: Cyborgs old and new, Social Identities, 17(3), 393-408, DOI: 10.1080/13504630.2011.570977

Gajjala R, Edwards EL, Rahut D, et al. Transnationalising Dadis as Feminist Political/Activist Subjects. Feminist Encounters: A Journal of Critical Studies in Culture and Politics. 2023;7(1), 08. https://doi.org/10.20897/femenc/12886,

Gajjala, R., DeGalan, A., Rahut, D., Akbar, S. Z., & Jain, J. (2023b). Women activists imaged through social media publics: The "Fiesty Dadis of Shaheen Bagh" as political subjects. In M. Lunenborg & B. Rottger-Rossler (Eds.), Affective formation of Publics: Places, networks, and media (pp. 105–128). Routledge.

Haraway, D. (1988). Situated knowledges: The science question in Feminism and the privilege of partial perspective. Feminist Studies, 14(3), 575–599. https://doi.org/10.2307/3178066

Howard, P.N., & Hussain, M.M. (2013). Democracy's fourth wave?: Digital media and the Arab spring. Oxford University Press.

Hui, Y. (2015). A contribution to the political economy of personal archives. In G. Langlois, J. Redden, & G. Elmer (Eds.), Compromised data: From social media to big data (pp. 226–246). Bloomsbury Publishing USA.

Jackson, S.J., Bailey, M. & Welles, B. F. (2020). #HashtagActivism: Networks of race and gender justice. MIT Press.

Kadiwal, L. (2021). Feminists against Fascism: The Indian female Muslim protest in India. Education Science, 11(12), Article 12. https://doi.org/10.3390/educsci11120793

Kermani, H. (2023). #MahsaAmini: Iranian twitter activism in times of computational propaganda. *Social Movement Studies*, 0(0), 1-11. https://doi.org/10.1080/14742837.2023.2180354

Latzko-Toth, G., Bonneau, C., & Millette, M. (2017). Small data, thick data: Thickening strategies for trace-based social media research. In L. Sloan & A. Quan-Haase (Eds.), The SAGE handbook of social media research methods (pp. 199–214). SAGE.

Lukić, J., & Espinosa, A. S. (2011). Feminist perspectives on close reading. In R. Buikema, G. Griffin, & N. Lykke (Eds.), Theories and methodologies in postgraduate feminist research (pp. 105-118). Routledge.

MacKinnon, R. (2012). Consent of the networked: The worldwide struggle for internet freedom. Basic Books.

Mann, C., & Stewart, F. (2000). Internet communication and qualitative research: A handbook for researching online. SAGE.

Marwick, A. E., & boyd, d. (2011). I tweet honestly, I tweet passionately: Twitter users, context collapse, and the imagined audience. New media & society, 13(1), 114-133.

Mishra, D., Akbar, S. Z., Arya, A., Dash, S., Grover, R., & Pal, J. (2021). Rihanna versus Bollywood: Twitter influencers and the Indian farmers' protest (arXiv:2102.04031). arXiv. https://doi.org/10.48550/arXiv.2102.04031


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Murthy, D. (2017). The ontology of Tweets: Mixed-method approaches to the study of Twitter. In L. Sloan & A. Quan-Haase (Eds.), The SAGE handbook of social media research methods (pp. 559-572). SAGE.

Mustafa, S. (ed.) (2020). Shaheen Bagh and the idea of India: Writings on a movement for justice, liberty and equality. Speaking Tiger Books.

Noble, S. U. (2018). Algorithms of oppression: How search engines reinforce racism. NYU Press.

Pedwell, C. (2019). Digital tendencies: Intuition, algorithmic thought and new social movements. Culture, Theory and Critique, 60(2), 123–138. https://doi.org/10.1080/14735784.2019.1579658

Pedwell, C. (2022). Speculative machines and us: More-than-human intuition and the algorithmic condition. Cultural Studies, 0(0), 1-31. https://doi.org/10.1080/09502386.2022.2142805

Pink, S., Horst, H., Postill, J., Hjorth, L., Lewis, T., & Tacchi, J. (2015). Digital ethnography: Principles and practice. SAGE.

Pink, S., Sumartojo, S., Lupton, D., & Heyes LaBond, C. (2017). Empathetic technologies: digital materiality and video ethnography, Visual Studies, 32(4), 371-381. https://doi.org/10.1080/1472586X.2017.1396192

Poirier, L. (2021). Reading datasets: Strategies for interpreting the politics of data signification. Big Data & Society, 8(2). https://doi.org/10.1177/20539517211029322https://doi.org/10.1177/20539517211029322

Renzi, A., & Langlois, G. (2015). Data activism. In G. Langlois, J. Redden, & G. Elmer (Eds.), Compromised data: From social media to big data (pp. 202–225). Bloomsbury Publishing USA.

Rettberg, J. W. (2020). Situated data analysis: A new method for analysing encoded power relationships in social media platforms and apps. Humanities and Social Sciences Communications, 7(1), 1–13.

Risam, R. (2018). New digital worlds: Postcolonial digital humanities in theory, praxis, and pedagogy. Northwestern University Press.

Rogers, R. (2019). Doing digital methods. SAGE.

Rotman, D., Vieweg, S., Yardi, S., Chi, E., Preece, J., Shneiderman, B., Pirolli, P., & Glaisyer, T. (2011). From slacktivism to activism: participatory culture in the age of social media. In CHI '11 extended abstracts on Human Factors in Computing Systems (pp. 819-822). https://doi.org/10.1145/1979742.1979543

Rouvroy, A., & Stiegler, B. (2016). The digital regime of truth: From the algorithmic governmentality to a new rule of law. La Deleuziana, (3), 6–29.

Salam, Z.U. (2020). Shaheen Bagh: From a protest to a movement. Bloomsbury Publishing.

Seigworth, G. J., & Pedwell, C. (Eds.). (2023). The affect theory reader 2: Worldings, tensions, futures. Duke University Press.

Shahin, S. (2016). A critical axiology for big data studies. Palabra Clave, 19(4), 972–996. https://doi.org/10.5294/pacla.2016.19.4.2

Sinha, K., Jhalani, P., Khan, A. & Mukherjee, P.C. (2023). Influencers as institutions: Impact of digital politics in the Global South. Global Policy, 14(5), 912-924. https://doi.org/10.1111/1758-5899.13188

Sobande, F., Fearfull, A., & Brownlie, D. (2020). Resisting media marginalisation: Black women's digital content and collectivity. Consumption Markets & Culture, 23(5), 413-428. https://doi.org/10.1080/10253866.2019.1571491

Srinivasan, R., (2013). Bridges between cultural and digital worlds in revolutionary Egypt. The Information Society, 29(1), 49-60. https://doi.org/10.1080/01972243.2012.739594

Strom, D. (2012, August 3). Big data makes things better. Dice Insights. https://www.dice.com/career-advice/big-data-makes-things-better

Tseng, Y. S. (2022). Algorithmic empowerment: A comparative ethnography of two open-source algorithmic platforms–Decide Madrid and vTaiwan. Big Data & Society, 9(2), 20539517221123505. https://doi.org/10.1177/20539517221123505

Thylstrup, N. B., Agostinho, D., Ring, A., D'Ignazio, C., & Veel, K. (2021). Uncertain archives: Critical keywords for big data. MIT Press.

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# Dwelling as method: Lingering in/with feminist curated data sets on Instagram

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## Abstract

This article proposes and delineates "digital dwelling" as one method of grappling with a central methodological challenge that we, as feminist researchers, face of how researchers might account for the multiple entanglements of affect, history, culture, politics, and resistance within feminist digital media artifacts. Using our method of digital dwelling, we analyze three sets of carousel posts on Instagram from three different accounts: Intersectional Environmentalist Collective, For the Wild, and Richa Kaul Padte. We explore how the inter, para, and meta-textual arguments curated through these carousel posts change the ways audiences relate to one another and to the current political moment, and how audiences, including individual researchers, are situated in affective and embodied ways within the research scene. By demarcating small, embodied data curation as a key space of method and analysis, we suggest that the personal relationships we develop in community as researchers with located acts of transgression, like these posts, are significant to consider more fully through their *emergent intertextualities*, especially for those invested in contemporary social media, protest, and visual cultures.

Keywords: social media, visual methods, digital culture, activism

## 1. Introduction: "The possibilities explode"

On day thirty-two of #the100dayproject, an "annual global art project" where users post 100 days of their art on Instagram (@dothe100dayproject), artist Richa Kaul Padte (@richakaulpadte) shared an image on her account of an underwater spider delicately balanced upon an earth colored seabed. On cut out pieces of white rectangles, typewritten text overlaid on the image reads:

When we say

'believe women'

the possibilities explode.[1]

[1] Posted on June 21, 2020 on the Instagram account @100forhirish, https://www.instagram.com/p/CBsKIqunseu/.



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For us, the compelling nature of this image-macro media artifact lies in the way that it juxtaposes an aestheticized abstract image from nature—that of an underwater spider, a being often associated with a mixture of repulsion and awe—with an explicitly feminist political statement. This combination of image-macro meme with digital feminist messaging is not new; indeed, it has been a throughline within feminist digital activism since even before the viral uptake in 2017 of Tarana Burke's "Me Too" movement. And yet, the text, "when we say 'believe women' the possibilities explode," remains notable for how it situates a sense of the past, present, and future as coinciding within a single phrase of resistance and hope. "When" indicates a time in the past or the future for the action of "we say;" the second part of the statement, "possibilities explode," suggests the future potential of this actionable possibility. Laid against the image of the sea spider—eight legs, reaching out and extending past all sides of the edges of the frame, body leaning in towards the viewer—we are interpolated into this polyvalent moment of time and space where the impetus to believe women seeks to ensure the possibilities of feminist activism can explode. As we dwell with this post, we read an emergent theme about the need to (warily) work with the tools around us for their feminist possibilities amid the ongoing catastrophes of the everyday. This post is just one example of how feminist activists engage with the affordances of Instagram to protest the misogynist and often nihilistic realities of our digital social worlds. These accounts productively use the platform's grids and ability to post multiple slides in sequence (or what is more commonly known as a carousel) to advance cultural critique. This is one of many ways that feminist activists currently encourage visual protest in online space. Through the semiotic chain of relations these affordances offer, such activist accounts find new ways to prompt their audience of followers to question the various, and often competing, ideologies that circulate with ease in our digital landscapes.

Our consideration of this post aims to reveal the slow method of lingering with digitally born content to uncover techno-imaginaries of resistance they may offer. This content is a valuable form of techné—the images, their texts, their digital environments, and the meanings we might individually and collectively infer from them—that makes up the dynamic components of "media events" (Rentschler and Thrift 2015) that serve as a rich research scene. Within contemporary media practices, digital activisms mobilize a particularly poignant iteration of the 'personal is political' through anecdotes, stories, and visual cultural representations that evoke the materiality of lived experience within digital spaces of hashtags, memes, reels, and more. These personal and political media events create networked digital communities for speaking back to power through calling attention to misogyny. Each of these articulations within networked activist spaces constitute media events that create ripple effects into larger discursive fields and structures. Such media events are part of larger stories: "non-linear lived, and living, histories that have led to moments of personal or other disclosure, whether those disclosures are textual, visual, verbal, or all of the above, and the possible futures that may come to be through such disclosures." (Wiens 2021b, 10). In this article, we suggest that dwelling with the stories that such media events reveal––our own embodied intertextual, spatial, and temporally-inflected encounters—constitutes an important method of visual cultural protest and analysis.

Within this heightened digital moment, where algorithms and big data figure as key players, our opening encounter with the single image of the sea-spider is significant for how it leads to a digital feminist Instagram subculture of carousel posts, as well as how our engagement with it requires time and space where less data is more. This post-as-media event compels us to dwell as an act of both scholarship and scholarly resistance to the imperatives of impersonal, rapid data analysis. Within this context, these carousels function as media events that offer insights into how we might "do feminism" (Rentschler and Thrift 2015) in critically productive and sociopolitically-grounded ways. This article thus advances a method of collaborative and embodied digital dwelling (MacDonald 2018; Wiens 2021a, 2022ab) for assessing the complex digital visual cultural texts of feminist media events and their entanglements with social, political, economic, and technological forms of power. Rather than rely on the randomization, scaling, coding, and flattening of algorithmic and big data, which can overlook the complexities of networked textual and visual communication integral to feminist online activism, we propose digital

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dwelling as a counterpoint. As J.J. Gieseking (2018) writes, we explicitly need datasets that are not abstracted aggregates of data in order to "call out the voices of the marginalized," while also "refus[ing] to be made small ever again" (154). Following this call, we look to the emergent practice of curated carousel posts of Instagram, where creators pull together sets of reels, TikToks, memes, Tweets (now X posts), and personal photography into one single post for their followers to swipe through.

In what follows, we draw on our humanities roots and our feminist commitments to first delineate our proposed method of digital dwelling as one way into analyzing these curated datasets. Using this method of digital dwelling, we analyze three sets of carousel posts on Instagram from three different accounts: Intersectional Environmentalist Collective, For the Wild, and Richa Kaul Padte. From these carousels, we explore how the inter, para, and meta-textual arguments (Genette 1991) curated through these carousel posts change the ways audiences relate to the content and how it builds associative relationalities to the current political moment. Ultimately, by demarcating small, embodied data curation as a key space of method and analysis, we suggest that the personal relationships we develop as researchers with located acts of transgression, like these posts, through digital dwelling are significant to consider more fully, especially for those invested in contemporary social media, protest, and visual digital cultures.

## 2. Feminist media, stories, and small data in digital culture

In digital spaces, as in everyday life, power is informed by the "matrix of domination" (Collins 1990) that looks across structural, discipline, hegemony, and interpersonal domains to examine how power accumulates, organizes, and is then experienced. Drawing on Catherine D'Ignazio and Lauren F. Klein (2020), who rely on the foundational work of Patricia Hill Collins (1990), we understand power as describing "the current configuration of structural privilege and structural oppression, in which some groups experience unearned advantages—because various systems have been designed by people like them and work for people like them—and other groups experience systemic disadvantages—because those same systems were not designed by them or with people like them in mind" (24). Building from these formative texts, when we talk about feminism, we refer to a movement that is not only about women and gender, but about these power dynamics more broadly—who does and does not hold and wield power within the current matrix of domination. This is crucial for studies of technology and the forms of visual cultural protest that occur within spaces that are both reliant on and critical of how technology furthers a variety of inequitable power dynamics.

Reflecting on power, from within digital spaces, racism, sexism, misogyny, queerphobia, and other forms of violence and discrimination continue to exist, furthering racial, gendered, and sexual orientation-based inequalities. Technologies, including the digital spaces of social media, reflect historic and socially ingrained biases, and as such the contexts in which technologies are created contribute to their effects (Benjamin 2019; Broussard 2018; Browne 2015; Nakamura and Chow-White 2012; Noble 2018; Noble and Tynes 2016). Those invested in critical feminist information studies and technology studies understand that current technologies and digital cultures are overflowing with forms of mediated misogyny and racism that promote intimidation, harassment, and "alarming amounts of vitriol and violence" online (Banet-Weiser and Miltner 2016, 171). Platforms and those who use them function as gatekeepers in who they cater to, what they value, and what they present to us as viewers and participants. Not only are algorithms filtering out what social media participants do and not see, but the online groups that these participants choose to engage with create the digital conditions for algorithmic learning and the content that participants can interact with. Together, these media events, platforms, and their para- and meta-texual discourses, are significant for how they "mediate new social relationships and forms of resistance to... inequalities... through critical engagement" (Zarzycka and Olivieri 2017, 528). Such events collectively "name what hurts," (hooks 2012) articulating aloud the harm done in order to draw attention to the matter.

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In tagging individual posts and bringing them together in a collective naming of what hurts, media events like hashtags, memes, and reels articulate and amplify experiences of misogyny, rape culture, racism, and harassment that are structurally, collectively, and individually perpetuated. Notably, much of the research on such media events—while significant in academic and activist ways—depends on big data gathering to assess the current trends and patterns in digital feminist media work. Through using APIs, random sampling, quantitative content analysis, case studies, and big data visualizations (e.g., Bailey, Jackson, and Welles 2019; Brown, Ray, Summers, and Fraistat 2017; Clark 2016; Clark-Parsons 2019; Conley 2014; Keller, Ringrose, and Mendes 2018), traction has been gained in acknowledging the need to study digitally mediated social movements. This research undertaken by feminist media scholars has been foundational in making clear the ubiquity of misogyny, in outlining the violence enacted upon people who are already marginalized in this system. Moreover, this work has illustrated how feminists use media and digital technologies to document and respond to such pressing issues in the last decade, including rape culture, police violence, workplace double standards, and the rise of alt-right white nationalism.

But, as boyd and Crawford (2012) emphasize, big data needs to be critically interrogated. Because the term "is less about data that is big than it is about a capacity to search, aggregate, and cross-reference large data sets," the harmful myth has emerged that "large data sets offer a higher form of intelligence and knowledge that can generate insights that were previously impossible, with the aura of truth, objectivity, and accuracy" (663). As a sociotechnical phenomenon located at the intersection of technology, analysis, and mythology, big data's rise in popularity should necessitate critical questions, including "what all this data means, who gets access to what data, how data analysis is deployed, and to what ends" (664). While this article does not claim to answer these questions, we do offer an alternative approach of digital dwelling for orienting this study of media events, focusing on Instagram carousels as a form of visual protest. In doing so, we seek to expand the vibrant field of research from the last ten years.

Digital feminist media research (e.g., Conley 2017; Rentschler 2014, 2017; Ringrose and Renold 2014; Thrift 2014) has already made clear that data are interpreted through specific situated knowledges (Haraway 1988) whether this is underscored by researchers or not. The value of embracing the fact of situated knowledge is it allows researchers to speak to the capacity for personal stories and individual media events to, in fact, create stronger objective truths (Harding 1993). While much of this existing research does not specify that they are working with small data, we find this term useful in its counterpoint to the concept of big data. In contrast to big data, small data provides an alternative to large data output and collection and the nuances that big data can often obscure. They are the dynamic and lively particularities and relationalities between individual feminist activist posts and the comments to these posts, and images, memes, and gifs that might be part of the aggregate dialogue or merely a reference in it, in addition to the specific paratextual social, political, and technological contexts they circulate within. Our small data approach focuses on lived experiences, how they are storied, and their consequences within socio-political structures of power. We focus on these "digitally-born artifacts [that] travel within and between various spaces to trace links, histories, and possible futures," tracing the "individual posts, hashtags, comments, images, media stories, the sociopolitical and technocultural contexts from which data emerge, and the relationships between these pieces of data" (Wiens 2021b, ii), all of which of constitute small data.

Leaning into smaller or, as Andre Brock (2015) suggests, "deeper" datasets can bring us more readily to the intimacies of social media participation as a series of narrative stories connected to other stories. Within big data, these same digital intimacies are aggregated and anonymized, coming to represent broad trends and universal objectivities. In response, we argue the need for analyses and approaches to research that look to the complexities of smaller specific pieces of digital data and their contexts within the larger media ecosystem. Focusing on smaller data-sets highlights the relationships between single social media posts, associated comments and images, the paratextual discourses that precede and succeed posts, and

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the networks that enable posts and digital conversations to take place is important in this moment of big data scholarship.

## 3. Digital dwelling with small data

Dwelling first emerged from thinking critically and carefully about the role of the researcher during the research process, as much feminist work has done (e.g., Alcoff 1988; Haraway 1988; Harding 1993; Luka and Millette 2018). As feminists, we take as a central principle the need for social media research to account for the algorithmic oppression (Noble 2018), digital redlining (Gilliard 2016), and "New Jim Code" (Benjamin 2019) that occur when aggregated data are used to make decisions about individuals. Recent scholarship has gestured towards how we might better take up embodiment, materiality, affect, and representation within media studies and digital humanities (e.g., Fotopoulou 2019; Vallee 2020; Wiens et al. 2020; Wiens 2022; Wiens et al. 2023). However, when taken out of these larger datasets and considered in relationship to their sociopolitical and technocultural contexts, the social media accounts they originate on, the platforms they circulate within, and the relationships between these phenomena, we argue that these small digital data are still worthy of investigation and can provide insights into the ways that social media participants understand and resist power and oppression. Across digital feminist media studies, we need to continue to develop approaches to research that acknowledge these kinds of interpretive biases and that value alternative and imaginative processes to big data that embrace and validate smaller subsets of data and processes of digital care that they can lead to through being with these data and processes. This speaks to George and Leidner's (2019) concept of "connective action," which "purposefully utilizes [information systems] to bring people together" in ways that change "the social action landscape" (4). Extending this productive understanding of carousels as collective action, we suggest approaching their analysis through the method of *digital dwelling*. As Tim Ingold (2011) writes, dwelling is "literally to be embarked upon a movement along a way of life," holding close the imperative to be with the world (9). This, we argue, carves out necessary space for analyzing the heteropatriarchal structures that seek to obscure individual voices.

### *3.1 Digital dwelling: Theory and method*

As a method, digital dwelling asks, "that we linger in online spaces to sit with ideas, find out how tools work, how different tactics can be tools, and how they can be used in counter hegemonic ways to center marginalized voices and bring forth new ways of engaging in the world" (Wiens 2021a, 86). Dwelling allows focus on "the relationship between or 'intra-actions; (Barad 2003) of the researcher, research scene, participants, data, affects, and sociopolitical context," "the individual stories found through these data, not just the broader themes or trends of the aggregate," as well as more closely consider "the interconnected domains of influence between individual spheres and their relationship to collective and then structural levels" (Wiens 2021a, 86). As a method, dwelling is a practice undertaken with the tools observed and acquired to sift through the "research scene" (MacDonald and Wiens 2019) to gather all available means of persuasion and information, and then begin to understand those means and that information as data. Dwelling compels us as researchers to "pay attention to the specificities of the space that are overwritten by dominant perceptions and uses of it" (MacDonald 2018, 279). As an embodied act, dwelling enables us to "access and convey [the] layered nature of space" (279) through lingering with stories to reconceptualize research as layered scenes where stories and their affects are valued as data and where research can be understood as "collections of material objects for researchers to study" while "also acknowledging researchers' bodies, voices, and gestures as essential forms of material data" (Wiens et al. 2020, 22). The "intentional presence, embodied focus, and integrative reflection" thus enhances the emotions, affects, environments, and ambivalences of the research scene (Quinn 2021, 4). Dwelling then

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becomes a method for understanding how people have lingered with their own stories as those stories shape and are shaped by other shared stories.

Dwelling asks that a researcher embed themselves as a participant in the research scene, observing the scene, writing research memos, and constantly filtering possible content for analysis in our daily travels across the online spaces that we ordinarily dwell within as everyday social media users. This is not only an effort to understand and deeply consider how the community understands itself, as thick description via ethnography would have a researcher do, but an extended autoethnographic effort to explore how our actions affect the scene and what this suggests for the entangled practices and digital communities we find ourselves in. Indeed, "dwelling is more radical in that it asks that we take up space and that we orient towards not just understanding the story, but towards acting on what we learn in the story. Through dwelling, we can see the tools at our disposal, how they have been used, and how we might use them differently in the future to provoke alternative programs and methods" (Wiens 2021a, 90). Importantly, then, dwelling does not presuppose a separation of our scholarly analysis from our position as viewers embedded in a reciprocal semiotic entanglement, a "multi-mangle" (MacDonald and Wiens 2019) with the carousel posts, or any social media post we engage critically.

Dwelling stands as a method of taking up space and creating a relationship with space "when that space has been denied within the institution—a way to make yourself present, resituate, and to recast colonial, sexist, racist, and/or ableist histories" (Wiens 2021a, 91).[2] Crucially, such feminist dwelling spaces implore us as researchers to understand media events as artifacts situated within specific platforms and circulated by specific technologies that are "not neutral," but rather "*do* things" (Conley 2021, 25). Tara Conley's imperative to look at the relationships between digital discourse, the embodied practices that circulate such discourses, and the ideologies they contain and espouse stand as a key component of dwelling—while her work focuses on hashtag feminism, we can still determine such interrelationships within broader media events through dwelling. And, as Katherine Quinn (2021) urges, this should be done with a spirit of slowness through what she calls "slow methods" of "doodling, deliberative dwelling, ethnographic description" (4) in order to slow down the pace of the research scene and move with its mundane paces. In other words, through dwelling researchers can begin to focus on how "power, affects and practices are entangled with media materialities" (Skageby and Rahm 2018, 2), or, in Sarah Sharma's (2022) words, we can begin to focus on the "medium specific techno-logics" of the platforms (8). This kind of dwelling enables "sticky" (Ahmed 2017) emotions to take up space within the affective structures of the research scene, staying with "feeling out-of-kilter, frazzled, uneasy and/or unsettled and considering the epistemic and political significance of such feelings for research practices" (Chadwick 2021, 570). Bringing together these various components, dwelling enables us to follow media events and archives to better understand how they exist in relationship to the technologies that support them, the ideologies that flow from them, and the bodies, emotions, and affects that surround, interpret, and remix them.

Methodologically, for the Instagram carousel posts we dwell with for this article, these accounts and carousels were artifacts that we had either shared through our direct messaging on Instagram or had saved in a shared folder on the platform—that is, given dwelling's insistence on the researcher's embodied affective reactions to the posts, they hold importance for us as researchers within a specific situated location at a given political and social time. Carousels that other researchers choose will thus be different given their own situated contexts. Once we return to the posts we collect on a daily basis, we then highlight or separate content that speaks to us, constituting the data that instills wonder and "glows" (MacLure 2013) within the miasma of digital content and asks to be engaged further. Once we agree upon the accounts and set of posts, we begin the analysis process by first looking at the account profiles that

[2] As one example, Aditi Jaganathan, Sarita Malik, and June Givanni (2020) describe Givanni's Pan-African Cinema Archive as a "diasporic feminist dwelling space," emphasizing relationships between the UK's art and culture scene and Givanni's personal and professional relationships with African and Asian diasporic film, with other curators and directors, with museums that house and have housed the archive, and with the movements, marginalized cultures, and histories that are represented in the archive.

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house each carousel since they offer context about the account's commitments, activist practices, and media presence, and we then linger with each post in the carousel, writing a thick description for each of the carousels as we engage with them individually and collectively in order to bring out themes, emotions, and greater affects. From here, we build a co-facilitated analysis around the content, whereby we view and engage with content together, taking written notes while in dialogue with the content and each other. This adds another level to the practice of dwelling insofar as we dwell with each other and with our separate readings of work. In staying with these themes and affects, we suggest that dwelling is, ultimately, a method of question-asking and answers: in dwelling with these themes and affects, we suggest that broader sets of questions should be considered, articulated, and explored. This, for us, is the value of a deep comparative reading of the cultural and political contexts of these media events and the formal content that is circulated, including how platform affordances are operationalized to communicate their forms of aesthetic resistance. This opens space to stay with the kinds of data that can be produced through dwelling, a thickness or depth of data that encourages multiple points of entry for rumination, reflection, and analysis.

In this article specifically, each of the carousels analyzed was flagged by the authors during our daily exploration of Instagram content between January and April of 2023. This is in keeping with our overall practice at Feminist Think Tank, our research collective, where we collected Instagram content that caught our attention and held it (i.e., any post that impels a pause) through the "saved" function on Instagram on both our personal accounts and our collective research account (@Aesthetic.Resistance), selecting the three posts analyzed below for their frequency across our accounts and the popularity they accrued in the Instagram stories of accounts we follow. We then took a screenshot of these posts, which were saved in an external database using Tropy, a photo archiving platform, where they were coded and tagged. For all social media content that we analyze across our various projects, our research team at Feminist Think Tank, consisting of both the authors and our graduate and undergraduate research assistants, meets weekly to discuss the content collected alongside any themes or media trends that have been observed as emerging on different platforms, together prioritizing relevant themes for analysis. The carousel posts analyzed here are thus part of a larger collection of activist content that we have been gathering over the last four years. From this point, we (the authors) took on the role of dwelling, reading these posts alongside relevant cultural, historical, and technological contexts that we place in dialogue with the carousel posts in our analysis.

The three accounts that the posts are featured on, Intersectional Environmentalist Collective, For the Wild, and Richa Kaul Padte, were already on our radars independently for their compelling use of carousels for ecofeminist advocacy. The prominence of these posts simultaneously shows an overlap in our research interests and indicates how widely they were promoted through Instagram's algorithm, given that we are a diverse group in terms of education, age, race, and ethnicity and all found these accounts (perhaps, we might posit, suggesting the emergence of a new phase in influencer culture wherein accounts not tied to a specific person or face can be considered influencers). In the next section, we describe each carousel individually before putting them into conversation with each other. In doing so, we aim to demonstrate how dwelling with the posts individually and then in their relation to the other posts in the carousel produce what we call *emergent intertextualities* that can only emerge through both the platform affordance that enabled their sequencing and our dwelling with the set of posts as a whole.

## 4. Digital dwelling in practice

Carousels, which have been possible on Instagram since 2015, have become a popular tool for encouraging followers to spend more time on a post, gaining greater engagement with the content and thus influencing how the user's content is prioritized by Instagram's algorithms. As such, it is a staple feature for content producers at present. Carousels provide access for the cross-platform interplay of TikTok and Twitter on Instagram as the central site of engagement. Here, a sequential function of

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carousels is how they reframe different visual cultural content, putting this content into intertextual dialogue with other seemingly unrelated content via the formal structure of memes. The practice of curating carousels offers Instagram users a great deal of agency in how the work is re-framed, re-mixed, and re-imagined via their own perspective for advancing explicit political and resistance content to their audiences. Ultimately, what Instagram carousels offer are a way to engage with small data in a concentrated form, given that they are already curated small data-sets in and of themselves, creating new stories for followers to infer and craft for themselves.

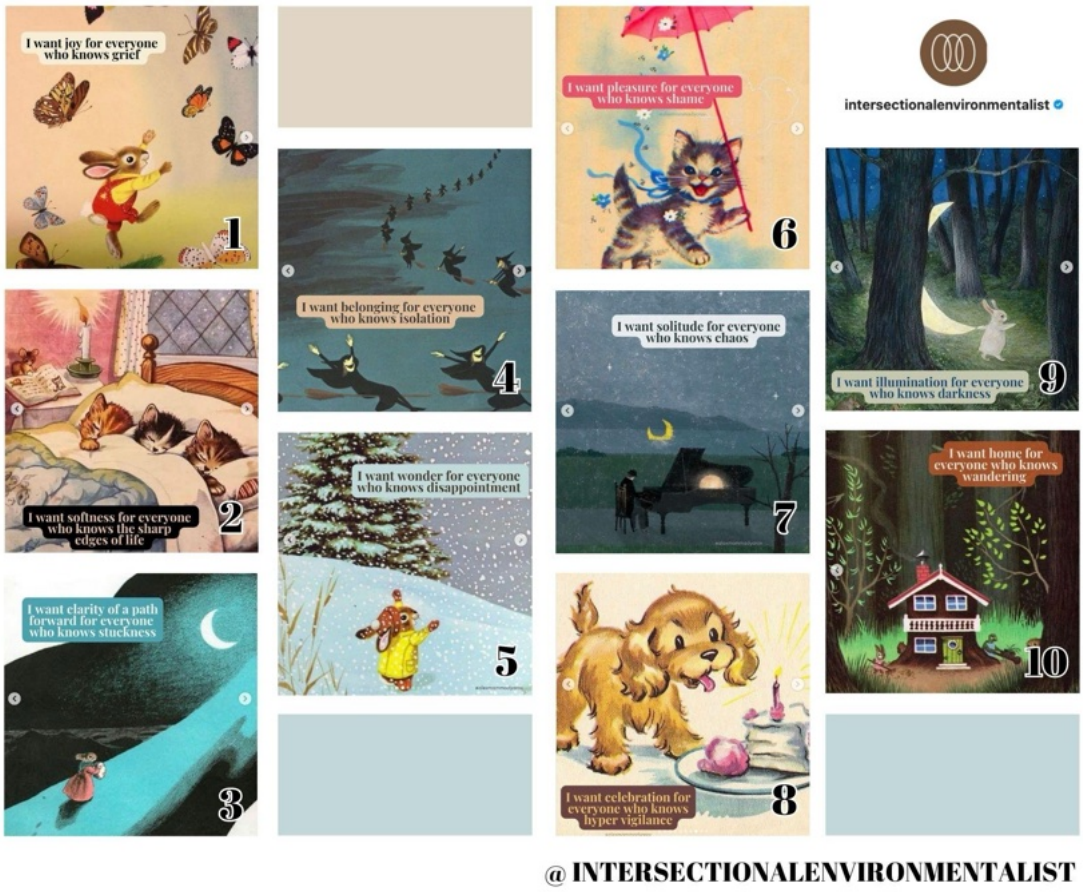


**Figure 1.** Carousel 1: @intersectionalenvironmentalist

This carousel comes from a nonprofit organization of the same name, Intersectional Environmentalist, who positions themselves as "a collective radically imagining a more equitable + diverse future of environmentalism" in their bio.[3] The account has just under half a million followers, and offers links in their bio to their events Instagram page; a linktree leading to the collective's annual impact report, open access playlists, resources on reproductive justice and modern-day imperialism among other intersectional social justice issues; and a space to submit writing, research, and creative work to be featured by the collective. The account posts regularly, often with multiple posts a day, and covers a range of topics including environmentalism, reproductive justice, food sovereignty and anti-racism initiatives. To set the scene for the feeling of the account, the top row showcases three pinned posts, with the first

[3] https://www.instagram.com/intersectionalenvironmentalist/.

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offering the words "joy + music are forms of activism" superimposed onto a video still of an outdoor public event from a 2022 "Earth Sessions" event the organization had hosted in Los Angeles.[4] The second pinned post is a longer edited video of the 2022 Earth Session with a caption that highlights "the importance of art in movement building,"[5] and the third pinned post shows a scene from the 2022 San Francisco Earth Session. On the grid, we're met with a femme figure with long flowing brown hair, holding herself in a hug and smiling up into the sun.[6] The post flips through video documentation of the event, focused specifically on the intersections between queerness and environmentalism. Throughout the grid, a purposeful lack of coherent aesthetic in the account, we suggest, makes it more inviting in its approachability, given that it offers a counterpoint to the highly curated and branded accounts of influencers, which its politics place it in opposition to.

On January 6, 2023, the account posted a carousel of ten slides that cohere around visual and conceptual themes of hope.[7] The visual theme relies on children's storybooks and images of woodland and magical creatures on backgrounds of bright primary colors. These images are held together with a text written by Alex Mammadyarov, written across and overlaid across the ten carousel slides of the storybook images:

I want joy for everyone who knows grief.
I want softness for everyone who knows the sharp edges of life.
I want clarity of a path forward for everyone who knows stuckness.
I want belonging for everyone who knows isolation.
I want wonder for everyone who knows disappointment.
I want pleasure for everyone who knows shame.
I want solitude for everyone who knows chaos.
I want celebration for everyone who knows hypervigilance.
I want illumination for everyone who knows darkness.
I want home for everyone who knows wandering.

Together, the text and images articulate a theme of wishing for a better life for those who experience hardship. The oppositional affective dynamics being named in each slide—joy/grief, softness/sharp edges, clarity/stuckness, belonging/isolation, wonder/disappointment, pleasure/shame, solitude/chaos, celebration/hypervigilance, illumination/darkness, home/wandering—and the visual images they corresponded with speak to themes of rest, release, delight, community, hope, and playfulness as antidotes to what hurts us, in addition to a temporality of the feelings. This can be clearly seen in slide one, "I want joy for everyone who knows grief," where we're welcomed by a bunny hopping through a sunny spring setting to frolic with a cluster of colorful butterflies. Similarly, slide three notes, "I want belonging for everyone who knows isolation," paired with a coven of witches flying off in a line into the distance on brooms with joyful abandon. These celebratory visuals mirror how the paired statements lead with the desire for revitalization as a remedy to experiences of social pain and cultural malaise and serve as a reminder that such feelings are temporary.

The visual movement in each of the images emphasizes these desires, creating a lively interplay of complimentary illustration styles and vibrant color palettes. The images alternate between drawing the eye upwards and off towards the top left corner of the frame and still image in the center of the frame, creating a sense of stillness and peace through a more minimal mise-en-scene. The movement between these two visual-affective settings draws viewers through the sense of competing emotions that the text addresses. The longer that a viewer spends time moving through the images, the greater the sense of joyful abandon, of peaceful release, revitalization, and hope, that emerges. It is not a coincidence, we

[4] Posted on March 14, 2023 on the Instagram account @intersectionalenvironmentalist, https://www.instagram.com/p/CpyS3HngY9U/
[5] Posted on July 7, 2022 on the Instagram account @interesctionalenvironmentalist, https://www.instagram.com/p/Cghk5mJJpC5/
[6] Posted on November 16, 2022 on the Instagram account @intersectionalenvironmentalist, https://www.instagram.com/p/ClCe1Pbuu1B/
[7] Posted on January 6, 2023 on the Instagram account @intersectionalenvironmentalist, https://www.instagram.com/p/CnFNGOCOZCQ/

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believe, that this carousel comes on the anniversary of the January 6, 2021, riots on the United States Capitol, a day that violently marked what many had hoped would be the end of a destabilizing political era following Democrat Joe Biden's win over Republican Donald Trump. Whether this was the intention of the account is not necessarily the point; rather, the cultural moment of upheaval and the subsequent collective release of breath matters for the tipping of emotions that had marked those four years and that we find echoes of in this carousel, even if for just us as viewers of it in its themes of grief, joy, and hope. With the rapid production of content in our mediated worlds, as within those seemingly endless chains of association the ideological threads of our cultural moment reveal themselves, it is crucial we spend time and space with the slow act of description and thematic analysis that speak to the emergence of such intertextual relations.


**Figure 2.** Carousel 2: @for.the.wild

The account, For The Wild, which describes itself as "An Anthology of the Anthropocene," represents its podcast and calls for land defense, activism, and slow study.[8] The account has 147K followers and over 1500 posts, with a call in their bio to connect with @forthewild.world for any inquiries or feedback and an invitation for listener discourse in the comments. Their linktree includes more than a dozen links, including how to join their patreon community, become a sponsor, or donate, as well as information on slow study via Dr. Bayo Akomolafe's "We Will Dance With Mountains: Into the Cracks!" and "Atmos",

[8] https://www.instagram.com/for.the.wild/.

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herbal first aid aftercare from those who have experienced police violence with @dixiepauline, prison holistic self care and protection; a link to the experience "Can I Get a Witness/Groundtruthing Oracle," links to the latest three podcast episodes (with Ann Armbrecht, Rachel Cargle, and Kimberely Ann Johnson), older episodes, and where to find the podcast; links to their website, how to join their newsletter, and land defense episode submissions. Its grid is carefully laid out with a pattern of posts that alternate between soft text and image, often relying on nature and surrealist visuals with neutral earth tones of greens, blues, and browns that invite dwelling. Many of the posts on the grid directly speak to the themes of anti-oppression, environmentalism, slowness, becoming, and belonging that are taken up in the podcast and are released alongside episodes to produce a wider range of mediums for sharing content. On March 19, 2023, the day of the spring equinox, the account posted a carousel with the caption, "The moods today are transformation, revolution, and care ❤️ Maybe a little magic too," followed by a list of the sources for the ten images used in the carousel.[9] In dwelling with this carousel, this caption becomes increasingly significant for the emerging practice it reveals within meme-centered Instagram accounts of producing carousels based on a theme, mood, or intention often tied to a temporal marker, such as a political scandal, the start of a new season, or a holiday.

The images in the carousel alternate between nature photos, ink drawings, videos, and film stills. With the stated intention of transformation, revolution, care, and a little magic, followers are invited to produce their own meanings across the images. In the center of the first image, a blue-topped mushroom with a white stem covered in soft fuzzy gold-flecked spikes sits in the dirt; the foreground and the background are blurred to bring attention to the mushroom. With no other foliage or fungus in the shot, this magical-looking mushroom is left to stand on its own, with no text, drawing viewers towards the promises of the carousel's themes and possibilities. The second image, a confrontational image of a forest of trees in flames, is jarring and feels in stark contrast to the preceding photo both in tone and color. Red, orange, and yellow flames fill the frame and black smoke seeps in from the edges. The clear outline of a lone tree stands in the center bottom of the frame, not yet aflame, with a cluster of trees to the left already on fire and almost gone. There is a textured, almost matte finish, quality to the image that gives it the nostalgia of an older printed photograph. In white text across the top sit Bertolt Brecht's words from his writing during his exile from Nazi Germany:

> In the dark times, will there also be singing?
> Yes, there will be singing.
> About the dark times.

Taking these two images together, the semiotic chains of meaning that are produced seep through: the mushroom as an individual image of the beauty of everyday nature alongside an image of the destruction of nature speak to the political and ecological moment. Add to it a poetic quote about the temporality of living through dark times and a larger argument unfolds of imagining a chorus singing, of naming the dark times, which instills a sense of responsibility and gravity. Audiences are invited to recognize the dark times of climate disaster and to participate in a collective and watchful lament. And, yet, the weight of this image is eased in the following posts of the carousel.

In image three, a deep blue ink drawing on a muted taupe background shows a flower design directly atop two naked feminine figures, long hair covering their bodies, centered in the frame. One combs the tangles out of the other's hair, accompanied with the text:

> I help you.
> You help me.

[9] Posted on March 19, 2023 on the Instagram account @forthewild, https://www.instagram.com/p/Cp_gC6NrbpS/

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Are the two figures with long flowing hair maidens? Goddesses? Nymphs? Or perhaps, in the associative flows that dwelling with the image offers, could they be sirens, issuing a siren call to audiences to gather more help for the pressing tasks at hand, but that can still be done gently and with love? These first three posts are followed by a video of a volcano erupting, its lava forging a new path in the land lava in post four. In post five, we are greeted by a grainy film shot of women in headscarves, sitting around a domestic table setting surrounded by greenery, with a subtitle on the bottom that reads: "What is today's topic? Revolution." The film still comes from *The Hidden Half* (2001) by feminist Iranian filmmaker Tahmineh Milāni, which follows a revolutionary militant woman accounting for her past. On posts six to nine, we are met with the contrasting blues of the ocean. These posts use the same painted image of a woman kneeling in a landscape of sand, water, and large rocks, looking down at an infant she is holding in her arms, both with a circular gold halo resting on their heads. Each post has its own call:

Post 6: Let us clean the waters.
Post 7: Let us sieve the air.
Post 8: Let us remake the world.
Post 9: It is good to be born on this earth.

These posts suggest a holy scene: a woman and child to be venerated and protected, invoking an associated reverence for the act of caring and protecting for both the next generation and the earth. The image and text overlap, building an argument to engage in acts of care and protection as part of the efforts to clean water and air, to remake the world free from human destruction, all while celebrating this earth.

Bringing together the above themes, the carousel culminates with an image of people gathered on a beachfront in Iceland to witness the encroaching lava, flowing in a form reminiscent of three large trees, branches of molten rock reaching out towards the crowd as if they were reaching for the sky. Like the introductory image of the magical mushroom, this image indexes the awe-inspiring power and beauty of nature, but this time from a birds-eye view. If the mushroom is a micro perspective, looking towards the intricacies of the forest floor, this final image is zoomed out to offer an aerial shot from high above. Between these images are a sequence of visuals and text that call for the co-creation of a revolution that holds the environment and solidarity at the center of our actions. Holding together this range of associations and media forms (ink drawings, documentary photography, painting, and video) from unrelated image archives gifts us an agency to dwell and co-create meaning from this constellation of media, nature, community, and politics. In dwelling and (re)visiting this carousel, we can begin to grasp and respect the power of nature's cycles of life, death, renewal, and transformation at various scales (volcanoes, water, and mushroom), while also bearing witness within communities of support ("I help you. You help me"). The work of ecofeminist activism and change-making must respect the more-than-human forces and temporality at play with a soberness about the seriousness of the task (Brecht's words), and the need for community and shared vision to make sure change occurs in sustainable and purposeful ways. While the aesthetic is different from the previous carousel (@intersectionalenvironmentalist), both offer alternative imaginings of how to resist through weaving visual-textual content together for audiences to dwell with and derive meaning from.

Departing from the emergent practices found in the above two accounts of collaging previously unrelated source material into a sequence of carousels, the carousel here from writer and artist Richa Kaul Padte uses self-made images and comes from the same series that first caught our attention for the beautiful possibilities of the sea-spider that we began this article with. This carousel[10] was posted on Padte's personal account, @richakaulpadte,[11] on February 4, 2023, and includes a curation of eight images from the artist's secondary account that documents her work for #the100dayproject

[10] Posted on March 19, 2023 on the Instagram account @forthewild, https://www.instagram.com/p/Cp_gC6NrbpS/
[11] https://www.instagram.com/richakaulpadte/.

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(@100forhirish). Padte's account has just over 3880 followers and over 485 posts; her bio lists her 2018 book *Cyber Sexy: Rethinking Pornography* (Penguin) and her artist account @100forhirish, as well as a linktree that links to her person website, her article on "The Trap of Digital Productivity" in *Catapult*, her book *Cyber Sexy*, an article about her interview with writer Jenny Odell (author of *How to Do Nothing* and *Saving Time: Discovering a Life Beyond the Clock*), an article co-written with Shivangini Tandon on "Where the Wild Things Were: What two great hornbills can teach us about Goa's true wild side" in *The Indian Express*, and a link to sign up for her newsletter called "Aeroplane Mode," which focuses on "anti-productivity, wildness, and having a body in the world."

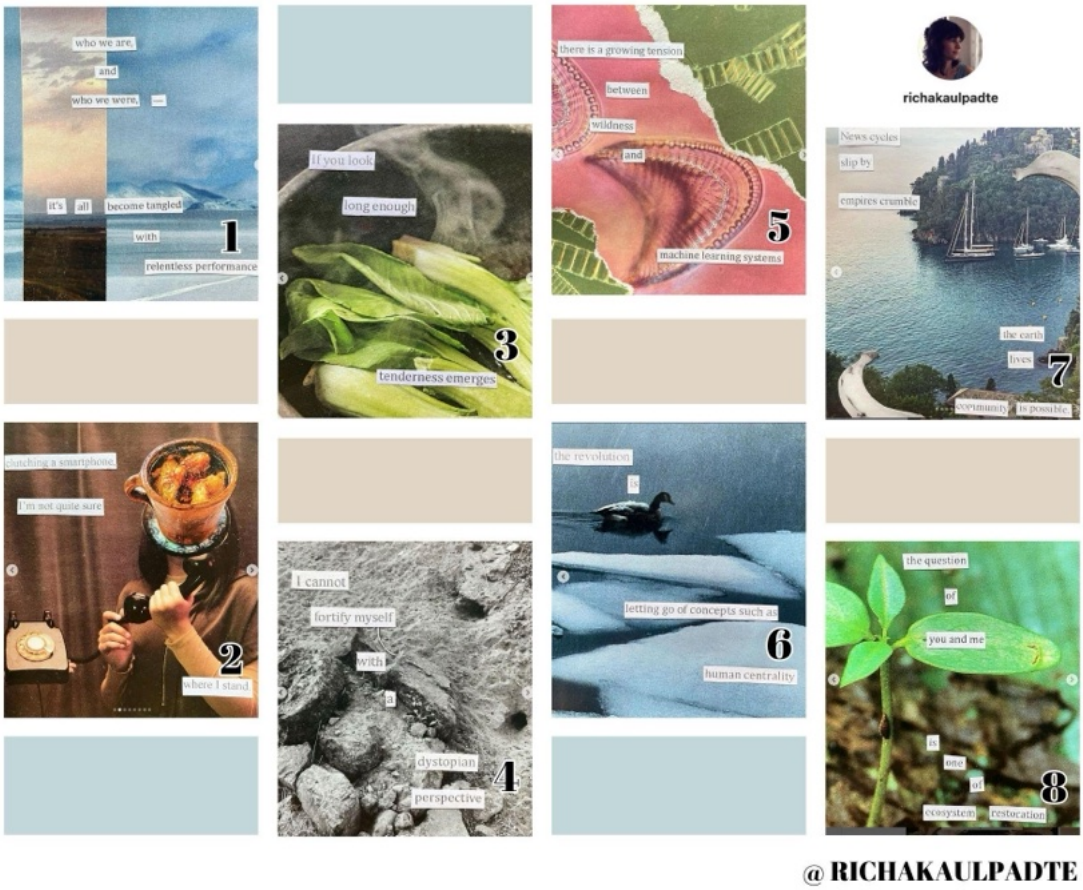


**Figure 3.** Carousel 3: @richakaulpadte

Notably, all three accounts we dwell with in this article call for paying close attention to the wild and to nature, to embodiment, and to slowness. As with the other carousels, this one builds a thematic argument that spans across its contents, using pictures of nature to build its argument. In the first post of the carousel, a larger, blue-toned image of the ground rushing up to meet a mountainous background is vertically interrupted in the left foreground by a narrow cut out strip of a verdant landscape with warm skies. Pasted over the frame, spanning both images, in type-written cut/paste form, are the words:

> Who we are,
> and
> who we were —
> it's all become tangled

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with
relentless performance

This sets the tone for the whole carousel; a focus on a "we" of humanity at the crossroads of nature and technology, and the sense that neither humanity nor nature are faring well, seeps through the entirety of the post. Like Padte's other posts, and like the above carousels, there is a tonal emphasis on time as a grounding element. Present and past collide in the tangling of "relentless performance" or, as in the previous posts, the space between joy and grief or between you and me as we help each other. Here, the imperative to relentlessly perform comes from the very platform that we view these images on and the neoliberal constraints under which we labor to not only create content but to live our everyday lives. The second post, is a vintage looking photograph, shows a woman clutching a rotary phone handle, her face covered by a large teacup and saucer. The text is distributed across the image, cascading down from left to right:

Clutching a smartphone.
I'm not quite sure
where I stand.

This is followed by a picture of a steaming basket of bright green bok choy. Cascading from top to bottom and left to right, surrounding the center of the image, reads:

If you look
long enough
tenderness emerges

The following picture is an abrupt change in color and tone. Against a bleak gray landscape of rocky earth, the text:

I cannot
fortify myself
With
a
dystopian
perspective

serves as rising action to the ruminations within the sequence, with the remaining posts becoming more direct in their interventions. Post five laments:

there is a growing tension
between
wildness
and
machine learning systems

The image behind it layers a ripped piece of rose-colored paper with an epaulet-like design atop a muted olive-green paper with a yellow ladder-like pattern. The tension in the clash of patterns, coupled with the rip marks of the rose paper as it interrupts the green background, emphasize the strain that the text espouses. This is equally felt in the visual split of the text between "here is a growing

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tension/between/wildness/and" and "machine learning systems," as if to accentuate and juxtapose wildness's associations to the natural and animal world with the sterility of machine learning systems.

The argument built across these early posts climaxes in the following two posts, which return us to nature: post six brings us a duck swimming in an icy pond in blue-gray tones and post seven showcases a green sprout with a striped insect crawling up its stem. Post six reads:

> the revolution
> is
> letting go of concepts such as
> human centrality

While post seven offers:

> the question
> of
> you and me
> is
> one
> of
> ecosystem restoration

Together, the posts at this point of the narrative journey speak to the threat of modern technology's speed, robot-like productivity, and the lack of tenderness and identity we experience once we are in the thralls of it, as well as our tendency to centralize the human in all things. The revolutionary call here, which corresponds to those of Carousel 2 from @forthewild, is to restore the ecosystem in a way that displaces machine learning and humans as central to all action.

These calls are confirmed in the final post. A calming scene of sailboats floating on an inlet surrounded by bushy green forestry in soft blues, greens, and whites is presented with cut out photocopied bananas on the top right and bottom left of the frame, with the pasted text:

> News cycles
> slip by
> empires crumble
> on the top left, while on the bottom right sits:
> the earth
> lives
> community is possible.

The sense of temporality here is once again significant. The post offers viewers the long view that the threats of empire and bleak news narratives are temporary, but the earth is more permanent—if we take care of it. This perspective advances a secondary call that community is a desirable and generative aspect of our relationship to the environment. The pairing of earth and community, alongside a dismissal of algorithmically biased, harmful media rhetoric and colonial empires, builds itself around the next revolution as based on a community that centers the restoration of ecosystems. In Padte's intentional use of a shared aesthetic to build her narrative, which deliberately pairs a selection of slides from her larger #the100dayproject, we become witness to a different form of small data curation: not from an endless chain of images circulating online, but from her own body of work for purposeful ends.

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## 5. Conclusion: Emergent textualities in/as creative pleasure and protest

In the opening pages of *Emergent Strategy*, Adrienne Maree Brown (2017) writes that "emergence is our inheritance as a part of this universe; it is how we change… Emergent strategy is how we intentionally change in ways that grow our capacity to embody the just and liberated worlds we long for" (3). As a method, dwelling speaks to this embodied act of longing. It is about letting go of the rigidity of reasoning and logic, replicability, and generalizability—letting go of the productivity of machine learning systems, to quote Richa Kaul Padte. Dwelling is about our intimate relationships to the lively stories within media events that open us to the intertextually mediated components of stories as they circulate, illustrating the connections between different intersecting stories as they move within digital space and encouraging social media participants to interpret and remix posts by putting carousels and accounts in conversation with each other, as we have done here. In dwelling with the carousels here, a preoccupation with temporality rings clear across them: an apt meta-theme given their shared concerns of climate crisis, feminism, and revolution. This speaks to the significance of the act of curation to the act of carousel production. Well curated carousels inspire an emergent affect that encourages embodiment and reflection, whether the images are sourced from various media platforms or are self-produced works. In other words, carousel curation produces semiotic and affective chains of meaning that build over the specific sequencing of the posts. These associative themes flow from one post to the next, emerging and solidifying across the carousel the longer that a viewer spends time with it, and flowing outwards to larger research scenes across the media ecology, whether those carousels are determined by our research collections or the platform's algorithms. Although these capacious connections may seem endless, through the method of dwelling, we are able to grasp, if only momentarily, the rich meanings embedded within these ephemeral media events. We can slow down and be with this curated content in the ways we sit with other, more traditional, forms of visual media like painting, sculpture, and film. Extending this existing tradition to digital media contexts enables us to better appraise what we understand as the *emergent intertextualities* of power and resistance that are revealed within the visual, cultural, and political valences of media events.

Notably, the content depicted in these carousels does not reflect traditional assumptions of what visual cultural protest looks like. These are not images of bodies marching in streets, protest signs held high, shouting in unison against identifiable issues to be counteracted. And yet, through dwelling with these accounts and the subculture of feminist activist content circulating at these specific moments, we came notice the emergence of a different kind of protest: one that is clearly anti-capitalist and eco-feminist, advancing old critiques of neoliberalism through new visions for resistance that require a different kind of affect than rage. Instead, these accounts and their carousels seek out and move towards joy and pleasure. This work flips the script on dominant visions of public protest fueled by a collective rage. While this is still important, these works show an emergent strategy built on communal visioning for a better future. Because the collection of the media artifacts we study happens in the everyday practices of our digital lives, we gather data through our own affective pulls, following what sparks interest and feels relevant in the moment of collection. In doing so, we cannot know the broader patterns that will be uncovered, but in the act of purposefully placing our early insights together by formally dwelling with selected data, themes reveal themselves.

Such themes reflect the emergent intertextualities of protest, power, and resistance within these media events. Bringing Brown's (2017) "emergent strategy" with Julia Kristeva's (1986) "intertextuality" — the "intersection of textual surfaces" that produce a "dialogue" between writer, the audience or textual figures, and "cultural context" (36)— we center forms of relationality that consciously situate and index the forms of implicit power circulating in our layered encounters with the systems we move within. In Kristeva's hands, intertextuality is "a political concept which aims at empowering the reader/critic to oppose the literary and social tradition at large" (Alfaro 1996, 276). For Brown (2017), the political importance of emergent strategy lies in its ability to build "complex patterns and systems of change

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through relatively small interactions" (2). This strategy is, above all, an "adaptive, relational way of being, on our own and with others" (2). As demonstrated in our dwelling with the above carousels, the shared thematics require paying close attention to the systems and patterns that emerge *from* and *in* response to them, as well as recognizing the value of small actions of engagement and interpretation. This is what we hold at the fore of our approach to digital visual culture via the act of dwelling. As Kristeva (2000), no stranger to the powerful swells of protest and revolt, suggests, the most meaningful acts of resistance come at the level of the individual in the everyday. And as bell hooks (2012) so infamously wrote, we must name what hurts.

The practice of dwelling with small, curated data-sets in slow and purposeful ways to produce deeply descriptive accounts of digital content, seeking out where themes may reveal themselves, adheres to the politicized intention of the feminist work we follow that opposes the present social-cultural and academic preference of rapid, operationalized knowledge paired with big data and aggregate generalities. As we show here, the level of specificity that these smaller sets of data encourage opens new possibilities and visions of feminist futures that larger big data methods do not afford. Even as we follow a carouselled story broadly, digital dwelling deliberately asks us to reflect on our own relationship to the stories shared and brings us to the affective, lived impacts of what might be seen as an individual story but that is collectively felt. A different researcher examining these same posts would have seen different relationships between ideas, using different stories to derive different sets of insights. Or, perhaps, they may have found a different entry point and set of intertextual relations to examine altogether. But that is the beauty of such a method. Lingering in online spaces to embrace emergence, to sit with stories as they affect us, see how stories and their themes emerge, and explore how different digital tactics can become our own to use in counter hegemonic ways allows us to bring forward stories that get lost in the messiness of digital space and to highlight that which resists. Ultimately, we see engaging in this process of dwelling as a method of encouraging others who approach the research scene to also dwell and, in doing so, begin their own processes of thinking and subsequently acting differently as we encounter new forms of relationality and ways of being in the world.

## References

Alcoff, Linda. 1988. "Cultural Feminism versus Post-Structuralism: The Identity Crisis in Feminist Theory." *Signs: Journal of Women in Culture and Society* 13, no. 3: 405-436.

Alfaro, María Jesús Martínez. 1996. "Intertextuality: Origins and Development of the Concept." *Atlantis* 18, no. 1/2: 268–85. http://www.jstor.org/stable/41054827.

Ahmed, Sara. 2017. *Living a Feminist Life*. Duke University Press.

Bailey, Moya, Sarah Jackson, and Brooke Foucault Welles. 2019. "Women Tweet on Violence: From #YesAllWomen to #MeToo." *Ada: A Journal of Gender, New Media, and Technology* 15. Doi: 10.5399/uo/ada.2019.15.6

Banet-Weiser, Sarah and Kate M. Miltner. 2016. "MasculinitySoFragile: Culture, Structure, and Networked Misogyny." *Feminist Media Studies* 16, no. 1: 171-174.

Barad, Karen. 2003. "Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter." *Signs: Journal of Women in Culture and Society* 28, no. 3: 801-831.

Benjamin, Ruha. 2019. *Race After Technology: Abolitionist Tools for the New Jim Code*. Polity Press.

Boyd, Danah and Kate Crawford. 2012. "Critical Questions in Big Data: Provocations for a Cultural, Technological, and Scholarly Phenomenon." *Information, Communication, & Society* 15, no. 5: 662-679.

Brock, André. 2015. "Deeper Data: A response to boyd and Crawford." *Media, Culture, and Society* 37, no. 7: 1084-1088.

Broussard, Meredith. 2018. *Artificial Unintelligence: How Computers Misunderstand the World*. MIT Press.

Brown, Adrienne Maree. 2017. *Emergent Strategy: Shaping Change, Changing Worlds*. AK Press.

Brown, Melissa, Rashawn Ray, Ed Summers, and Neil Fraistat. 2017. "#SayHerName: A Case Study of Intersectional Social Media Activism." *Ethnic and Racial Studies* 40, no. 11: 1831-1846.

Browne, Simone. 2015. *Dark Matters: On the Surveillance of Blackness*. Duke University Press.

Chadwick, Rachelle. 2021. "On the politics of discomfort." *Feminist Theory* 22, no. 4: 556–574. https://doi.org/10.1177/1464700120987379

Clark, Rosemary. 2016. "'Hope in a Hashtag': The Discursive Activism of #WhyIStayed." *Feminist Media Studies* 16, no. 5: 788-804.

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Clark-Parsons, Rosemary. 2019. "I SEE YOU, I BELIEVE YOU, I STAND WITH YOU": #MeToo and the Performance of Networked Feminist Visibility. *Feminist Media Studies*. doi.org/10.1080/14680777.2019.1628797.

Collins, Patricia Hill. 1990. *Black Feminist Thought: Knowledge, Consciousness, and the Politics of Empowerment*. Hyman.

Conley, Tara L. 2014. "From #RenishaMcbride to #RememberRenisha: Locating Our Stories and Finding Justice." In *Feminist Media Studies*, Special Issue, edited by Laura Portwood-Stacer and Susan Berridge. London: Routledge, 1111-1113.

——. 2017. "Decoding Black Feminist Hashtags as Becoming." *The Black Scholar* 43, no. 3: 22-32.

——. 2021. "A Sign of the Times: Hashtag Feminism as a Conceptual Framework." In *Networked Feminisms: Activist Assemblies and Digital Practices*, edited by Shana MacDonald, Brianna I. Wiens, Michelle MacArthur, & Milena Radzikowska. Lexington Books.

D'Ignazio, Catherine and Lauren F. Klein. 2020. *Data Feminism*. MIT Press.

Fotopoulou, Aristea. 2019. "Understanding Citizen Data Practices from a Feminist Perspective: Embodiment and the Ethics of Care." In *Citizen Media and Practice: Currents, Connections, Challenges*, edited by Hilde C. Stephansen and Emiliano Treré. Routledge.

Genette, Gérard, and Marie Maclean. 1991. "Introduction to the Paratext." *New Literary History* 22, no. 2: 261–72. https://doi.org/10.2307/469037.

George, Jordana J., and Dorothy E. Leidner. 2019. "From Clicktivism to Hacktivism: Understanding Digital Activism." *Information and Organization* 29, no. 3: 1-45.

Gieseking, Jen Jack. 2018. "Size Matters to Lesbians, Too: Queer Feminist Interventions into the Scale of Big Data." *The Professional Geographer* 70, no 1: 150-156.

Gilliard, Chris. 2016. "Digital Redlining and Privacy." *Teaching in Higher Ed* (podcast). December 8, 2016. https://teachinginhighered.com/podcast/digital-redlining-privacy/.

Haraway, Donna J. 1988. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." *Feminist Studies* 14, no. 3: 575-599.

Harding, Sandra. 1993. "Rethinking Standpoint Epistemology: What Is Strong Objectivity?" In *Feminist Epistemologies*. New York and London: Routledge, 49-82.

hooks, bell. 2012. *Writing Beyond Race: Living Theory and Practice*. Routledge.

Ingold, Tim. 2011. "Being Alive: Essays on Movement, Knowledge and Description." *Ethnos,* 79. Abingdon: Routledge.

Jaganathan, Aditi, Sarita Malik, and June Givanni. 2020. "June Givanni's Pan-African Cinema Archive: A Diasporic Feminist Dwelling Space." Feminist Review 125: 94-109.

Kristeva, Julia. 1986. *The Kristeva Reader*. Edited by Toril Moi. Columbia University Press.

——. 2000. *The Sense and Non-Sense Revolt: The Powers and Limits of Psychoanalysis.* Columbia University Press.

Keller, Jessalynn and Maureen E. Ryan. 2018. *Emergent Feminisms: Complicating a Postfeminist Media Culture*. New York: Routledge.

Luka, Mary Elizabeth and Mélanie Millette. 2018. "(Re)framing Big Data: Activating Situated Knowledges and a Feminist Ethics of Care in Social Media Research." *Social Media + Society* 4, no. 2. https://doi.org/10.1177/2056305118768297

MacDonald, Shana. 2018. "The City (as) Place: Performative Re-mappings of Urban Space Through Artistic Research." In *Performance as Research: Knowledge, Methods, Impact*, edited by Annette Arlander, Bruce Barton, Melanie Dreyer-Lude, and Ben Spatz. New York: Routledge, 275-296.

MacDonald, Shana and Brianna I. Wiens. 2019. "Mobilizing the 'Multimangle' Why New Materialist Research Methods in Public Participatory Art Matter." *Leisure Sciences* 41, no. 5: 366-384.

MaLure, Maggie. 2013. "The Wonder of Data." *Cultural Studies–Critical Methodologies* 13(4): 228-232.

Nakamura, Lisa and Peter A. Chow-White. 2012. "Race and Digital Technology: Code, the Color Line, and the Information Society." In *Race After the Internet*, edited by Lisa Nakamura and Peter A. Chow-White. New York: Routledge, 1-18.

Noble, Safiya Umoja. 2018. *Algorithms of Oppression: How Search Engines Reinforce Racism*. New York University Press.

Noble, Safiya Umoja and Brendesha M. Tynes (eds). 2016. *The Intersectional Internet Race, Sex, Class, and Culture Online*. New York: Peter Lang.

Quinn, Katherine. 2023. "Taking Live Methods slowly: inhabiting the social world through dwelling, doodling and describing." *Qualitative Research* 23, no. 1: 3–20. https://doi.org/10.1177/14687941211012222

Rentschler, Carrie. A. 2014. "Rape Culture and the Feminist Politics of Social Media." *Girlhood Studies* 7, no. 1: 65-82.

——. 2017. "Bystander Intervention, Feminist Hashtag Activism, and the Anti-Carceral Politics of Care." *Feminist Media Studies* 17, no. 4: 565- 584. doi:10.1080/14680777.2017.1326556.

Ringrose, Jessica and Emma Renold. 2014. "'F**k Rape!': Exploring Affective Intensities in a Feminist Research Assemblage." *Qualitative Inquiry* 20, no. 6: 772-780.

Rentschler, Carrie A., and Samantha C. Thrift. 2014. "Doing Feminism: Event, Archive, Techné." *Feminist Theory* 16, no 3: 239-249. doi:10.1177/1464700115604138.

Sharma, Sarah. 2022. "Introduction." In *Re-Understanding Media: Feminist Extensions of Marshall McLuhan*, edited by Sarah Sharma, Rianka Singh. Duke University Press, 1-19.

Skågeby, Jörgen and Lina Rahm. 2018. "What is Feminist Media Archaeology." *Communication* +1, 7. https://doi.org/10.7275/fthf-h650

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Thrift, Samantha C. 2014. "#YesAllWomen as Feminist Meme Event." *Feminist Media Studies* 14, no. 6: 1090-1092.

Vallee, Mickey. 2020. "Doing Nothing Does Something: Embodiment and Data in the COVID-19 Pandemic." *Big Data & Society*. Doi: 10.1177/2053951720933930.

Wiens, Brianna, Stan Ruecker, Jennifer Roberts-Smith, Milena Razdikowska, and Shana MacDonald. 2020. "Materializing Data: New Research Methods for Feminist Digital Humanities." *Digital Studies/Le Champ Numérique* 10, no. 1: 1- 22. https://doi.org/10.16995/ dscn.373.

Wiens, Brianna I. 2021a. "Virtual dwelling: Feminist orientations to digital communities." In *Networked Feminisms: Activist Assemblies and Digital Practices*, edited by Shana MacDonald, Brianna I. Wiens, Michelle MacArthur, & Milena Radzikowska. Lexington Books.

——. 2021b "Moving with Stories of 'Me too.': Towards a Theory and Praxis of Intersectional Entanglements." PhD Dissertation. York University, York Space Institutional Repository.

——. 2022. "How To Use Creative and Embodied Digital Methods." In *SAGE Research Methods: Doing Research Online*, edited by Karen Gregory. Sage Publications. https://dx.doi.org/10.4135/9781529608359.

Wiens, Brianna I., Shana MacDonald, and Aynur Kadir. 2023. "Feminist Shadow Networks: 'Thinking, Talking, and Making' as Praxes of Relationality and Care." *Digital Studies/Le Champ Numérique 13*(3): 1-28. https://doi.org/10.16995/dscn.9572

Zarzycka, Marta and Domitilla Olivieri. 2017. "Affective Encounters: Tools of Interruption for Activist Media Practices." *Feminist Media Studies* 17, no. 4: 527-534.

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# Researching visual protest and politics with "extra-hard" data

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## Abstract

A range of scholars have criticised scholarly tendencies to focus on "easy" data such as provided by the low-hanging fruit of Twitter hashtag networks (Burgess & Bruns, 2015; Hargittai, 2020; Tromble, 2021). As a result, digital social research has been said to create a glut of studies that favour particular platforms, data forms, and networking dynamics, choices that may create 'digital bias' (Marres, 2017). These issues are particularly significant in visual data as the implicit nature of visuality means that platform spaces, text, and networked uses of visuals contribute to how visuals are interpreted in digital environments. In response to this issue, we present and critically reflect on *new potentialities* in software-based visual research on protest and politics, including: (1) rich cross-project comparisons; (2) complementing platform data with on-the-ground engagement, and (3) quali-quanti visual methods. These allow for rich data journeys through multi-modality, hybridity, comprehensive data curation, reiterative image data collection and interpretation, and the inclusion of contextual reflections in focused visual research, elements that provide meaning, texture, and context (= extra-hard data). We argue that visual digital methods consequently have the potential to provide nuanced, robust, and versatile analysis of visual data, if not necessitate these in a post-API age in which easy data access is no longer a given.

Keywords: visual methods; extra-hard data; quali-quanti methods; cross-platform studies; digital methods; feminist approaches

## 1. Introduction

Due to the increasing availability of research software, open source tools, code repositories, and opportunities for conducting research using computational tools, digital social research has been said to have undergone a "computational turn", i.e. considerations of computational mediums as carriers of meaning (see Berry, 2011; Rieder, 2020; Omena, 2021). While these new opportunities have been very much embraced by the scientific community, concerns have been raised about scholarly tendencies to focus on "easy" data such as provided by the "low-hanging fruit" of hashtag networks (Burgess and Bruns, 2015; see also Hargittai, 2020; Tromble, 2021). As a result, digital social research has been claimed to create a glut of studies that favour particular platforms, data forms, tagging mechanisms, and


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networking dynamics. Such preferences may create partial views into digital practices or phenomena, also described as "digital bias" (Marres, 2017). As part of these concerns, software-based research has been the target of some critique. While some research has already discussed and shown more contextualised efforts such as cross-platform approaches (Rogers, 2018; Venturini et al. 2018; on visuals: Pearce et al. 2020, Colombo, Bounegru and Gray, 2023) and situational analytics (Marres, 2020), doubts remain as to whether easy data research necessarily or consistently produces data that is rich, contextualised, or nuanced (see, e.g., Özkula, Reilly and Hayes, 2022; Tromble, 2021).

In part, researchers' choices in the design of software-based research are grounded in the access provided by individual platforms or the funds provided by institutions. As such, scholars in the field have already amply addressed and acknowledged the critiques on the prevalence of certain types of research, above all, as emergent from easily accessible data such as has historically been the case with Twitter/X. Additional complications (i.e. beyond persistent API access restrictions) stem from differences in technological grammars, algorithmic influences, and the treatment of platforms as data sources rather than sociocultural (deep) vernacular environments (see Burgess et al. 2023; Gibbs et al. 2015; de Zeeuw and Tuters, 2020; Rogers and Giorgi, 2023). These issues are particularly salient in visual data as the implicit nature of visuality means that individual platform spaces, textual elements, tags/labels/hashtags, and networked uses of visuals all contribute to how visuals are interpreted in digital environments. As such, visual data are to a significant degree *context-dependent* and rely on contextual and technical readings.

This paper therefore presents and critically reflects on *new potentialities in visual research on protest and politics.* It will suggest that contemporary research presents numerous opportunities for **'extra-hard'** data in digital visual research, including: **(1)** hybrid engagements that allow for triangulation and contextualisation; **(2)** rich data journeys through reiterative image data collection and interpretation processes, comprehensive data curation, and multi-level enquiries; **(3)** comparative research such as multimodal, intersectional, and extended multi-sited or cross-platform visual research, and **(4)** the inclusion of contextual reflections in focused visual research, such as researcher positioning, platforms' (sub)cultures of use and their knowledge about computational affordances and limitations. This perspective challenges the notion of viewing data in isolation from its digital environment and socio-technical context. The paper therefore proposes the application of rich cross-project comparisons, complementing platform data with on-the-ground engagement, and quali-quanti visual methods, under the premise that, in the post-API age, 'easy' visual data on politics and protest is neither a viable possibility nor representative of visual cultures, above all when these are disembedded or de-contextualised from their site of circulation.

These arguments rest on the premise that (limited) data access and a myriad of open-source tools have distracted scholars from the foundations/tenets of the computational turn. It remains easy to divert attention from the language, practices, and technical substance of research software and how these are entangled with visuals and the environments they originate in. This is despite the potential of software-oriented research for situating data, which creates more nuance, robustness, and versatility towards contextualising visual politics and protest. To demonstrate this, the paper will start with a review of Bruns and Burgess' easy data hypothesis and a critical overview of schools of method (incl. visual methods) in digital social research. It will then briefly describe the data and methods that form the basis for the reflections presented here. Subsequently, it will reflect on the new potentialities of digital visual methods research. The paper closes with reflections, recommendations, and a discussion on extra-hard visual data in contemporary digital social research.

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## 2. Literature review

### *2.1 Easy data & hard data critically reviewed*

Despite the potential of digital methods, scholars have highlighted a range of concerns around trends towards "easy data", a hypothesis famously coined by Burgess and Bruns (2015). In their essay, Burgess and Bruns (2015, n.p.) problematise the ways in which "the Twitter API mediates access to Twitter data actually inscribes and influences the macro level of the global political economy of science itself, through re-inscribing institutional and traditional disciplinary privilege". They consequently argue that (1) methods have substantially changed through the computational turn in social science and humanities research, (2) that more easily available, accessible, and modifiable data have led to an increase in "easy data studies" in digital methods research (as linked to API access economies), and (3) that these socio-economic circumstances and the related choices in research design have consequently resulted in a prevalence of research on specific media dynamics, above all narrow-period or recent Twitter-based hashtag and @reply network research based on keyword searches. Twitter/X access has since been subject to a range of changes, first providing open academic access to Twitter data on a case-by-case request basis, and then the creation of a paywall for research data. These changes have been and still are affecting what platform spaces are studied and by whom. Other platforms such as Facebook and TikTok have similarly been subject to changes in API access for research purposes, developments that have been amply discussed and exploited by researchers. While this may mean that Twitter/X may no longer be the golden child of API access and a goldmine of social media data in future research, it suggests that "easy data" access (by whichever platform) will ultimately determine who and what digital methods researchers study.

In comparison, only a handful of scholars in digital social research are able to obtain "hard data", that is "more comprehensive, longitudinal data sets and/or any of the "missing" metadata" (Burgess & Bruns, 2015, n.p.) due to paywalls, and the lack of technical infrastructure, advanced access, or practical knowledge on handling these kinds of data. While Burgess and Bruns do not establish these concepts as a hard-and-fast dichotomy, their essay draws attention to how the *research access economy* and subsequent methodological choices produce new forms of digital bias, which (as we argue) may potentially ignore new potentialities afforded by digital methods. They also suggest that following what Bruns (2019) describes as the "APIcalypse", easy data access may no longer be an option, as all data become subject to socio-economic factors that require researchers to invest effort into critically reviewing what data have been obtained, omitted, and what exactly these data represent.

These methodological considerations have, at times, given rise to concerns around what may realistically constitute good, valid, or 'solid' digital social research (e.g. Burgess and Bruns, 2015; Özkula, Reilly and Hayes, 2022). While small-scale immersive research may be criticised for limits in scale or representativeness, the growing emphasis on large-scale statistical data may also signal a 'positivistic turn' that overlooks the benefits of qualitatively oriented research. In comparison, this paper suggests that there is both necessity and opportunity to engage with wider digital environments by drawing on the affordances of different research modalities, above all the case in visual artefacts due to their reliance on contextual readings. This includes considerations of a) who the actors are in individual digital communities, networks, and platforms, b) how these actors engage in those spaces, i.e. their individual practices and dynamics, c) how visual artefacts are produced, circulated, and read, as well as d) how these dynamics emerge or change in response to research software and platform affordances[1]. In accumulation, these considerations allow for conducting more nuanced and contextualised research that demarcates a new age of extra-hard visual data.

[1] I.e. "(...) the perceived actual or imagined properties of social media, emerging through the relation of technological, social, and contextual, that enable and constrain specific uses of the platforms" (Ronzhyn et al. 2022, 14).

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### *2.2 'School of method': A brief review*

Over the past decade, scholars from various disciplines have advanced digital humanities and social science methods repertoires with a focus on big data, computational techniques, and empirical evidence from these studies. To lay the foundation for this paper and clarify our understanding of digital methods, we will provide a 'quick-and-dirty' overview of three schools of software-based methods.

#### *2.2.1 Methods school 1: Cultural analytics*

The first school of method has broadly been described as "cultural analytics", a field spearheaded above all by Lev Manovich's introduction to the quantitative study of cultural patterns on different scales. In this methods school, research questions are raised after the mapping and measuring of fundamental characteristics associated with professional or user-generated datasets. Big data samples, such as cultural artefacts including digitised and digital images, are subject to different visualisation techniques, as demonstrated by seminal projects like Time Magazine Covers (2009)[2] and Selfiecity (2014)[3]. These cultural analytics projects provide insights into cultural practices, representations, and expressions through methods of media visualisation such as image montage or sampling versus data summarisation (Manovich, 2020).

#### *2.2.2 Methods school 2: Computational social sciences*

Similarly relying on computational methods and tools is Lazer's computational social sciences (CSS), where large-scale human behavioural data guide the study of social phenomena. CSS uses mathematical models and statistical analysis such as machine learning, natural language processing, and algorithmic or network analysis oriented methods (Lazer et al. 2020). Theories and methods from computer science feed into this school of method. While CSS provides valuable insights into social phenomena and cultural practices, it draws on techniques that a wide array of social scientists are not trained in. Data storage infrastructures, domain expertise, and techniques for processing big data are not yet part of everyday teaching practices of social sciences and humanities schools. As such, computational social sciences is a recently emerging and rapidly spreading field, for which the required research skills are not as salient (compared, for example, to cultural analytics) across disciplines.

#### *2.2.3 Methods school 3: Digital methods*

The third school of method relates to what has been dubbed "digital methods" (DM), a term famously heralded by Richard Rogers (Rogers, 2019; Rogers and Lewthwaite, 2019) and his establishment of associated research labs at the University of Amsterdam, which we term "the Amsterdam School". It is characterised as "a research practice crucially situated in the technological environment it explores and exploits" (Omena, 2012, p. 24), and draws conceptually from Science and Technology Studies, Actor-Network Theory, and Software Studies. In DM, the web is both a data source and a research site, a place to ground findings (Rogers, 2013), focusing on the technicity of research tools and software (Omena, 2021). For example, in his early writings, Rogers (1996) suggests repurposing digital objects and web cultures for understanding social and cultural phenomena, and shows how digital objects, web data, and practices can ground research findings. Therefore, according to Rogers (2013), before prioritising computational techniques and data (not necessarily 'big' data), there is an invitation to develop ways of thinking that work in tandem with the medium and what it has to offer.

While all three schools of software-based social research methods have made considerable contributions to empirical, methodological, and epistemological research practices across disciplines, this paper focuses primarily on the third school of method (DM). DM do not necessarily stand in separation to the other schools of method or qualitatively oriented internet research methods (examples: digital

[2] http://lab.culturalanalytics.info/2016/04/timeline-4535-time-magazine-covers-1923.html
[3] https://selfiecity.net/#

ethnography, online diary-keeping, over-the-shoulder interviews). In fact, recent digital methods research has sought to combine diverse approaches for triangulation and contextualisation. These trends form the premise for the arguments presented here. The DM School was also chosen as the primary focus due its media-ecological approach that considers practices of data production in web environments. In comparison, CSS approaches rely strongly on computing backgrounds and the possibilities afforded by independent computing. As such, the wide application of DM stems in part from it not de facto requiring advanced computational skills such as programming.

#### *2.2.4 Mapping visual methods*

Visual methods have developed alongside these schools of method. There has been a noticeable shift in image analysis, moving from individual or qualitatively sampled images to collections, involving both quantitative and qualitative methods[4] (see Manovich, 2008; Rose, 2016; Ricci et al. 2017; Colombo, 2019). Central to this transformation is the advancement of software and algorithmic techniques for image processing, visualisation, and interpretation, which, in turn, has reshaped how we conceptualise and study visuals. In light of these developments, this section provides an overview of interpreting visuals in digital environments and delves into three critical aspects of visual method development over the past decades. To support this discussion, we introduce the visual methods grid (see figure 1). It presents ways of interpreting image collections using digital methods, and indexes the methods, associated software, and visual models used for that purpose.

*(1) Software-making for image analysis*

Software, especially with the advent of macros, network visualisation software, and plugins in the early 2000s, has played a pivotal role in mechanising analytical processes for visual methods. In 2007, ImageSorter by the Visual Computing Group facilitated the *zooming in and out* technique by arranging images according to colour, name, size, and date. In 2011, the emergence of macros by the Software Studies Initiative, designed to run within ImageJ (Rasband, 1997; Schneider, Rasband and Eliceiri, 2012), marked a significant step towards employing computational methods for understanding digital media culture, i.e. Cultural Analytics (Manovich, 2020). ImageJ, acquired new capabilities with macros like ImagePlot and Image Montage (Software Studies Initiative, 2011; Manovich, Gianchino and Chow, 2012). These macros assist visual methods in extracting meaning from images and their metadata (see figure 1). In 2012, the Yale Computer Graphics Group developed a plugin for the then newly born network visualisation and exploration software Gephi (Bastian, Heymann and Jacomy, 2009). This plugin –ImagePreview– has opened up new horizons for visual methods, facilitating, for example, network vision analysis (see Omena et al., 2021) and influencing the development of other research software, like Memespector Graphical User Interface (Chao, 2021).

Even so, software for image analysis may offer only specific perspectives on an image collection, including an understanding of what is *in* the images, their relational, cultural, temporal and technical aspects (using metadata), and also their web context (see figure 1). Classic examples include grouping images by colour (the image itself) or by associated web entities (utilising web detection algorithms) and using engagement metrics (image metadata) as a measure of significance (see figure 1). Each of these perspectives offers a snapshot of what might represent an image collection, as its meaning-making depends on the specific groups, networks, and web environments in which images are shared (see Burgos-Thorsen and Munk, 2023; Rogers and Giorgi, 2023).

*(2) AI methods and visual models for making sense of image collections*

Another significant development in visual methods have been pathways towards understanding AI methods for interpreting image collections and defining visual models for analysing them. Algorithmic

[4] For the theoretical foundations of quali-quantitative methods, see the work of Venturini (2024).

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techniques, the cultural context of image production, and medium-technicity features facilitate visual methods yet carry significant epistemological implications for scholarship (Rieder and Röhle, 2012; Omena, 2021). While adopting a discerning approach to algorithmic techniques for interpreting image collections is paramount (see Burgess et al. 2021), it is imperative to recognise the limitations of software and data visualisation in providing comprehensive perspectives of visuals. Figure 1 illustrates common methodological choices for studying images *en groupe* (Colombo, 2019), drawing on emerging literature on visual methods. Here, different arrangements of images enable distinct analytical procedures, with visual models as research devices and initial points of exploration to gain insights into data (Gray et al. 2016; Colombo et al. 2023; Rogers, 2021). For instance, in image grouping methods, image clusters can be analysed by colour pattern or the outputs of AI methods. Exploring image metadata with methods like audience site analysis provides additional aspects such as engagement metrics or temporal insights. As such, grouping and classifying images based on their colour patterns, associated digital objects, and web detection algorithms enables: a) the exploration of imagery linked to specific places, issues, or events; b) conducting research on the audience response to images, including an analysis of the practical impact of online images; c) comparing competing, controversial, or antagonistic visual spaces, as observed in program and anti-program research; and d) advancing a form of image circulation research (see Colombo et al. 2023).

*(3) New analytical techniques, new critical considerations*

Understanding emerging analytical techniques is imperative for visual methods. The complexity of visual methods evolves from speculating about algorithms for image analysis to additional efforts required before delving into visual exploration, as observed in lexicon-demarcated image collections. Situational Analytics, as outlined by Marres et al. (2023), proposes semi-automated methods that aid in uncovering situations (i.e. context) from vast social media datasets. Another challenge arises, for instance, in networked image analysis (Niederer and Colombo, 2019), where formatting, filtering, and recommendation systems of image sources become crucial. Similarly, when visualising images and associated vision AI outputs as networks, epistemological concerns about the process of network building and visualisation emerge (Omena, 2021). This impacts the interpretation of the network based on its shape, as well as the positioning, colour, and size of nodes (see Venturini, Jacomy and Jensen, 2021). Whether it's visual situational analytics, networked image analysis, or network vision analysis, each of these methods presents unique challenges and epistemological considerations for navigating visual methods. They account not only for the contextual background of images but also for the research software, AI methods, and visual models that researchers must choose to make sense of them (see figure 1).

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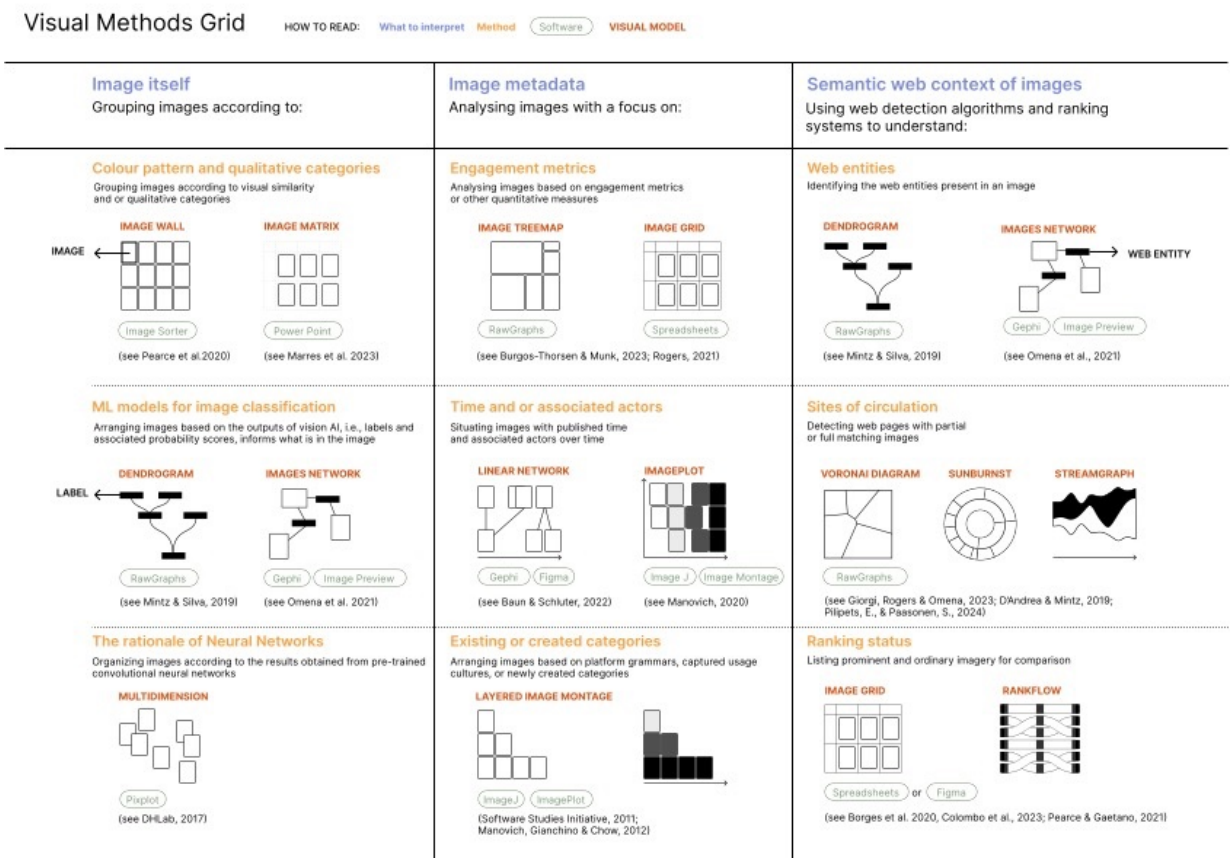


**Figure 1.** Visual methods matrix (created by © Janna Joceli Omena and Beatrice Gobbo).

### *2.2.5 Extra-hard visual data?*

The different schools of method provide background for concerns around easy data, digital bias, and the historical Twitter/X reign (arguably a field in transition). These paved the way to a new critical approach to research methods as influenced by access economies that have come to affect, if not at times dominate, researchers' methodological decision-making. In some ways, computational methods as per Lazer have created a partial solution to these issues through a radical hacktivism-based approach that overcomes API limitations. Even so, hacking may not be a necessary or the only solution to these issues, and the same may apply to digital policies that seek to remedy these influences on the research community, as there are many ways to enrich software-based research - the endeavour of this particular article. As shown in the different schools of method, some research has already exploited these new opportunities, for example through (1) cross-platform research; (2) wider mapping efforts; (3) longitudinal, multi-sited, multimodal, and creative research; (4) approaches that consider contextual aspects of digital methods research, e.g. Marres' (2020) "situational analytics" that applies situated research (i.e. understanding a situation) to media-ecological phenomena; (5) triangulation with qualitative methods; and (6) collaborative research that includes industry and platform provider perspectives (see Burgess and Matamoros-Fernández, 2016; Marres, 2020; Rogers, 2018; Venturini, et al., 2018; on visuals: d'Andrea & Mintz, 2019; Pearce et al. 2020, Colombo, Bounegru and Gray, 2023; Puschmann, 2019). While some of these works centre on images, visuality has hitherto been of comparatively little concern for these considerations (compared to software-based methods more widely).

This paper builds on these works through a consideration of data interpretation in association with vernacular (sub)cultures of use and not purely or predominantly guided by top-ranking content or

engagement metrics. While some research has already applied such comprehensive approaches, the specific complexities of visual data and methods suggest that holism is a necessary part of visual research. Even where data may be easy to obtain (i.e. easy data *access*), the contextual dependence of visual data requires hard data *readings*. This proposal of a holistic view therefore questions the 'spirit of easy data' in visual research and aims to develop an awareness of the pillars of the DM approach (Omena, 2021) through three distinct but related facets of digital fieldwork: an understanding of platform grammatisation, (sub)cultures of use, and the affordances and limitations of computational tools (ibid). Through this approach, we hope to introduce new potentialities that move away from "methodological archetypes" in research that centre on network-based Twitter data (Özkula, Reilly and Hayes, 2022) towards more diverse visual research.

## 3. Note on case studies

The methodological reflections presented here stem from several standalone research projects conducted by the authors between 2020-2023. The projects combine a range of different methodological approaches that include platform-based data collection, ethnographic observation, qualitative semi-structured interviews, and diverse forms of both quantitative and qualitative data analysis. Protest case studies were chosen for two reasons: (1) the significance of sociocultural and socio-political contexts in how visual data on politics and protest need to be read and interpreted, and (2) based on the critical and controversial visualities political imagery produces. The case studies also reflect aspects of the new potentialities we list earlier in this paper.

These projects (see figure 2 for visual protocol) include (1) data visualisations of the 2020 'Shaheenbagh protests' **(SBP)**[5] that show the amplification of the presence of local community women in Shaheenbagh, Delhi, India; (2) a multi-author comparative endeavour on digital-visual misogyny that combines insights from four distinct projects with individual research designs **(FemVis)** - for full methodology see Özkula et al. (2024); and (3) visual quali-quanti methods to infer insights from bot-following networks regarding Brazilian political antagonist debates **(Bolsobots)** - for full methodology see Omena et al. (2024). These projects (cf. figure 2) address four challenges: comparing like-for-like data, validating information and contextualising data by connecting these with offline activities, studying deleted YouTube content, and moving beyond bot-score detector analysis by operationalising image collection-based analysis and techniques. The three cases presented here address these issues as follows: the SBP case study shows that a flat and easy reading of the surface quantitative indicators without algorithmically contextual understanding risks giving more importance to the social media users as activists than to the local women who were actually on the streets offline; the FemVis projects highlights opportunities for triangulating contexts for visual phenomena across different cultural and medial contexts; the Profiling Bolsobot Networks project offers a new methodological protocol that moves beyond bot-score detector analysis, reimagining bot studies with digital methods.

[5] A full methodological account can be found in Gajjala et al.'s article in this special issue.


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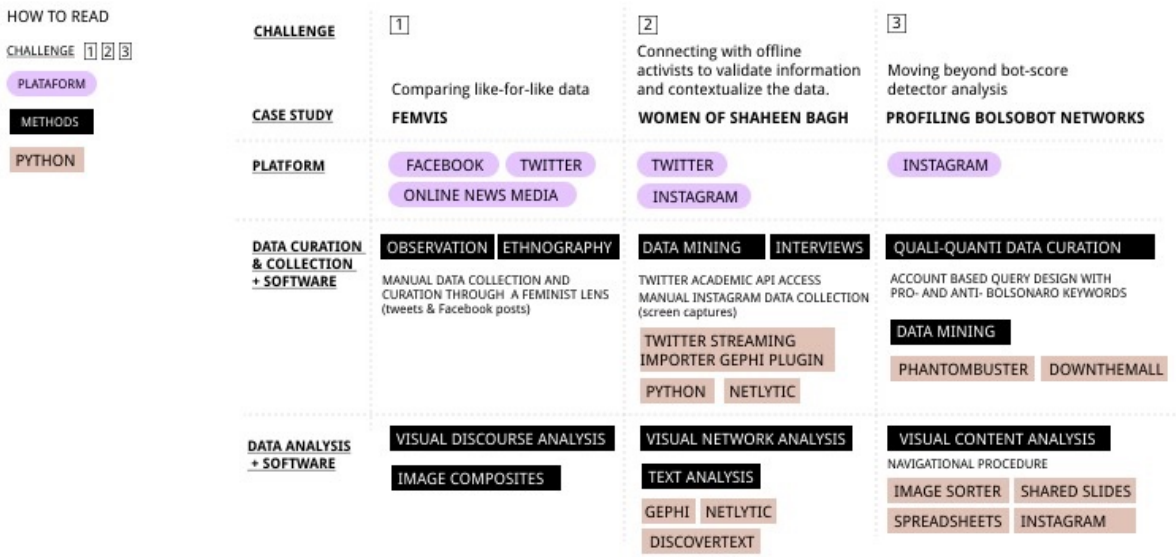


**Figure 2.** Visual protocol of the individual case studies (diagram created by Janna Joceli Omena and Beatrice Gobbo)

The projects presented here were conducted individually, but interlink through their shared focus on visual protest and/or politics. While visual protest and politics are not subject to a common definition or political category, we broadly define these as digitally mediated political activity that draws on and is to a significant part narrated by visual artefacts such as, for example, digitally native or digitised photographs, cartoons, memes, videos, gifs. This definition follows on from Karatzogianni's (2015: 1) definition of "digital activism' as digital technology use for "political conduct aiming for reform or revolution by non-state actors and new socio-political formations such as social movements, protest organisations and individuals and groups from civil society, that is by social actors outside government and corporate influence", but considers state-actors in formal politics as part of the visual ecology of protest and politics (see also Bennett and Segerberg, 2012). Visual politics and protest may respectively include, for example, the spreading of political messages on various social media platforms and their sub-spaces through visual artefacts, visual commentary in original digital posts as well as in responses to these, visual-performative aspects of political movements that are digitally generated, archived, or (re-)shared, visualisations of political information and/or mis-/disinformation, or visual aesthetics of political action (see Baun et al. 2022; Geboers et al. 2020a, 2020b; Nissenbaum and Shifman, 2017; Philipps, 2012).

Projects on politics and protest were chosen for this particular endeavour for reasons tied to their critical social impact as well as their dependence on contextual factors. First, political images may contain both explicit and implicit political messages that are encoded (social semiotics), but not textually articulated. They are, in that sense, employed towards instigating specific political ideas, attitudes, or behaviours, within certain geopolitical contexts that require *decoding*. Second, the interpretation of these visuals is network- or community-dependent, particularly where these are polysemic (e.g. political memes and cartoons). As such, the interpretation of political or activist visuals depends on the original meanings encoded by their creators, their reframing, editing, or subversion by users who share or circulate them, as well as their contextual readings by the audiences within the specific political narrative spaces they engage in.

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## 4. New potentialities for rich digital visual research

### *4.1 Comparative research (FemVis)*

Traditionally, the label of comparative research has been applied to research applying the same research design to comparable entities (i.e. 'like-for-like') such as countries or distinguishable social groups (e.g. on the basis of their demographics). Digital social and visual research challenge comparability to a certain extent, in part due to the at times missing informational insights that allow for regional or demographic markers to be inferred, but also due to differing platform grammars and affordances that conflict with the 'like-for-like' principle. Due to these differing logics, in the context of comparative digital social research, triangulation additionally relates to (1) cross-platform research (rather than simply multi-platform; with platforms as locational or demographic proxies), (2) intersectional research and studies that apply positionality and 'demographic sensitivity' (i.e., who is studied in what kind of demographic space, and how do researchers position themselves in these spaces), as well as (3) multiple forms of analysing and visualising digital data (since digital data collection and analysis may overlap). These bases for comparison embed visual data within location- or demographic-based user practices.

To illustrate, in the FemVis project, standalone projects were compared on the basis of a specific digital-visual practice - visual misogyny, which was expressed through gender-ideological visuals or visuals recontextualised to serve hate, abuse, and political violence. The case studies (Greta Thunberg memes in the DENY Facebook group; Fanquan Girls meme-wars in the social movement on the Hong Kong Anti-Extradition Law Amendment Bill; visual artefacts shared on Twitter under the hashtag #SisterIDoBelieveYou; and cartoons of Grace Mugabe relating to presidential succession across seven African countries), had been designed and conducted in isolation. The basis of comparison consequently lay in their joint focus on a visual practice and grounding in feminist methods with differences in the individual methods as well as their individual media contexts, for example the individual platforms on which research was conducted. The latter was taken as a point of comparison in light of differing visual platform affordances.

In doing so, the collaborative efforts allowed to identify visual misogyny as a cross-platform phenomenon that (a) took place across different cultural and medial contexts, (b) was expressed in different formats, but (c) was also shaped by different platform affordances that produced varying kinds of visibilities, and (d) analysed through different methodologies that drew on software in myriad ways depending on what the specific research design required. For example, the cross-project comparison produced insights into how visual misogyny was negotiated and made visible to either a wider public through hashtags or limited to a more closely knit community gatekept by Facebook group moderators. It also allowed for views into differing sub-cultures of use in these platform spaces, i.e. horizontally comparative data, including different aesthetic practices and the limitations of single-modal research (e.g. single-platform). That is not to say that research can become entirely limitation-free if proper procedure is followed, nor that purely quantitative or qualitative research is by its very nature limited. Despite calls for quali-quanti approaches, 'quanti' is not by default objective nor is 'quali'' necessarily subjective as they are both situated, nor does the method by itself determine rigour. However, the cross-project comparison allowed for an observation of contextual differences such as platform, region, and aesthetic.

A more developed research design would in principle have allowed for the consideration of all these projects as part of a more unified comparative research design, albeit also subject to different time and funding constraints. It may, as such, have been considered the ideal case. Even so, the distinct research designs with different research teams allowed for considerations of positionality and access across different cases, as well as for a comparison of data produced through platform-tailored methods. For example, in some of the visual misogyny case studies such as the Greta Thunberg hate speech in the DENY Facebook group, the researchers became vulnerable due to their specific positioning (e.g. female, international) in relation to the researched group (male, US-based) as well as the platform's informational

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insights (Facebook, in overt research) into the researcher background (see figure 3). As such, benefits may also be gained in digital-visual research that triangulates cases post-data collection. This is especially the case with visual research since the context-dependent nature of visual data means that contexts such as individual platforms, media ecologies, and connected geopolitical regions provide lenses for comparison in the first place.

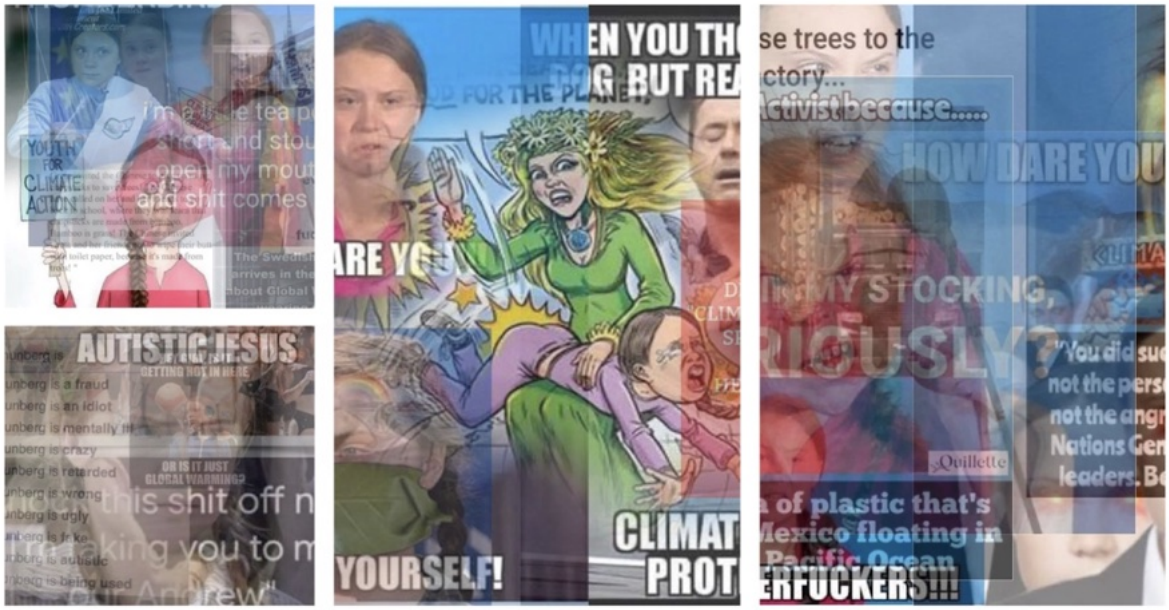


**Figure 3.** Example of unmoderated visual misogyny in the DENY Facebook group (image composite created by Suay Melisa Özkula)

A similar basis for comparison was Pearce and colleagues' (2020) "visual cross-platform analysis" (VCPA). There, visuals relating to the keyword 'climate change' were scraped from a set of five platforms: Instagram, Facebook, Tumblr, Reddit, and Twitter. Images were mined in separate but platform-appropriate research designs that followed the individual platform affordances and logics, for example hashtags on Twitter versus pages on Facebook. As such, platforms became the basis of comparison. Along similar logics, the visual misogyny project utilised the differences in research designs for comparisons of visual misogyny across different contexts. This means that separate situated and context-specific designs (i.e., spatially anchored, e.g. nation or platform) provide opportunities for triangulating contexts for visual phenomena (here: platformed visual misogyny).

### *4.2 Social media users amplifying a protest movement in India (SBP)*

Other potentialities for extra-hard data were identified in the combination of platform data with direct user engagement, which allowed for the collection of contextual information on the digital dataset. In this case, the research team examined how transnational Twitter/X users contributed to the amplification of a protest movement started by a group of female activists who were staging a protest offline in India. The amplification of their concerns created global visibility, made possible because of the involvement of social media users on-site and the strategies adopted by Twitter/X activists both on site and transnationally. The multiple sites, researcher positionalities, and access options offline and on other platforms provided views into different aspects. Thus, this approach benefitted strongly from the inclusion of contextual reflections in focused visualisations of the digital data scraped including researcher positioning, platform affordances, and information gathered through several offline contexts.

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The study used data network visualisation tools, such as Gephi and Netlytic, to mine data and examine smaller sections of larger datasets, and found tweets that cross-referenced hashtags such as #shaheenbaghprotests, #dadisofshaheenbagh, #womenofshaheenbagh, and #shaheenbaghdadis. These were hashtags that amplified the offline presence of women from the community who were protesting against the CAA/NRC (Citizenship Amendment Act/National Registry of Citizens) policies being voted on at that time in India. However, the tweet network by itself could not provide insights into how the visibility was produced and how various actors engaged with the algorithmic interface to amplify the movement. The research team therefore carefully examined each networked group of interactions to identify patterns and then conduct interviews with offline participants. It was only by doing careful offline work that allowed for the interpretation of the Twitter/X activity in context and thus how multiple factors contribute to how a movement - externally visible or not - plays out.

To illustrate, figure 4 presents insights into the specifics of digital practices by highlighting how network visualisation can inadvertently magnify the impact of certain actions or individuals. In this bipartite network, the nodes represent Twitter/X accounts, connected through mentions. The blue node represents a Bollywood actress, @reallyswara, who has been mentioned by several other accounts (green nodes), thereby increasing her visibility within the network. Despite her lack of active tweeting during the offline event, she was still featured among the top ten. The methodological limitation here lies in understanding that @reallyswara received such a significant number of mentions online even though at this time she did not seem to be present on social media or on-site offline. However, background research to unveil the role of this particular user within the offline context showed that her role as celebrity amplifier extended beyond social media and that the amplification of her Twitter/X handles was the result of public comments of support made by her. While this accidentally contributed to the global amplification of the SBP, it was not part of the planned strategy of the offline activists. Yet her own location as a visible bollywood actor contributed to her being visible as well. When the team of researchers reached out to various people who were present on-site either as activists or onlookers, it transpired that there were many interventions by people who did not belong to the local community that were getting highlighted transnationally because of the way social media algorithms create visibility.

**Figure 4.** Network of Twitter/X mentions of @reallyswara that served to amplify this user's presence as one of the top ten in the particular time span

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### *4.3 Quali-quanti visual methods (profiling bolsobot networks)*

Another example of how digital visual research can be enhanced is through the application of visual quali-quanti methods (as developed by Colombo, Bounegru and Gray 2023; Rabello et al. 2022; Omena et al. 2024; Venturini, Jacomy and Jensen 2021), which embrace a triple principle consisting of rich data curation, reiterative image data collection and interpretation (i.e. extra-hard data). This potentiality is exemplified by the Public Data Lab project Profiling Bolsobot Networks. The project[6] focuses on investigating the activities of bolsobots, social media accounts that promote or demote Jair Bolsonaro's political agenda, in the context of online and offline political debates in Brazil. The project utilises quali-quantitative methods to define bolsobots as accounts operated by specialised marketing teams, hackers/activists, campaign supporters, or paid workers, that are either partially or fully automated. These accounts often use profile pictures of Bolsonaro that depict him as a (un)likeable persona, as well as national, political, and cultural symbols.

From the visual methods implemented in this project, image analysis follows colour cluster similarity analysis. The first step involves designing the queries to scrape Instagram data by searching for and testing keywords used in online and offline conversations about Bolsonaro. The initial list of keywords indicate positioning efforts (Akrich and Latour, 1992), reflecting "the connections people are currently making of a word or phrase, whether established or neologistic" (Rogers, 2019, p.37). For instance, 'Bolsonaro mito' (myth) is a form of praise that depicts him as a heroic figure, while 'Bolsonaro genocida' (genocidal) is a clear accusation (figure 5). The project enhances the list of keywords by incorporating an interactive approach, enabling the researcher to generate new search queries to refine the keyword selection, e.g. in figure 5, 'memes mito' (on the left) and 'anti bozo'(on the right).

In this context, 'mito' is a nickname adopted by Bolsonaro supporters and is associated with his image as a tough-talking, anti-establishment figure who promised to combat corruption, reduce crime, and restore Brazilian traditional values. Nevertheless, the former president came to be referred to as 'Genocida' because of his controversial handling of the health crisis during the pandemic. Healthcare professionals and various sectors of society accused him of failing to respond to necessary health measures, downplaying the severity of the virus, promoting unproven treatments, and showing resistance to vaccination efforts. Figure 5 demonstrates that these contextual keywords also ressonate on Instagram search results, indicating specific usage cultures on account creation. When searching for terms such as 'Bolsonaro' and 'mito', or 'Genocida', a substantial number of memetic and bot accounts are recommended. After verifying and accepting the platform's recommendations, 70 pro- and anti-Bolsonaro accounts were listed. They serve as entry points to building the project datasets with Phanthombuster: who these accounts follow and their public profile description. Downloading the images and knowing in advance the short life span of Instagram image URLs[7] was therefore a priority. On the same day that the project succeeded in scraping the following networks (with a maximum of seven thousand accounts per seed), all images were accessed and downloaded through their uniform resource locator (URL). This process, from query design to dataset building, reflects the qualitative fronts of digital methods and what we describe here as a comprehensive image data curation process (i.e. extra-hard data).

[6] https://publicdatalab.org/projects/profiling-bolsobot-networks/

[7] The lifespan of image URLs can vary between different platforms. Platforms may remove or expire image URLs to free up storage space or manage their content or they can use dynamic URLs generated on the fly rather than being assigned a permanent URL. Also, users can delete online content.


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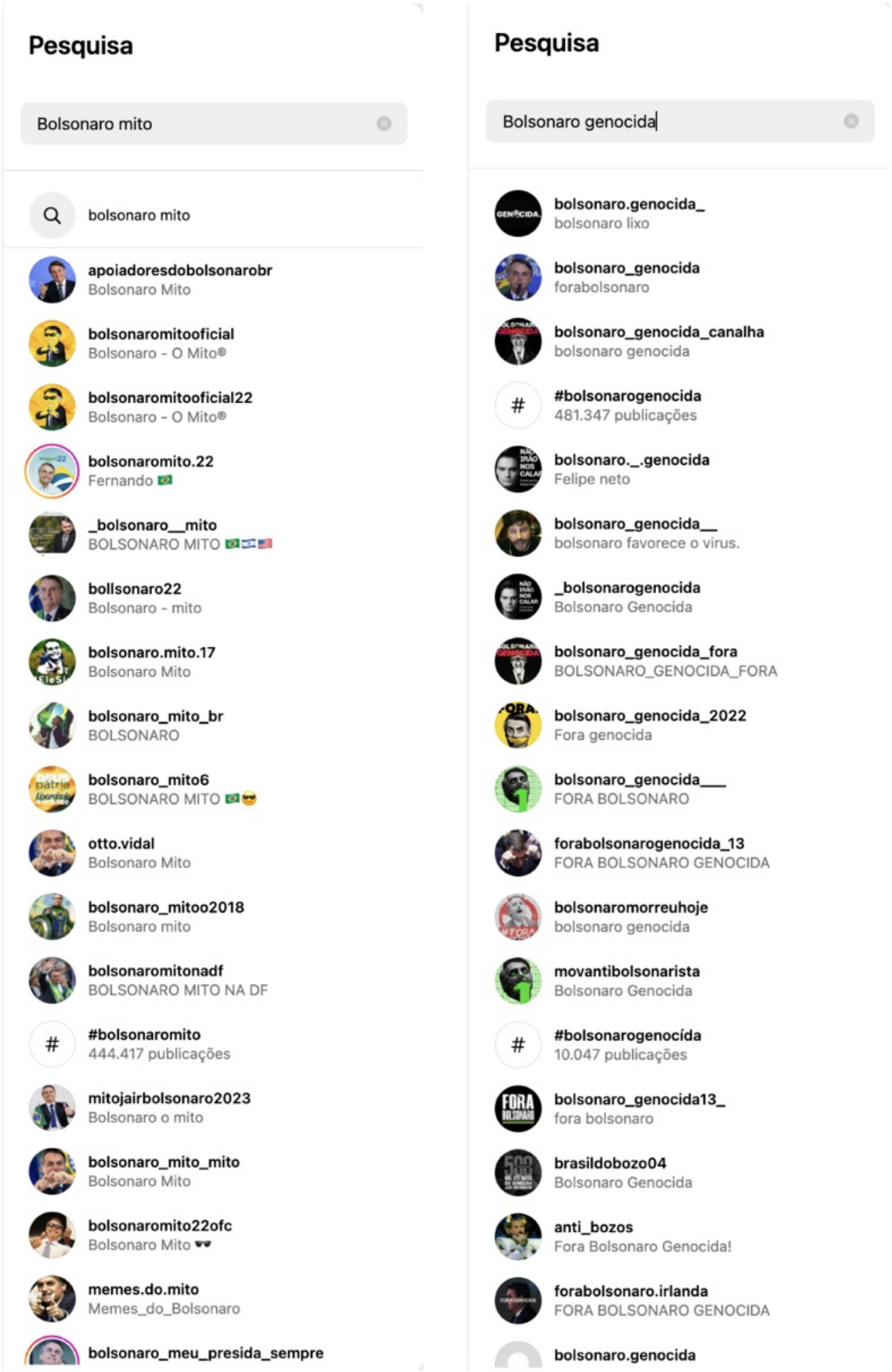


**Figure 5.** Example of contextual keywords in the project Profiling Bolsobot Networks (screen capture: 26 April 2023)

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In the context of the reiterative process of interpretation, digital visual research offers possibilities beyond what is visible in data visualisation interface software. In the Profiling Bolsobot Networks project, image metadata was consulted, i.e. using spreadsheet software and the image folder. Also, the Instagram interface was visited, and a Google Slides shared document was created for recording collective annotation and screen captures. Image-based analysis encompassed dominant image clusters grouped by colour similarity, image repetition, the presence or absence of profile avatars and suspicious human clusters. Figure 6 illustrates each of these analytical units showcasing the potential of software-oriented research and digital methods. Colour similarity revealed political and ideological representations that are either shared or reappropriated by pro- and anti- Bolsonaro supporters, e.g. the Brazilian flag, turn right or left symbols and the use of Anti-Facist logos. In comparison, the avatar[8] and human clusters[9] point to unobtrusive bots and fake accounts attempting to pass as individuals. The latter are known to be a costly service in the bot market, precisely because the accounts resemble ordinary people. The former, the so-called ghost accounts, in comparison, refers to an unsophisticated typology of bots that operate in unobtrusive modes, such as turning on the private feature on Instagram and playing a role as central and bridging actors in bot following networks (see Omena et al. 2024).

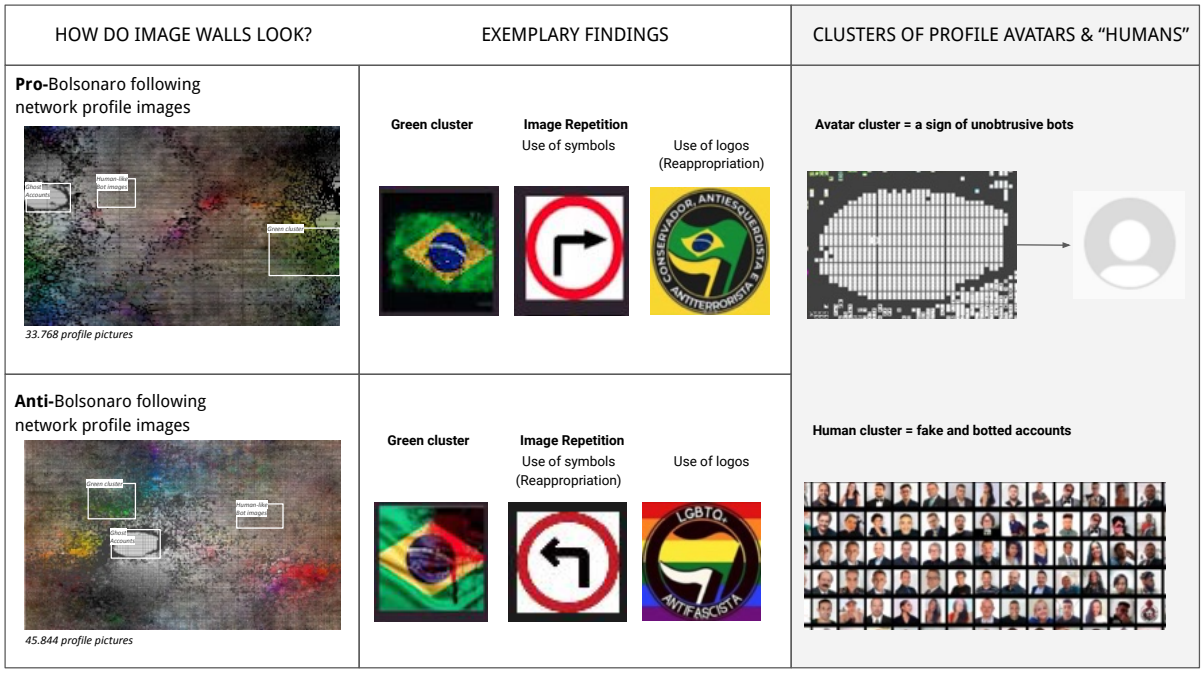


**Figure 6.** Profiling Bolsobot Networks project and image collection-based analysis

The Profiling Bolsobot Networks project offered a descriptive insight into the process of rich data curation, iterative interpretation, and multi-level inquiries. These practices are guided by a comprehensive understanding of the topic under investigation (i.e. antagonistic political debates in Brazil) and, equally importantly, demonstrate how close engagement with software opens up new avenues and modes of thinking with image datasets through quali-quanti visual methods.

[8] It is a default profile image used in Instagram for profiles that have not uploaded a profile picture.
[9] Headshot pictures using the same white background, probably coming from stock image webpages, AI generative tools or more craft montages.

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## 5. Principles for extra-hard visual research

Building upon methodological reflections from the case studies, we present critical considerations and recommendations for digital social research, proposing a manifesto for extra-hard data and quali-quanti visual methods (QQVM). This manifesto serves as an invitation and explanation for designing and implementing digital methods research in a manner that goes beyond treating visual data as an isolated entity. Instead, it emphasises the importance of considering the environment from which the data originates and, aligning with Omena's methods theory (see Omena et al. 2024), the additional layers of meaning that arise through software extraction, analysis, and visualisation, resulting in what we call extra-hard visual data.

*Data curation and collection aligned with and responsive to the online space being investigated.* Extra-hard visual data suggests the avoidance of disconnected practices, such as selecting keywords without thorough navigations of the platform environment that mediates the case. This includes asking empirical questions about the use of hashtags, keywords, usernames, or other digital objects for data scraping, crawling, or API calls. Researchers may need to dedicate time to observing, searching, and engaging with the online space before the completion of the full research design. This includes understanding the prevalent usage culture and unique technological grammar of the platform. Additionally, technical knowledge of the extraction software is necessary, as crucial decisions regarding data collection parameters will be imprinted in the scraped data.

*Considerations of the diverse platform (sub)spaces, user dynamics, and cultures informing digital datasets (in- or post- research design).* While diverse platform affordances and user dynamics may suggest that platform comparisons on the basis of platform-specifically designed research do not necessarily produce authentically comparative data, rich post-design comparisons may allow for a review of how platform spaces and diverse national contexts have impacted the data and results obtained. As such, extra-hard data may be achieved through individualised research designs and subsequent cross-project analysis and triangulation. This also allows for a partial mitigation of time and funding restrictions that are particularly out of reach for early-career and otherwise underfunded or unsupported researchers.

*Exploratory, iterative, and multi-level analysis of visualisation software.* Visualising networks (e.g., using Gephi) or image collections (e.g., with ImageSorter) requires the recognition that visualisation software is not an end in itself but serves as a starting point to explore the relational nature of online data. Conducting multi-level inquiries requires both a solid technical understanding of the chosen tools and an awareness of the steps and decisions that contribute to the final visualisation. For example, examining images grouped by colours and identifying image repetition requires questioning how the datasets, platforms, and data collection decisions contribute to this pattern.

*Contextualising statistical or metadata.* Ideally, mined platform data will be interrogated in light of the wider context of a given protest case towards triangulating the activity of digital social movements. This may include on-the-ground engagement with protesters through interviews or other methods that engage directly with users and provide depth and context to statistical data obtained remotely.

## 6. Discussion & conclusion

### *6.1 Easy, hard, & extra-hard data*

This paper has presented evidence from the field and current research on visual politics and protest to show the presence of what we have consequently termed *extra-hard data*. We demonstrated that extra-

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hard approaches are a possibility afforded by new digital and internet research methods, as well as a prerequisite for reading visual data. We argued that easy data access has distracted scholars from the potentialities of the computational turn through which digital methods have provided avenues for data contextualisation and situatedness towards more nuanced, robust, rich, comparative, and versatile visual research that better contextualises politics and protest. The notion (and even presence) of extra-hard data suggests that the collection and interpretation of easy or hard data are matters of choice and opportunity, but not in itself an impossibility of any specific method including the use of computational tools.

This paper additionally suggests that research software and data alone do not conduct or establish research; they rely on researchers to unpack their potential. By asserting that "extra-hard" data already exists, we argue that limiting such data to traditional humanities-based textual analysis constrains its broader possibilities. For instance, while topic modelling can provide a surface-level analysis, it cannot replace the profound hermeneutical work required for in-depth understanding. Similarly, software alone cannot establish meaningful research in and by itself. This understanding stems from practical and technical considerations, including becoming familiar with research software, their methods and data visualisation, the data's origin and the context in which it is collected, and the empirical interpretation of the resulting outputs from this process.

### *6.2 Binary perspectives reconsidered*

All this is not to say that the easy-hard discussion is a hard binary or, with extra-hard data, a ternary. If anything, the methodological potentialities presented here provide room to question such distinctions. In using the term extra-hard data, we suggest that there is room for developing data practices in digital social research that move away from methodological habits that regard single aspects of common methodological binaries (e.g. easy and hard, qualitative and quantitative, or visual and textual) and speak to the relational nature of data and computational media in their own terms (particularly the case with visual data). In many ways, this is a matter of bridging research mindsets that strictly apply methodological binaries. Binary perspectives do not apply in the very same way in digital social research, a point illustrated in the quali-quanti approach. Nevertheless, qualitative internet research and digital methods are often implied to be at odds. While qualitative research tends to be connotated as small-scale but rich and contextualised, software-based approaches carry the connotation of being descriptive and decontextualised. Even so, extant research (including the cases presented here) suggests that these complement each other, for example in that software-based approaches situate qualitative data and the latter provides texture to the former.

There is, in that regard, a need to rethink how the scientific community views software-based methods, and to critically interrogate visual methods and its tools as an isolated technical process detached from qualitative inquiry. If anything, it may be the binaries, singular choices, and resulting hierarchies that create a preponderance of certain types of research and threats of digital bias in the first place. The notion of easy data may potentially even lead to disengaged attitudes towards computational mediums that are required to design and implement digital social research and the data collected through these due to the implied flat, reductionist, or instrumental data uses, i.e. a disregard of computational mediums as carriers of meaning and the technical-relational nature of online data. These are, in part, of course, tied to the choice and relevance of available tools, platform governance, access restrictions, funding, and other factors that may produce easy data approaches, but they also imply at times fuzzy understandings and applications of methodological processes as well as misunderstood or overlooked efforts in software-based research. In light of these considerations, this paper argues in favour of methodological approaches that break these conventions.

Beyond these provocations, it is our hope that future research will increasingly employ hybridity, triangulation, intersectionality, rich cross-project comparisons, and efforts at contextualisation. Even so, we understand that such efforts are underpinned by underlying inequalities and power differentials. Extra-

hard data often remains the domain of privileged individuals, institutions, and regions, above all in relation to access to data, networks, skills, funding, security, and other forms of privilege. In relation to digital methods specifically, these differences in equity become particularly significant due to the field's specific requirements for software skills, costly training workshops, and the related necessity for funding. This complexity is exacerbated by issues around tool transparency, platforms' 'research gatekeeping', invisible social dynamics, changing platform features, platform governance, and issues in tool usage conventions. This may well mean that 1) academic institutions and platform providers will need to offer the conditions that allow extra-hard data to become a feasible option (through training, funding, and access), and that 2) scholars conducting research with extra-hard data need to expand their practices of making digital methods worksheets, methods recipes, and coding notebooks publicly available towards democratising access to such methods.

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## References

Akrich, M., & Latour, B. (1992). A summary of a convenient vocabulary for the semiotics of human and nonhuman assemblies. In W. Bijker & J. Law (Eds.), *Shaping technology/building society: Studies in sociotechnical change* (pp.259–264). Cambridge: MIT Press.

Bastian, M., Heymann, S., & Jacomy, M. (2009). Gephi: An Open Source Software for Exploring and Manipulating Networks. Third International AAAI Conference on Weblogs and Social Media, 361–362. https://doi.org/10.1136/qshc.2004.010033

Baun, P. S., Schlüter, M., et al. (2022). Let's Play War: Inside 4chan's intergroup rivalry, contingent community formation, and fandomized war reporting. Retrieved from https://wiki.digitalmethods.net/Dmi/SummerSchool2022chugginguhg

Bennett, W. L., & Segerberg, A. (2012). The logic of connective action. Digital media and the personalisation of contentious politics. *Information, Communication & Society*, 15(5), 739–768. https://doi.org/10.1080/1369118X.2012.670661

Berry, D. (2011). The computational turn: Thinking about the digital humanities. *Culture Machine*, 12, 1–22. https://culturemachine.net/wp-content/uploads/2019/01/10-Computational-Turn-440-893-1-PB.pdf

Burgess, J., Angus, D., Carah, N., Andrejevic, M., Hawker, K., Lewis, K., … Li, L. (2021, November 6). Critical simulation as hybrid digital method for exploring the data operations and vernacular cultures of visual social media platforms. https://doi.org/10.31235/osf.io/2cwsu

Burgess, J., & Bruns, A. (2015). "Easy data, hard data: The politics and pragmatics of Twitter research after the computational turn". In G. Langlois, J. Redden, & G. Elmer (Eds.), *Compromised data: From social media to Big data* (pp. 93–111). Bloomsbury Publishing.

Burgess, J., & Matamoros-Fernández, A. (2016). Mapping sociocultural controversies across digital media platforms: one week of #gamergate on Twitter, YouTube, and Tumblr. *Communication Research and Practice*, 2(1), 79-96. https://doi.org/10.1080/22041451.2016.1155338

Burgos-Thorsen, S. & Munk, A. K. (2023). Opening alternative data imaginaries in urban studies: Unfolding COVID place attachments through Instagram photos and computational visual methods. *Cities*, 141, 1-21. https://doi.org/10.1016/j.cities.2023.10447

Chao, J. (2021). Memespector-GUI: Graphical User Interface Client for Computer Vision APIs (Version 0.2.5) [Computer software]. https://doi.org/10.5281/zenodo.7704877

Colombo, G., Bounegru, L., & Gray, J. (2023). Visual Models for Social Media Image Analysis: Groupings, Engagement, Trends, and Rankings. *International Journal Of Communication*, 17, 28. https://ijoc.org/index.php/ijoc/article/view/18971

Colombo, G. (2019). Studying Digital Images in Groups: The Folder of Images. In L. Rampino & I. Mariani (Eds.), Advancements in Design Research: 11 PhD Theses on Design as We Do in Polimi (pp. 185–195). Franco Angeli Open Access.

D'Andrea, C., & Mintz, A. (2019). Studying the live cross-platform circulation of images with computer vision API: An experiment based on a sports media event. *International Journal of Communication*, 13. https://ijoc.org/index.php/ijoc/article/view/10423

de Zeeuw, D., & Tuters, M. (2020). The Internet is Serious Business: On the Deep Vernacular Web and its Discontents. *Cultural Politics*, 16(2), 214-32. https://doi.org/10.1215/17432197-8233406

Geboers, M., Van De Wiele, A., & Chad, T. (2020a). Regimes of visibility and the affective affordances of Twitter. *International Journal of Cultural Studies*, 23(5), 745–765. https://doi.org/10.1177/1367877920923676

Geboers, M., Stolero, N., Scuttari, A., Van Vliet, L., & Ridley, A. (2020b). Why Buttons Matter: Repurposing Facebook's Reactions for Analysis of the Social Visual. *International Journal of Communication*, 14(22). https://ijoc.org/index.php/ijoc/article/view/11657

Gibbs, M.; Meese, M., Arnold, M., Nansen, B., & Carter, M. (2015). #Funeral and Instagram: Death, Social Media, and Platform Vernacular. *Information Communication and Society*, 18(3), 255-268. https://doi.org/10.1080/1369118X.2014.987152

Gray J., Bounegru L., Milan S., Ciuccarelli P. (2016). Ways of seeing data: Toward a critical literacy for data visualizations as research objects and research devices. In Kubitschko S., Kaun A. (Eds.), *Innovative methods in media and communication research* (pp. 227–251). Palgrave Macmillan.

Hargittai, E. (2020). Potential biases in Big data: Omitted voices on social media. *Social Science Computer Review*, 38(1), 10–24. https://doi.org/10.1177/0894439318788322

Lazer, D. M. J., Pentland, A., Watts, D. J., Aral, S., Athey, S., et al. (2020). Computational social science: Obstacles and opportunities. *Science*, 369,1060-1062. https://doi.org/10.1126/science.aaz8170

Karatzogianni, A. (2015). *Firebrand waves of digital activism 1994-2014: The rise and spread of hacktivism and cyberconflict*. Basingstoke: Springer.

Manovich, L. (2020). *Cultural analytics: Visualizing cultural patterns in the era of big data*. Cambridge, MA: MIT Press.

Manovich, L. (2007). Cultural Analytics: white paper (5/2007; latest update 11/2008). With contributions by Noah Wardrip-Fruin. http://lab.culturalanalytics.info/p/publications.html

Manovich, L., Gianchino, M., Chow, J. (2012) Image Montage v. 1.1. Available at: https://imagej.nih.gov/ij/plugins/image-montage/index.html

Marres, N. (2020). For a situational analytics: An interpretative methodology for the study of situations in computational settings. *Big Data & Society*, 7(2). https://doi.org/10.1177/2053951720949571

Marres, N., Colombo, G., Bounegru, L., Gray, J. W. Y., Gerlitz, C., & Tripp, J. (2023). Testing and Not Testing for Coronavirus on Twitter: Surfacing Testing Situations Across Scales With Interpretative Methods. *Social Media + Society*, 9(3). https://doi.org/10.1177/20563051231196538

Marres, N. (2017). *Digital sociology: The reinvention of social research*. Cambridge: Polity.

Mauri, M., Elli, T., Caviglia, G., Uboldi, G., & Azzi, M. (2017). RAWGraphs: A Visualisation Platform to Create Open Outputs. In Proceedings of the 12th Biannual Conference on Italian SIGCHI Chapter (p. 28:1–28:5). New York, NY: ACM. https://doi.org/10.1145/3125571.3125585

Medialab Tools. Table2Net Available from https://medialab.github.io/table2net/

Nissenbaum, A., & Shifman, L. (2017). Internet Memes as Contested Cultural Capital: The Case of 4chan's /b/ Board. *New Media & Society*, 19(4), 483-501. https://doi.org/10.1177/1461444815609313

Niederer, S., & Colombo, G. (2019). Visual Methodologies for Networked Images: Designing Visualizations for Collaborative Research, Cross-platform Analysis, and Public Participation. *Diseña*, (14), 40–67. https://doi.org/10.7764/disena.14.40-67

Pearce, W., Özkula, S. M., Greene, A. K., Teeling, L., Bansard, J. S., Omena, J. J., & Rabello, E. T. (2020). Visual cross-platform analysis: Digital methods to research social media images. *Information, Communication & Society*, 23(2), 161-180. https://doi.org/10.1080/1369118X.2018.1486871

PhantomBuster [web application software]. https://phantombuster.com/

Philipps, A. (2012). Visual protest material as empirical data. *Visual Communication*, 11(1), 3–21. https://doi.org/10.1177/1470357211424675

Omena, J. J. (2021). Digital Methods and Technicity-of-the-Mediums. From Regimes of Functioning to Digital Research. Doctoral Thesis. Available at: https://run.unl.pt/handle/10362/127961

Omena, J. J., Pilipets, E., Gobbo, B., & Chao, J. (2021). The Potentials of Google Vision API-based Networks to Study Natively Digital Images. *Diseña*, (19), Article.1. https://doi.org/10.7764/disena.19.Article.1

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Omena, J. J., Lobo, T., Tucci, G., Bitencourt, E., de Keulenaar, E., Kerche, F., Chao, J., Liedtke, M., Li, M., Paschoal, M. L., & Lavrov, I. (2024). Quali-quanti visual methods and political bots: A cross-platform study of pro- & anti-bolsobots. *Journal of Digital Social Research*, 6(1), 50-73. https://doi.org/10.33621/jdsr.v6i1.215

Özkula, S. M. , Prieto-Blanco, P., Tan, X., & Mdege, N. (2024). Affordances and platformed visual misogyny: a call for feminist approaches in visual methods. *Feminist Media Studies*, 1-22. https://doi.org/10.1080/14680777.2024.2311355

Özkula, S. M., Reilly, P. J., & Hayes, J. (2022). Easy data, same old platforms? A systematic review of digital activism methodologies. *Information, Communication & Society*, 26(7), 1470–1489. https://doi.org/10.1080/1369118X.2021.2013918

Puschmann, C. (2019). An end to the wild west of social media research: a response to Axel Bruns. *Information, Communication & Society*, 22(11), 1582-1589. https://doi.org/10.1080/1369118X.2019.1646300

Rabello, E. T., Gommeh, E., Benedetti, A., Valerio-Ureña, G., & Metze, T. (2022). Mapping online visuals of shale gas controversy: a digital methods approach. *Information, Communication & Society*, 25 (15), 2264–2281. https://doi.org/10.1080/1369118X.2021.1934064

Rasband, W.S. (1997-2018). ImageJ, U. S. National Institutes of Health, Bethesda, Maryland, USA, https://imagej.nih.gov/ij/

Rieder, B. (2020). *Engines of Order: a mechanology of algorithmic techniques*. Amsterdam University Press.

Rieder, B. and Röhle, T. (2012) Digital Methods: Five Challenges. In D. M. Berry (Ed.), *Understanding Digital Humanities* (London: Palgrave Macmillan), pp. 67–84.

Ricci, D., Colombo, G., Meunier, A., & Brilli, A. (2017). Designing Digital Methods to Monitor and Inform Urban Policy: The Case of Paris and its Urban Nature Initiative. International Conference on Public Policy (ICPP3). https://hal.archives-ouvertes.fr/hal-01903809

Rogers, R. (1996). The future of STS on the web. *EASST Review*, 15(2), 25–27. https://www.researchgate.net/publication/239841669_The_Future_of_Science_and_Technology_Studies_on_the_Web

Rogers, R.. (2019). *Doing digital methods*. London: Sage.

Rogers, R. (2018). Otherwise engaged: Social media from vanity metrics to critical analytics. *International Journal of Communication*, 12, 450–472. https://ijoc.org/index.php/ijoc/article/view/6407/2248

Rogers, R. (2021). Visual media analysis for Instagram and other online platforms. *Big Data & Society*, 8(1). https://doi.org/10.1177/20539517211022370

Rogers, R. & Giorgi, G. (2023) What is a meme, technically speaking? *Information, Communication & Society*, 27(1), 73–91. https://doi.org/10.1080/1369118X.2023.2174790

Rogers, R., & Lewthwaite, S. (2019). Teaching Digital Methods: Interview with Richard Rogers. Interviewer: S. Lewthwaite. *Diseña*, 14, 12–37. https://doi.org/10.7764/disena.14.12-37

Rose, G. (2016). *Visual Methodologies* (4th ed.). SAGE Publications.

Schneider, C.A., Rasband, W.S. & Eliceiri, K.W (2012). "NIH Image to ImageJ: 25 years of image analysis". *Nature Methods*, 9, 671-675.

Software Studies Initiative (2011). ImagePlot software v. 1.1. http://lab.softwarestudies.com/p/imageplot.html

Selfiecity. (2023). Retrieved 16 May 2023. https://selfiecity.net/#

Stiegler, B. (2012). Die Aufklärung in the Age of Philosophical Engineering. Computational Culture. https://doi.org/10.1017/CBO9781107415324.004

Timeline: 4535 Time Magazine Covers, 1. (2016). Timeline: 4535 Time Magazine Covers, 1923-2009. Retrieved 16 May 2023, from http://lab.culturalanalytics.info/2016/04/timeline-4535-time-magazine-covers-1923.html

Tromble, R. (2021). Where have all the data gone? A critical reflection on academic digital research in the post-API Age. *Social Media + Society*, 7(1), 1–8. https://doi.org/10.1177/2056305121988929

Venturini, T. Bounegru, T., Gray, J., & Rogers, R. (2018). A reality check (list) for digital methods. *New Media & Society*, 20(11), 4195-4217. https://doi.org/10.1177/1461444818769236

Venturini, T. (2024). Quali-quantitave methods. In A. Irwin & U. Felt (Eds.), *Encyclopedia of Science and Technology Studies* (forthcoming).

Venturini, T., Jacomy, M. and Jensen, P. (2021). What do we see when we look at networks: Visual network analysis, relational ambiguity, and force-directed layouts. *Big Data & Society*, 8 (1). https://doi.org/10.1177/20539517211018488

Visual Computing (2018) ImageSorter [Software]. HTW Berlin - University of Applied Sciences. https://visual-computing.com/project/imagesorter/

Xue, C. (2014). Image Preview Plugin. https://gephi.org/plugins/#/plugin/image-preview

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# Understanding climate-related visual storytelling on TikTok

## A cross-national multimodal analysis

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### Abstract

This cross-cultural study investigates the prevalence and impact of climate-related campaigns on TikTok, with a specific focus on climate-related visual storytelling in Indonesia, Japan, Pakistan, the Philippines, Thailand, the United Kingdom, and the United States. Computational methods are employed in the study to analyse a dataset of 7,564 videos, providing insights into prominent visual characteristics and regional variations. The findings underline the significance of cultural and political contexts in shaping climate storytelling on TikTok. Furthermore, this research explores the potential of computational visual data analysis in studying climate communication, demonstrating the integration of computer vision and topic modelling to examine visual styles and communicative functions in TikTok's climate storytelling. The study enhances our understanding of climate communication on digital platforms and emphasizes the value of leveraging computational methods to gain meaningful cross-cultural insights into visual storytelling in the context of climate change.

Keywords: climate change; visual storytelling; TikTok; computer vision

### 1. Introduction

The proliferation of visually rich social media platforms has heralded the advent of the visual turn in digital communication, where imagery-based media texts, such as emojis, memes, and selfies, have gained increasing prominence as essential elements of communication. In recent years, the phenomenon of short videos has surfaced as the latest manifestation within our visually driven digital landscape, with the rapid rise of TikTok serving as a notable illustration. With more than one billion monthly active users worldwide (TikTok, 2021), TikTok is rapidly establishing itself as a crucial platform for fostering collective action (Hautea et al., 2021; Kaye et al., 2022), delivering news (Newman et al., 2023), and disseminating educational content (Cervi & Divon, 2023; Zeng, 2023). The growing socio-political significance of TikTok necessitates further academic research into the communications taking place on the platform.

To contribute to the emerging scholarship on TikTok, this study investigates visual storytelling relating to climate change on the platform. As informed by previous research, TikTok's unique technological affordances and user culture engender highly distinctive multimodal storytelling styles (Kaye et al., 2022;



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Zulli & Zulli, 2020). To examine how such characteristics shape climate-related communication, this paper focuses on visual storytelling via a multimodal approach.

Climate-related content on TikTok has achieved significant prominence and influence internationally, partially due to the platform's official endorsement of climate initiatives (Kaye et al., 2022). However, prior investigations into climate-related content on TikTok have predominantly focused on English-speaking countries (Basch, 2022; Hautea et al., 2021; Zeng & Abidin, 2021). To gain a more comprehensive perspective beyond these regions, this study adopts a cross-cultural perspective and compares climate-related TikTok videos across seven countries: Indonesia, Japan, Pakistan, the Philippines, Thailand, the United Kingdom (UK), and the United States (US). These regions exhibit varying levels of vulnerability to the repercussions of climate change, as defined by the Climate Risk Index (Eckstein et al., 2020), as well as varying levels of responsibility for action under the Kyoto Protocol (UNFCCC, 1997).

To systematically compare the climate-related visual storytelling across the aforementioned seven regions, the study relies upon a multimodal computational analysis approach to examine 7,564 videos. This analysis involves BERT-model-based topic clustering and computer vision techniques. Methodologically, the analytical approach proposed in the study showcases how visual storytelling can be systematically operationalized and automatically evaluated in the realm of climate communication while contributing to the fast-growing field of computational short video analysis. Theoretically, the findings derived from the cross-country comparison contribute to advancing a contextualized understanding of climate communication.

## 2. Literature review

### *2.1 Visual storytelling about climate change*

Visual storytelling has been practised throughout human history and plays an important role in preserving shared memories, generating knowledge, and constructing identities (McIver, 2016; Yılmaz & Ciğerci, 2019). Visual storytelling, as a research subject, is an encompassing and broad concept that has become a fast-growing subgenre of visual studies (Pimenta & Poovaiah, 2010). In this study situated in media and communication studies, visual storytelling is defined as the practice of using visual elements to convey narratives, information, and knowledge. Visual elements refer to presented components that can be sensed with the human eye, which could include both visual narrative elements (e.g. characters, place) and visual cues (e.g. colour, effects, and captions) (Goodnow, 2020). As our definition of visual storytelling implies, visual elements have both aesthetic and communicative functions.

The usage of visual elements and their associated effects vary depending on the intended narrative. On topics related to environmental issues, prior research highlights the significance of visual elements in media storytelling. For example, O'Neill's (2013, 2020) pioneering work on the visual framing of climate change unveils people as a prominent element in the visual coverage of climate change in newspapers. Additionally, her cross-national analysis reveals specific landscapes and wildlife as iconic representations of climate imagery (ibid). Research also shows that visual elements function as effective communication devices for increasing public awareness and inspiring behavioural change regarding environmental issues (Doyle, 2007; Wang et al., 2018).

The choice of medium significantly influences the approach and impacts of visual storytelling. While research on the visual dimensions of climate communication has generated increased scholarly interest, most of these studies examine news media, with a focus on traditional print platforms and their online counterparts (Schäfer, 2020). Prior research shows that the news media's visual depictions of climate change exhibit certain commonalities across diverse cultural contexts. Notably, imagery of the impacts of climate change, such as the retreat of glaciers and the occurrence of natural catastrophes, along with the inclusion of prominent figures, is prevalent in climate change news across countries (O'Neill, 2020; O'Neill & Smith, 2014).

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In recent years, the trend has been for climate communication to increasingly gravitate towards social media, where users actively create, share, and engage in discussions about climate change (Mooseder et al., 2023). As social media becomes increasingly central to discussions about climate change, it is important to understand the role of visual storytelling on these platforms. However, existing research on the visual aspects of climate-related communication on social media predominantly focuses on Twitter, with limited exploration of visually rich platforms (Pearce et al., 2019). Recent studies on climate-related visuals reveal that while memes, motivational quotes, and screenshots are prevalent on social media, the most engaging content typically features protests, people, and storytelling elements (León et al., 2022; Mooseder et al., 2023). In the literature, visual content is often found to be a key tool used by climate activist groups on social media to garner support and organize collective action (Askanius & Uldam, 2011; Molder et al., 2022).

The use of visuals can differ widely across social media platforms (Wang et al., 2018). On video streaming platforms, visual elements related to climate change often prioritize humour and emotional resonance, with scientifically reliable depictions taking a secondary role to more relatable content (Allgaier, 2019; Hautea et al., 2021). In the section below, we will discuss the particularity of TikTok for communication about climate change.

### *2.2 TikTok for climate*

In recent years, TikTok has emerged as a significant platform for youth engagement in climate change discourse. TikTok's collaborations with international Non-Governmental Organizations (NGOs) since 2019 have led to numerous global initiatives, including the #ForClimate campaign, which received hundreds of millions of views (Kaye et al., 2022). Such official endorsement has catalysed a diverse array of climate-related videos on the platform, ranging from humorous memes to serious lectures and from acting sketches to lip-syncs, fostering creative and engaging advocacy for climate action (Basch et al., 2022; Hautea et al., 2021; Zeng & Abidin, 2021).

However, climate activism on TikTok is motivated by diverse and even conflicting interests. As Hautea et al. (2021) put it, "climate-related expressions on TikTok take place in a complex social media ecosystem in which earnest activists compete with mocking satirists, playful attention-seekers, and bored time-killers for visibility and clout" (p. 2). Scholars have raised concerns about potentially misleading information and the under-representation of scientific evidence and credible sources in TikTok's climate-related content (Basch et al., 2022), echoing similar issues previously noted about climate-related videos on YouTube (Allgaier, 2019).

The communicative features and platform affordances of TikTok shape the storytelling about climate change. The platform offers a wide range of features to facilitate both sociality and creativity (Kaye et al., 2022; Zulli & Zulli, 2020). For instance, challenges, duets, and stitches, as well as reusable visual effects and soundtracks, enhance the "templatability" (Abidin 2021, p. 80) of TikTok videos, which allow others to easily react, imitate, and remix. Moreover, despite their compact size, TikTok videos incorporate a rich blend of textual, visual, and aural elements. The creation and editing process on TikTok often involves using special effects, filters, text stickers, and captions.

Previous content analyses of TikTok videos addressing climate change and science also indicate that the platform's affordances enable a wide range of engaging and multimodal communication by climate activists and scientists (Hautea et al., 2021; Zeng et al., 2021). TikTokers utilize features like green-screen and auto-captioning to incorporate text and audio elements on the screen, facilitating educational exchanges (Cervi & Divon, 2023; Kaye et al., 2022). This multimodality not only enables the delivery of impactful climate-related messages but also presents unique research opportunities, which will be elaborated upon in the following section.

### *2.3 Computational analysis of TikTok*

Although TikTok scholarship is expanding rapidly, methodologies for researching short videos and related user practices remain in the early stages of development. As mentioned above, the centrality of

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sound, visual vernacular, textual elements, and rich expression through choreography make TikTok videos powerful communication devices. However, doing a multimodal analysis of TikTok can be challenging. TikTok videos are multimodal but also highly intertextual, which makes it difficult to understand certain visual vernacular or to discern the creator's intent (Hautea et al., 2022). While acknowledging the importance of a qualitative in-depth reading and insights about the platform culture in studying TikTok videos, the rich modality of TikTok videos presents new opportunities for automated analysis using computational approaches (Lu & Pan, 2022; Jiang, Jin, & Deng, 2022).

Firstly, the bit-sized short videos make it computationally more affordable for researchers to conduct automated analyses, in comparison to long-format videos, such as YouTube videos. Moreover, like on other social media platforms, TikTok videos come with rich metadata that offer insights into the content's impacts (with engagement metrics), authorship (e.g. user profile information), and content characteristics (e.g. video captions and sound information). It is worth mentioning that the platform's recent launch of Research API can greatly improve the accessibility of structured platform data (TikTok, 2023).

Moreover, the rapid advancement of computer vision provides a comprehensive toolkit for retrieving and analysing visual data from large volumes of video data. Some of the most commonly used computer vision techniques include object detection, image classification, pattern recognition, and facial recognition, all of which are highly relevant in analysing multimodal content on TikTok. The multimodal computational analysis of TikTok content, though a niche field, is increasingly attracting the attention of media and communication scholars. Of the handful of publications about TikTok employing computational methods, several recent studies (e.g. Jiang et al., 2022; Lu & Pan, 2022; Lu & Shen, 2022) conduct feature extraction through computer vision. Surabhi et al. (2022) detect sentiment in TikTok videos through facial expression analysis. In other examples, scholars classify and identify potentially harmful content on TikTok by studying social networks and multimodal content features (Bonifazi et al., 2022; Qi et al., 2022). These pioneering examples demonstrate the potential and operationalization of multimodal computational studies on TikTok.

### *2.4 Research gap & research questions*

There are several gaps in the related scholarship that this study aims to address. First, prior studies investigating communication about climate change on social media have predominantly utilized text-based analysis, overlooking the multimedia nature of digital communication (Pearce et al., 2019). The few studies that have examined climate-related visuals on social media have relied on manual approaches, such as discourse analysis and qualitative or quantitative content analysis, with relatively small sample sizes (e.g. Allgaier, 2019; Basch et al., 2022; Molder et al., 2022). Additionally, previous qualitative visual analyses of climate-related content have often employed purposive sampling, focusing on well-known individuals or groups, like Greenpeace and Greta Thunberg (e.g. Molder et al., 2022; Pramana et al., 2021), or prominent events, such as COP summits (e.g. Askanius & Uldam, 2011). The in-depth qualitative insights generated by these studies are valuable and could be enhanced by research employing novel computational research methods. As discussed above, advances in computational visual analysis, such as computer vision, allow researchers to experiment and develop new approaches to systematically analyse large volumes of visually rich climate-related content. Exploring the implementation of these methods to produce significant findings can greatly contribute to the advancement of visual storytelling scholarship, particularly in the context of climate change.

Furthermore, in the field of visual climate communication and climate communication more broadly, there is a notable under-representation of studies that include cross-cultural comparative perspectives. Although climate change is a global issue, the prevailing body of research on this subject concentrates on the Global North (Blicharska et al., 2017; Schäfer & Schlichting, 2014), while regions in underdeveloped areas with higher susceptibility to climate change often receive insufficient attention in the academic literature (Althor et al., 2016). The varying levels of vulnerability to climate change influence how the issue is communicated and covered in different regions. For instance, Schäfer and Painter (2020) argue that substantial disparities in climate-related news coverage exist between the Global North and South.

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Countries in the Global North tend to cover more climate politics and science, while the climate-related coverage in Global South countries tends to focus on challenges and societal implications (Grundmann & Scott, 2014; Hase et al., 2021; Schmidt et al., 2013; Vu et al., 2019). Such disparities and complexities need to be better incorporated into research on visual storytelling about climate change, which is dominated by English-speaking countries (O'Neill, 2020; Wozniak et al., 2015) or platforms that are popular within English-speaking countries (Pearce et al., 2019; Wang et al., 2018).

To address these gaps, this study employs a multimodal design to investigate the visual and textual communication about climate change on TikTok using computer vision algorithms and topic modelling. We use data from seven countries representing both the Global North and South, characterized by varying levels of responsibility for and vulnerability to climate change (Eckstein et al., 2020; UNFCCC, 1997). In this study focused specifically on the visual aspect of TikTok videos, we address the following research questions:

*RQ1. What are the key characteristics of climate-related visual storytelling on TikTok?*

The study operationalizes this concept by examining two dimensions: visual style, which refers to the aesthetic characteristics determined by primary visual elements, and communicative functions, which pertain to the explicit purpose or goal of the conveyed messages. In line with this operationalization, RQ1 encompasses two sub-research questions:

*RQ1a. What are the key characteristics of the visual styles in these videos?*

*RQ1b. What are the key characteristics of the communicative functions in these videos?*

The study's second objective involves comparing cross-cultural differences in climate-related visual storytelling on TikTok by addressing the following question:

*RQ2. How does the climate-related visual storytelling on TikTok differ across countries?*

## 3. Methods

### *3.1 Data collection*

The data collection was based on a list of hashtags[1], curated through a combination of deductive and inductive approaches. Deductively, we consulted prior research, including content analyses and experimental studies examining the prevalence or consequences of climate change labels (e.g. climate change, climate crisis), to create a list of terms used frequently to characterize the issue (Grundmann & Scott, 2014; Jaskulsky & Besel, 2013; Schäfer & Schlichting, 2014; Song et al., 2021). Based on these studies, we identified several hashtags, including "climate change", "global warming", "climate crisis", "climate emergency", and "global heating". Since the majority of extant research has been conducted in a news media context, and there may be a more diverse discussion about climate change on social media (Segerberg & Bennett, 2011), we relied on a snowball approach to gather social media hashtags inductively. We began with hashtags obtained from the literature as search terms and gathered co-occurring climate-related hashtags under the top search results returned by TikTok. We excluded hashtags that appeared in fewer than 1,000 posts. Furthermore, we added six non-English hashtags to obtain extra Japanese, Thai, and Indonesian content to ensure at least 200 videos per sampled country[2]. Subsequently, we manually read through all hashtags and excluded those that were either too general (e.g. #environment, #climate) or did not directly reflect climate change (e.g. #deforestation, #plasticfree). To validate the selection of hashtags, two coders manually annotated the relevance[3] of 800 randomly sampled videos (50 videos per hashtag). After excluding videos that could not be accessed or annotated, 81.30% of the videos

[1] #climatechange, #globalwarming, #greenhouseeffect, #climateaction, #climatechangeawareness, #climatecrisis, #climateemergency, #climatejustice, #climateactivism, #climatechangeisreal, #気候変動, #温暖化, #地球温暖化, #ภาวะโลกร้อน, #perubahaniklim, #pemanasanglobal

[2] Information about the country is included as part of the metadata accompanying each video.

[3] Two coders coded the videos manually as 0 (not relevant to climate change), 1 (relevant to climate change), 2 (video is not accessible or video is in a foreign language and cannot be understood by watching and translating its description and caption texts) ($\alpha = .76$).

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($n$ = 690) were found to be relevant to climate change[4]. Therefore, using any of the selected hashtags appearing at least once in the video description as a criterion, we could conclude that the majority of videos in the dataset were related to climate change.

The data collection took place in April 2023. Using Python 3.10 programming language and the Python libraries Beautiful Soup (Richardson, 2007) and Selenium (version 4.16.0), we followed the procedure outlined in Figure 1 to collect video metadata and extract video URLs. From each TikTok hashtag webpage, we extracted all featured video URLs after parsing the HTML content. To account for videos that may include multiple climate change-related hashtags and appear on multiple hashtag pages, we identified and removed duplicate entries. This process resulted in a total of 10,068 unique video links. Next, we visited individual video pages and scraped metadata related to the study, including essential information, such as video ID, publication timestamp, and engagement metrics (e.g. likes, shares, comments, and views). Additionally, the metadata included details regarding the creator's user ID and country. After filtering out videos originating from outside the seven targeted countries, we were left with 7,564 entries. These videos were then downloaded for further analysis. The publication dates of the collected videos ranged from 16 September 2018, to 4 April 2023. Table 1 provides an overview of the videos included in the dataset.

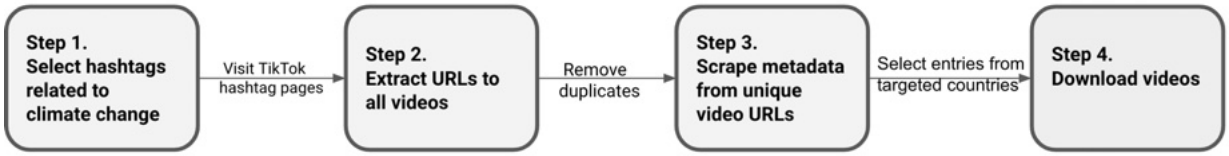


**Figure 1.** Data collection steps

**Table 1.** Overview of videos from each country[5]

| Country | Video count[6] | Duration (mean) | Like (mean) | Share (mean) | Comment (mean) | Play (mean) |
|---|---|---|---|---|---|---|
| US | 3,097 | 42 | 84,998 | 2,536 | 1,183 | 726,426 |
| ID | 1,575 | 43 | 7,976 | 249 | 176 | 72,041 |
| UK | 937 | 43 | 75,675 | 1,971 | 1,180 | 591,522 |
| JP | 883 | 58 | 4,450 | 45 | 52 | 73,161 |
| TH | 548 | 66 | 8,225 | 183 | 75 | 114,989 |
| PH | 294 | 59 | 73,583 | 2,840 | 1,067 | 428,705 |
| PK | 194[7] | 39 | 39,555 | 1,039 | 371 | 523,726 |

### *3.2 Data Analysis*

As defined in Section 2, visual storytelling is the practice of using visual elements to convey narratives, information, and knowledge. We have noted that the visual elements used in storytelling have both aesthetic and communicative functions. In line with this, the study analytically operationalizes the concept of visual storytelling by examining two dimensions: visual style, which refers to the aesthetic characteristics determined by primary visual elements, and communicative functions, which pertain to the explicit purpose or goal of the conveyed messages.

[4] This result aligns with the benchmark used in search term validation studies (Mahl et al., 2022).
[5] Country codes are used in figures and tables in the paper. US: the United States, ID: Indonesia; UK: the United Kingdoms; JP: Japan, TH: Thailand, PH: the Philippines, PK: Pakistan.
[6] The total number here is smaller than the total number of videos collected, 7,564, because a few videos could not be downloaded for video processing but remained in the dataset for other metadata-based analyses.
[7] Although at least 200 videos were collected for each country, some videos could not be downloaded for visual processing.

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### *3.2.1 Visual style*

Visual style is fundamentally anchored in its employment of visual elements. To systematically identify visual elements within climate-related content on TikTok, we adopted an inductive approach in this study. Building upon prior research into visual elements in climate communication (O'Neill, 2013, 2020; Pearce & De Gaetano, 2021) and the pedagogical utility of TikTok videos (Cervi & Divon, 2023; Kaye et al., 2022; Zeng et al., 2021), our analytical framework focuses on three principal visual elements: human figures, natural settings, and textual representations.

To extract the aforementioned three elements from TikTok videos, we utilized Google Vision API, a cloud-based service offering pre-trained models for visual analysis. We extracted five frames from each video[8], which served as input for the computer vision analysis. Frame extraction was done using the Python package OpenCV (Version 4.7.0) (Bradski, 2000). Three algorithms from Vision API were employed: object detection, face recognition, and text extraction (Figure 2). The object detection algorithm provides labels with probability scores, indicating objects that are identifiable by the machine. For this study, object labels with a probability score below 0.9 were excluded from the analysis. The face detection algorithm detects the presence of faces in each frame and assigns emotion scores, while the text extraction algorithm identifies and extracts all text appearing in each frame, facilitating subsequent topic modelling.

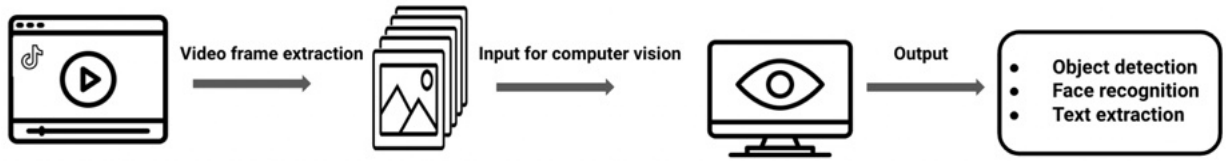


**Figure 2.** Main steps for computer vision analysis

With the output obtained from Google Vision API, the videos were classified into four distinct visual styles: person-dominated, nature-dominated, text-dominated, and mixed. Person-dominated videos are characterized by the prominence of a face, as determined by the face's frequency of appearance (detected in at least three out of five frames) and its significance (where face-related labels account for more than half the extracted object labels). Nature-dominated videos are identified when nature-related objects constitute more than half the list of object labels associated with each video. The operationalization of these two visual styles is contingent upon the performance of Vision API. We validated the automatically assigned visual labels using a sample of 200 videos, each of which was also manually labelled by a trained coder. Both visual frames achieved a high F1 score exceeding 0.85. Further details of the validation results can be found in Appendix A of this report.

Text-dominated videos are those that do not fall under the person-dominated or nature-dominated categories. Instead, they are characterized by the presence of over 1,320 characters detected from the video frames. To ensure comparable text lengths, all detected in-video texts were translated into English. The threshold of 1,320 characters represents the 75th percentile of the value distribution. Lastly, the mixed category encompasses videos that do not fit into any of the aforementioned categories.

### *3.2.2 Communicative function*

To contextualize the visual elements associated with climate change, we used insights from topic modelling to assign communicative functions to each video. Topic modelling was carried out using BERTopic (Grootendorst, 2022), with two types of text data: video descriptions collected as part of the video metadata and the texts detected by Google Vision from each frame. BERTopic was chosen for this study due to its proven performance and compatibility with social media data. BERTopic represents a

[8] By calculating the video's total duration and dividing it into five equal segments, we determined the specific time points at which each frame should be extracted.

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state-of-the-art technique for extracting topics from texts using transformer-based language models, and it has been found to yield better results compared to conventional topic modelling techniques, like latent Dirichlet allocation (LDA) and non-negative matrix factorization (NMF), in many contexts, including social media (Abuzayed & Al-Khalifa, 2021; Egger & Yu, 2022; Grootendorst, 2022). In addition, the language model BERTweet (Nguyen et al., 2020) is used to generate document embedding as it is trained with tweets and is, therefore, competent at understanding short social media texts.

To prepare the data for topic modelling, all texts were first translated into English using Google translation, an approach that has been demonstrated to produce reliable outcomes when used to translate climate change content (Reber, 2019). The translated English texts were then prepared following the suggestions from Nguyen et al. (2020) to improve the performance of BERTweet. We removed URLs and usernames, converted emojis to text, and retained stop words, because full contexts are important for transformer-based embedding models (Grootendorst, 2022). Considering the scale of our dataset and to get topics of a substantive size for subsequent analyses, we set the minimum topic size to 10, meaning that the generated topic must be present in at least 10 videos. For this study, half the videos ($n$ = 4,681) were deemed outliers as they contained more niche topics (topics present in fewer than 10 videos) in the first topic model. To reduce the number of outliers, the outliers were clustered to adjacent topics with a cosine similarity higher than 0.2[9]. The final BERTopic model identified 89 topics across 5,099 videos, which were used for further interpretation and analysis.

The goal of topic modelling was to assign the communicative functions of videos. Based on a hierarchical clustering analysis (see Appendix B), we first grouped the initial 89 topics into bigger clusters and then compared them to content typologies identified in prior searches of climate change in media (Hase et al., 2021; Hautea et al., 2021; León et al., 2022; O'Neill, 2017). Eventually, seven categories related to different communicative functions were developed: (1) calling for action, (2) explaining the causes of climate change, (3) warning about the consequences of climate change, (4) offering solutions, (5) raising awareness of wider environmental issues, (6) commenting on climate-related politics, and (7) campaign hijacking. A more detailed explanation of these categories is presented in Section 4.2.

A major challenge of the topic modelling approach lies in ensuring the validity or accuracy of the identified topics (Arceneaux, Albishri, & Kiousis, 2022; Brookes & McEnery, 2019; Maier et al., 2018). A common validation method for topic modelling results involves manually inspecting the topics' quality, which we did in this study during topic modelling and the process of identifying communicative functions. We adopted a widely utilized manual evaluation approach suggested by Chang et al. (2009) to ensure the interpretability and coherence of the communicative function categories. A list of the top 10 terms for each category was created, and a random term from another category with a high probability score was inserted into the list. Two students with no prior knowledge of the categories were asked to identify the false intruder. The manual review determined that all seven categories (100%) were cohesive.

## 4. Findings

### *4.1 Visual style*

**Person-dominated**: Videos dominated by people form the largest group, accounting for more than a third of all videos in the dataset (35.2%). Such videos typically showcase an individual, often a TikToker, in a close-up shot in front of the camera, singing, dancing, acting, or addressing the audience directly. As illustrated in Figure 3, alongside their own presence, TikTokers frequently employ various effects, like green-screen backgrounds or text stickers, to enhance their video's visual complexity.

[9] We identified 0.2 as the inflection point of this dataset. Cosine similarity values below 0.2 greatly reduced the number of outliers but also introduced a lot of noise into the results; therefore, we choose 0.2 to maintain a balance of outliers and noise.

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**Figure 3.** Examples of the people-dominated visual style[10]

**Nature-dominated**: Around 20% of the analysed videos showcase a significant proportion of nature-centric visuals, including landscapes, wildlife, and vegetation. Figure 4 illustrates how, in the context of communication about climate change, videos from this nature-dominated category often depict species most impacted by environmental degradation and scenes from polar regions. A general depiction of the beauty of Mother Nature is another commonly occurring way of using nature as a subject in the videos.

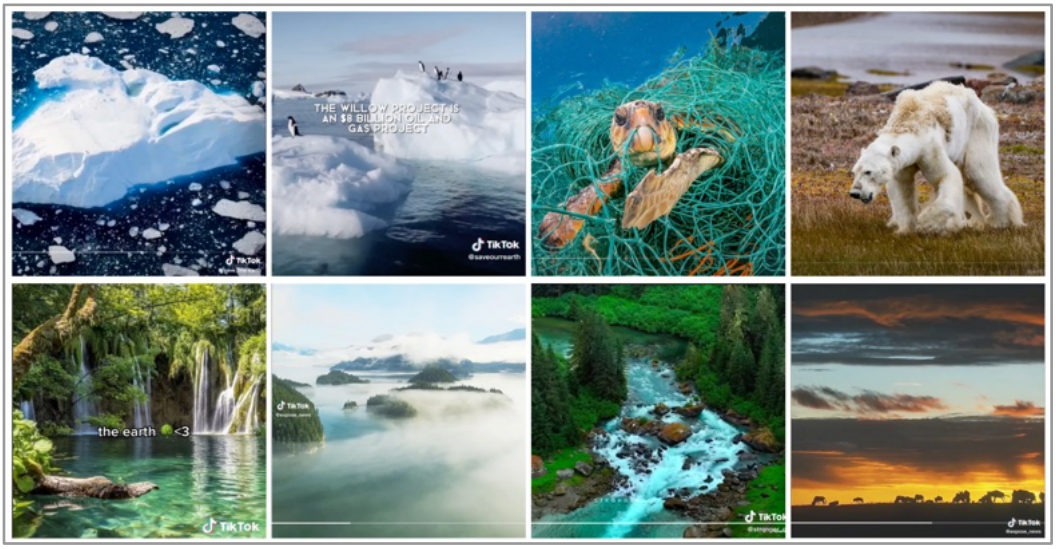


**Figure 4.** Examples of the nature-dominated visual style

**Text-dominated**: The text-dominated category represents only 12.9% of the dataset. Although the platform is primarily visual-centric, text content can be seamlessly incorporated into videos through various means. For instance, content creators can utilize the green screen function to directly display screenshots of news articles as the video background. Additionally, features such as text stickers and subtitles enable users to enhance their visual presentations with textual elements. Examples presented in Figure 5 illustrate that this visual style is typically associated with educational infographics or personal text-based narration by content creators.

[10] For privacy concerns, examples showing people's faces are from verified accounts of either professional content creators or public institutions.

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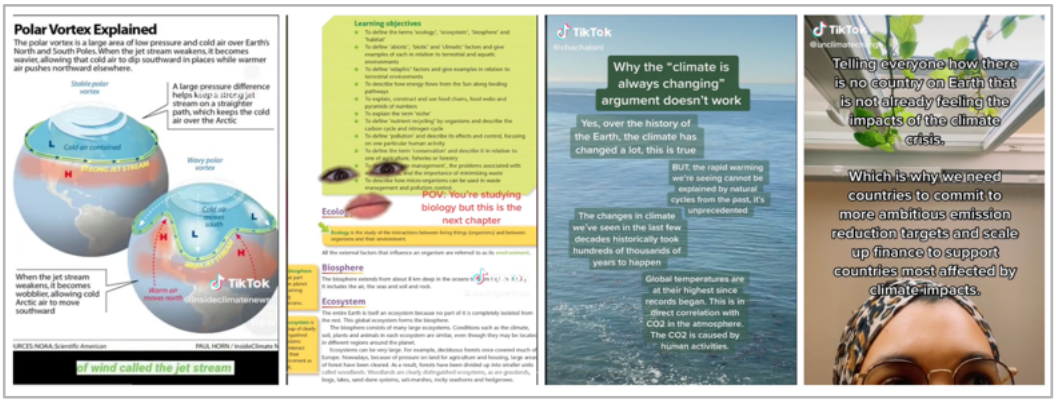


**Figure 5.** Examples of the text-dominated visual style

**Mixed:** Videos classified as "Mixed" account for a substantial portion of the dataset, comprising approximately a third of the total (32.2%). This category is characterized by a balanced distribution of diverse visual elements, often incorporating elements from different genres. Notably, news or TV programme clips are frequently observed within this category, showcasing its versatility in capturing different forms of content.

### *4.2 Communicative function*

With insights from the topic modelling, we could identify seven groups of climate-related communicative functions from the data: calling for action (32.1%), explaining the causes of climate change (4.8%), warning about the consequences of climate change (17.1%), offering solutions (5.8%), raising awareness of wider environmental issues (16.7%), commenting on climate-related politics (12.6%), and campaign hijacking (10.8%).

Around a third of the videos in the dataset demonstrate the function of "calling for action". A significant proportion of videos within this category mobilize support for climate activism, focusing on protesting against specific sectors, such as the oil industry, or specific projects. A notable recurring example is the Willow Project, which involves drilling for oil on Alaska's North Slope. Other videos in this category primarily urge viewers to take measures to mitigate climate change. The category "explaining the causes of climate change" comprises 4.8% of the videos, which predominantly adopt an educational approach to discuss the various factors contributing to global warming. Greenhouse gas emissions and their impacts on the environment and temperature are frequently addressed topics within this category. The category "warning about the consequences of climate change" accounts for 17.1% of all videos, the focus of which primarily revolves around the consequences of climate change, such as rising temperatures and the occurrence of natural disasters, like floods and droughts. Another 5.8% of the videos are categorized as "offering solutions". These primarily emphasize practical measures that individuals and institutions can adopt to combat climate change, rather than solely advocating for action. Examples include promoting the use of solar energy over fossil fuels, reducing the reliance on automobiles, transitioning to electric vehicles, and adopting more sustainable farming practices. The category "raising awareness of wider environmental issues" comprises 16.7% of the videos. Theses address climate change alongside broader environmental concerns, such as plastic pollution in the oceans and the waste generated by fast fashion brands. In addition, 12.6% of the videos fall into the "climate-related politics" category and delve into the political aspects of climate change. Some of these videos encourage viewers to support politicians who prioritize climate change, advocate for the passage of new climate-related laws, or promote the views of specific politicians through TikTok content created by their followers. Lastly, the category "campaign hijacking" represents 10.8% of the videos, including those that are unrelated to climate or environmental issues but utilize climate-related hashtags to gain greater visibility.

Combining insights from the communicative functions and visual style analysis yields a deeper understanding of the context in which different visual elements are incorporated. As shown in Figure 6,

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identifying the most "preferred" visual style associated with communicative functions reveals certain patterns. For instance, regarding videos communicating the severe impacts of climate change, natural elements are most commonly featured. Examples include melting icebergs, starved polar bears, and forests on fire. When mobilizing for protests and actions and commenting on politics, the videos primarily rely on personal storytelling, with individuals at the forefront of the videos.

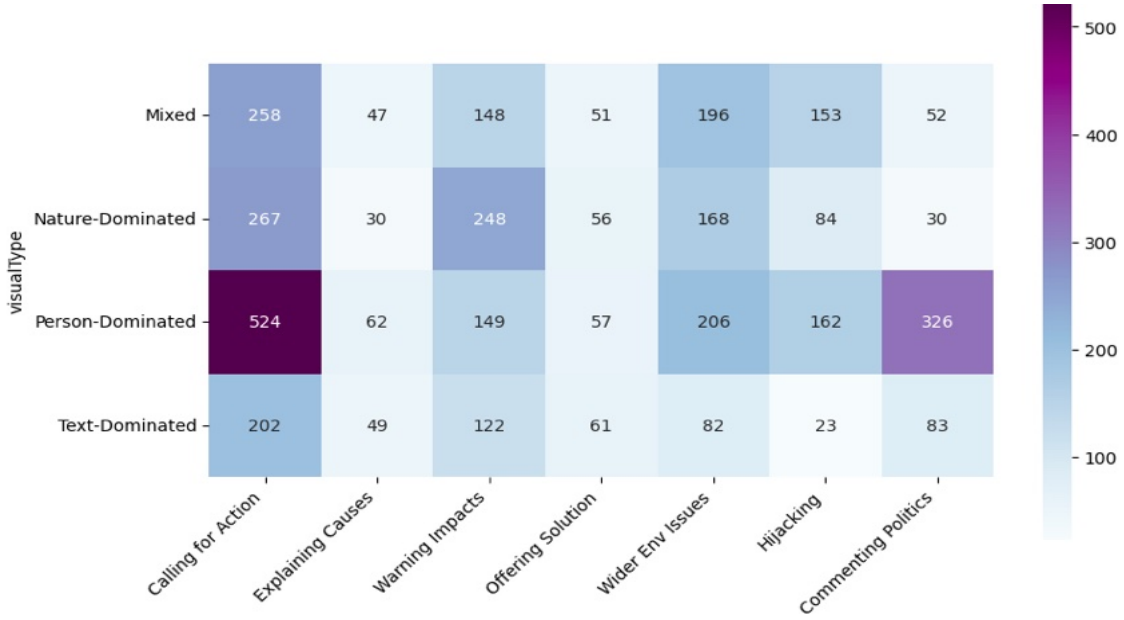


**Figure 6.** Heatmap of observations by visual style and communicative functions

### *4.3 Country differences*

**Visual style & country**: Videos from the seven countries exhibit significant disparities in the use of visual styles ($\chi^2$ (18, $N$ = 7,564) = 741.7, $p$ < .001). Figures 7 and 8 illustrate the distribution of visual styles in each country as well as the disparities in their actual play counts. In this instance, taking into account both the number of videos and play counts provides a more comprehensive picture of the prevalence and visibility of different visual styles. As the results show, videos featuring a mixture of visual elements ("Mixed" visual style) are prevalent in all regions, except for the US and Pakistan, where person-dominated video styles account for about half the content (US: 54.2%; Pakistan: 47.9%). In most countries, mixed and person-dominated visual styles garner high viewership, with Indonesia being a notable exception; here, person-dominated videos attract considerably fewer views compared to other styles. Videos showcasing nature are most prevalent in Thailand. A notable observation is the large viewership of text-dominated content in Japan, Indonesia, and Thailand. In these three countries, videos featuring prominent textual visual elements surpass other videos in terms of average viewership. Figure 8 presents logged counts of each visual style across the seven countries.

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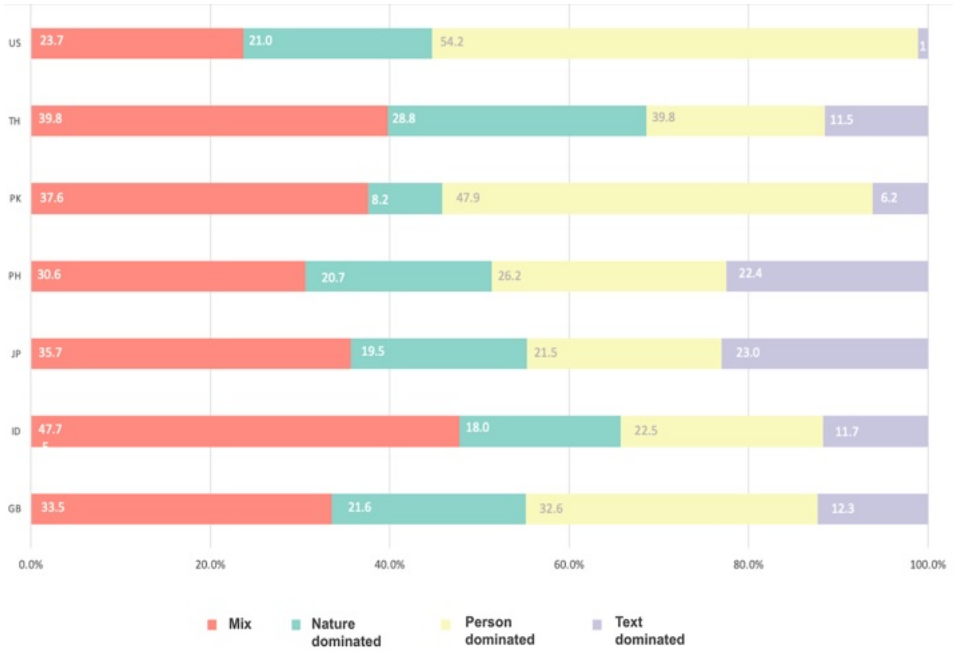


**Figure 7.** Visual style distribution across the seven countries

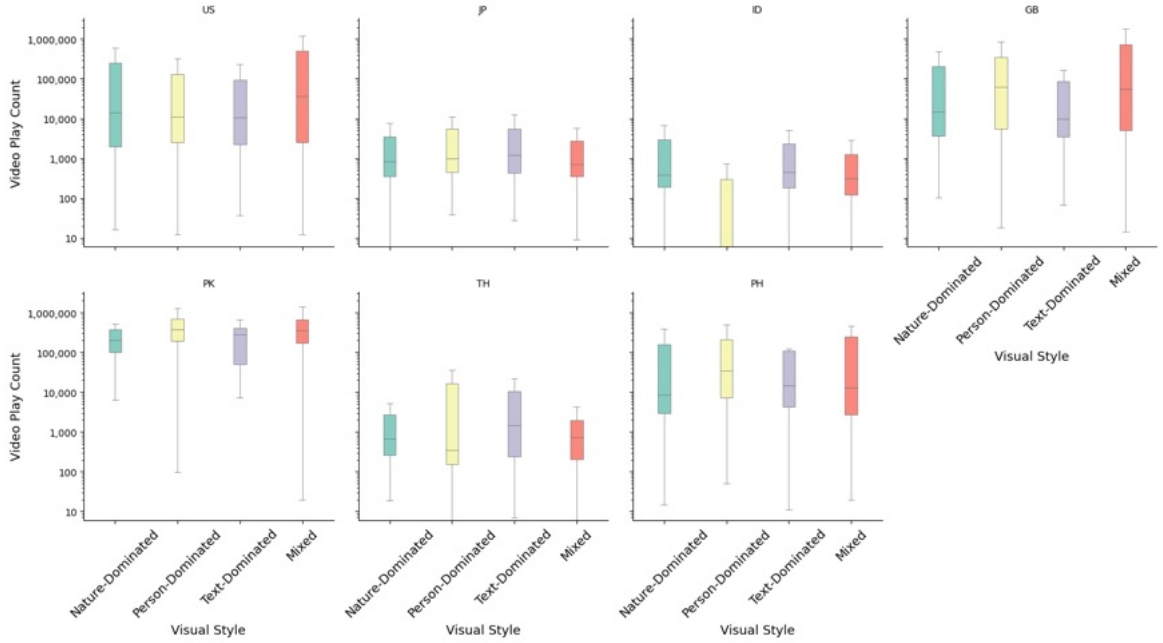


**Figure 8.** Play distribution by country and visual style (log scale)

**Communicative function & country**: Videos from different countries exhibit significantly different patterns in the use of communicative functions ($\chi^2$ (36, $n$ = 5,099) = 1,919.8, $p$ < .001). As shown in Table 2, when examining individual countries, videos calling for action appear most frequently in the UK, the US, and the Philippines, where they account for 27.5%, 24.2%, and 25.4% of all available videos, respectively. In the UK and the US, these videos frequently rally viewers to take a stand against projects, like the Willow project, and major oil companies. In the Philippines, the focus is primarily on emphasizing the gravity and urgency of climate change to motivate action. Notably, Thailand and Indonesia exhibit a strong emphasis on the impacts of climate change, with a significant proportion of videos (16.3% and

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14.8%, respectively) warning about the consequences. Indonesia also stands out with the notable presence of videos addressing climate-related politics, particularly those supporting Arsjad Rasjid, Chairman of the Indonesian Chamber of Commerce and Industry and President Director of Indika Energy. These videos convey that Arsjad Rasjid and Indonesia are prepared to take a leading role in the global fight against climate change. Lastly, Pakistan has the highest percentage (58.6%) of videos classified as "campaign hijacking", where climate-related hashtags are intentionally used in unrelated videos to enhance their visibility on TikTok.

**Table 2.** Distribution of communicative functions in each country

| | UK | ID | JP | PH | PK | TH | US |
|---|---|---|---|---|---|---|---|
| *Calling for actions & protest* | 27.5% | 3.2% | 13.6% | 25.4% | 2.1% | 7.5% | 24.2% |
| *Explaining causes* | 1.8% | 4.5% | 4.3% | 1.4% | 0.5% | 1.1% | 2.5% |
| *Warning consequences* | 8.1% | 14.8% | 8.8% | 1.4% | 4.2% | 16.3% | 9.0% |
| *Offering solutions* | 1.5% | 4.9% | 3.1% | 2.8% | 0.0% | 14.8% | 1.9% |
| *Wider environmental issues* | 13.4% | 4.8% | 6.2% | 21.6% | 17.3% | 9.9% | 9.4% |
| *Campaign hijacking* | 1.3% | 7.9% | 8.6% | 3.9% | 58.6% | 6.6% | 3.2% |
| *Commenting on politics* | 1.5% | 25.5% | 8.1% | 1.1% | 0.0% | 0.2% | 4.4% |

## 5. Discussion

### *5.1 Personalization of climate messages*

The personalization of climate messages is a significant characteristic of climate storytelling on TikTok, as observed in this study. This personalization occurs at two levels: the central role of individuals as primary storytellers and the use of personalized narratives. Our findings indicate the prevalence of videos where TikTokers take centre stage in climate-related storytelling on the platform, evident in both their frequency and engagement levels. While previous research has noted the prominence of people in news images related to climate communication, with a focus on politicians, scientists, and celebrities (Niederer, 2019; O'Neill, 2013), the role played by individuals in TikTok videos is distinctive. Grassroots content creators, rather than public figures, predominantly serve as the people objects in climate-related imagery. This is even evident in videos from the accounts of official institutions, as exemplified by @UNclimate and @WorldEconomicForum, where young and relatable individuals are employed to deliver engaging and playful messages (see Figure 3).

In terms of narrative content, findings from the study indicate that a large proportion of TikTokers employ videos to advocate for climate action. This observation largely epitomizes a form of personalized climate activism that particularly resonates with youth on the platform. As previously mentioned, TikTok's user base predominantly consists of younger individuals, who will inevitably confront the repercussions of climate-related issues throughout their lives. Consequently, prior research argues that climate action emerges as a matter of great personal significance to these youthful content creators on TikTok (Zeng & Abidin, 2021).

### *5.2 Dual role of the political aesthetics of Mother Nature*

The dual role of nature-related elements in climate storytelling on TikTok is noteworthy within the context of this study. Referring to the concept of political aesthetics, as expounded by Yusoff (2010), we employ the term to encapsulate the twofold function played by nature in configuring the aesthetic and artistic aspects of climate storytelling. In contrast to TikToker-centric videos discussed earlier, in these particular videos, nature itself assumes the storyteller role. Our findings demonstrate that such visual representation is closely associated with discussions surrounding climate impacts, leading to the

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prevalence of varied and often distressing imagery. This aligns with evidence from prior studies examining other media that suggest that dramatic depictions of natural disasters and endangered animals serve as powerful devices to capture public attention and elicit strong emotional responses regarding climate change (O'Neill & Nicholson-Cole, 2009; Pearce & De Gaetano, 2021).

While prior research on the representation of nature in climate communication has emphasized its role in inducing fear through shocking and distressing imagery in news media (O'Neill & Nicholson-Cole, 2009), we also observe depictions focusing on the beauty of Mother Nature. Such videos present natural beauty from a first-person perspective, inviting viewers to share the creators' visual harmony with nature and "produce a particular affective vibe" (Hautea et al., 2021, p.7). The affective aesthetics of nature project natural beauty in a highly idealistic manner, featuring lush landscapes, blooming flowers, flowing water, and serene wildlife. By incorporating these elements into their videos, content creators seek to elicit feelings of awe and tranquillity and foster a sense of connection and responsibility towards nature. Even without explicit links to climate change, such aesthetically appealing visual depictions of Mother Nature serve to evoke emotions and convey highly affective messages that serve as reminders of humanity's intrinsic connection to the natural world.

### *5.3 Culturally sensitive climate visuals in storytelling*

The findings from this study shed light on the varied approaches to climate storytelling on TikTok across the seven countries examined. Significant disparities were observed in the use of visual styles and communicative functions across these countries. For instance, climate content from the US predominantly features videos with individuals, often the TikTokers themselves, as the focal point. In contrast, climate videos from Thailand emphasize nature more than any other country. Although TikTok content primarily focuses on imagery, textual elements continue to play a crucial role as visual cues in climate videos, particularly in the Philippines and Japan. These disparities underscore the importance of considering local preferences in visual climate-related communication. While videos produced within Anglophone countries (specifically the UK and the US in this instance) are highly visible and influential on the platform, the visual grammar and style used in these contexts should not be indiscriminately applied to other cultural settings. Factors such as the local context, relationship with climate, and user culture are crucial and should be taken into account for effective communication with users on the platform.

Domestic politics also shape regional climate storytelling on TikTok. For example, in the US and the UK, TikTok has become a prominent platform for expressing dissent and critique of government policies perceived as detrimental to addressing climate change. In the US, videos often focus on the Willow Project, a controversial oil drilling initiative in Alaska, with content creators voicing concerns about its potential environmental impact and its contradiction to climate change mitigation efforts. Similarly, in the UK, TikTok users frequently highlight the government's decision to offer new North Sea oil and gas licences, criticizing it for running contrary to their climate change commitments. These political issues gain significant attention and spark discussions on TikTok, driving a higher proportion of protest-related content and shaping the narrative around regional climate concerns on the platform.

## 6. Conclusion

In conclusion, this study, focusing on seven countries, has provided valuable insights into climate storytelling on TikTok. As an exploratory study, the aim was to demonstrate the potential of computational visual data analysis for climate communication research. By combining findings from computer vision with topic modelling, the study sheds light on the characteristics of visual storytelling on TikTok by examining visual styles and communicative functions. The cross-national comparison reveals both similarities and disparities in visual storytelling across the seven countries. To comprehensively interpret these patterns, it is crucial to consider the specific cultural norms, values, and socio-political dynamics that influence the production and reception of climate change-related content on TikTok within each region. As the study has shown, computational methods can help to investigate interplays between these contextual factors and the visual and communicative functions of the videos. Findings from the

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research could also help in providing a more nuanced understanding of how climate change narratives can be better conveyed in varied cultural and political contexts.

The study has several limitations that should be acknowledged. First, by focusing solely on the textual and visual aspects of TikTok videos, the study neglects the potential impact of audio elements in shaping the narrative and engagement with the content. Future research should expand the modality of TikTok analysis by incorporating audio processing to gain a comprehensive understanding of the important role played by sound in storytelling on the platform. Second, the study predominantly employs a data-driven approach to categorize visual styles. Future research could benefit from incorporating a more nuanced approach that more closely integrates qualitative methods to gain a deeper understanding of the visual styles and their implications. Third, the exclusion of niche topics means that only half the dataset is utilized for identifying communicative functions, potentially leading to a loss of nuanced insights. Lastly, the utilization of proprietary methods, such as Google Vision API, warrants critical reflection. These tools often operate as enigmatic black-box systems where access to their underlying algorithms and data is withheld, thereby raising pertinent concerns about transparency and interpretability. Their adoption can also be financially burdensome, curtailing access for researchers with limited resources. These concerns underscore the need for a more comprehensive discussion of the implications and limitations associated with the use of such proprietary tools in research, and as shown in the study, the validation process remains important.

## References


Abidin, C. (2021). Mapping internet celebrity on TikTok: Exploring attention economies and visibility labours. *Cultural Science Journal, 12*(1), 77-103. https://doi.org/10.5334/csci.140

Abuzayed, A. & Al-Khalifa, H. (2021). BERT for Arabic Topic Modeling: An Experimental Study on BERTopic Technique. *Procedia Computer Science, 189*, 191–194. https://doi.org/10.1016/j.procs.2021.05.096

Allgaier, J. (2019). Science and Environmental Communication on YouTube: Strategically Distorted Communications in Online Videos on Climate Change and Climate Engineering. *Frontiers in Communication, 4*. https://www.frontiersin.org/articles/10.3389/fcomm.2019.00036

Althor, G., Watson, J. E. M., & Fuller, R. A. (2016). Global mismatch between greenhouse gas emissions and the burden of climate change. *Scientific Reports, 6*(1), Article 1. https://doi.org/10.1038/srep20281

Arceneaux, P., Albishri, O., & Kiousis, S. (2022). How Candidates Influence Each Other in Electoral Politics: Intercandidate Agenda-Building in Florida's 2018 Midterm Election. *Journal of Political Marketing, 1*(1), 1–24. https://doi.org/10.1080/15377857.2022.2040690

Askanius, T. & Uldam, J. (2011). Online social media for radical politics: Climate change activism on YouTube. *International Journal of Electronic Governance, 4*(1–2), 69–84. https://doi.org/10.1504/IJEG.2011.041708

Basch, C. H., Yalamanchili, B., & Fera, J. (2022). #Climate Change on TikTok: A Content Analysis of Videos. *Journal of Community Health, 47*(1), 163–167. https://doi.org/10.1007/s10900-021-01031-x

Blicharska, M., Smithers, R. J., Kuchler, M., Agrawal, G. K., Gutiérrez, J. M., Hassanali, A., Huq, S., Koller, S. H., Marjit, S., Mshinda, H. M., Masjuki, H. H., Solomons, N. W., Staden, J. V., & Mikusiński, G. (2017). Steps to overcome the North–South divide in research relevant to climate change policy and practice. *Nature Climate Change, 7*(1), Article 1. https://doi.org/10.1038/nclimate3163

Bonifazi, G., Cecchini, S., Corradini, E., Giuliani, L., Ursino, D., & Virgili, L. (2022). Investigating community evolutions in TikTok dangerous and non-dangerous challenges. *Journal of Information Science,* 01655515221116519.

Bradski, G. (2000). The openCV library. *Dr. Dobb's Journal: Software Tools for the Professional Programmer, 25*(11), 120-123.

Brookes, G., & McEnery, T. (2019). The utility of topic modelling for discourse studies: A critical evaluation. *Discourse Studies, 21*(1), 3–21. https://doi.org/10.1177/1461445618814032

Cervi, L., & Divon, T. (2023). Playful activism: Memetic performances of Palestinian resistance in TikTok# Challenges. *Social Media + Society, 9*(1), 20563051231157607.

Chang, J., Gerrish, S., Wang, C., Boyd-graber, J., & Blei, D. (2009). Reading Tea Leaves: How Humans Interpret Topic Models. *Advances in Neural Information Processing Systems*, 22. Retrieved from https://proceedings.neurips.cc/paper/2009/hash/f92586a25bb3145facd64ab20fd554ff-Abstract.html

Doyle, J. (2007). Picturing the Clima(c)tic: Greenpeace and the Representational Politics of Climate Change Communication. *Science as Culture, 16*(2), 129–150. https://doi.org/10.1080/09505430701368938

Eckstein, D., Künzel, V., Schäfer, L., & Winges, M. (2020). GLOBAL CLIMATE RISK INDEX 2020. Retrieved from URL https://germanwatch.org/en/17307

Egger, R., & Yu, J. (2022). A Topic Modeling Comparison Between LDA, NMF, Top2Vec, and BERTopic to Demystify Twitter Posts. *Frontiers in Sociology, 7,* 886498. https://doi.org/10.3389/fsoc.2022.886498


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Goodnow, T. (2020). Narrative theory: Visual storytelling. In: Josephson, S., Kelly, J., & Smith, K. (Eds.), *Handbook of Visual Communication* (2nd ed., pp. 265–274). New York: Routledge.

Grootendorst, M. (2022). BERTopic: Neural topic modeling with a class-based TF-IDF procedure (arXiv:2203.05794). arXiv. https://doi.org/10.48550/arXiv.2203.05794

Grundmann, R., & Scott, M. (2014). Disputed climate science in the media: Do countries matter? Pu*blic Understanding of Science, 23*(2), 220–235. https://doi.org/10.1177/0963662512467732

Hase, V., Mahl, D., Schäfer, M. S., & Keller, T. R. (2021). Climate change in news media across the globe: An automated analysis of issue attention and themes in climate change coverage in 10 countries (2006–2018). *Global Environmental Change, 70*, 102353. https://doi.org/10.1016/j.gloenvcha.2021.102353

Hautea, S., Parks, P., Takahashi, B., & Zeng, J. (2021). Showing They Care (Or Don't): Affective Publics and Ambivalent Climate Activism on TikTok. *Social Media + Society, 7(*2), 20563051211012344. https://doi.org/10.1177/20563051211012344

Jaskulsky, L., & Besel, R. (2013). Words That (Don't) Matter: An Exploratory Study of Four Climate Change Names in Environmental Discourse. *Applied Environmental Education and Communication, 12*(1), 38–45. https://doi.org/10.1080/1533015X.2013.795836

Jiang, Y., Jin, X., & Deng, Q. (2022). Short video uprising: how# BlackLivesMatter content on TikTok challenges the protest paradigm. arXiv preprint arXiv:2206.099

Kaye, DBV, Zeng, J., & Wikstrom, P. (2022). *TikTok: Creativity and Culture in Short Video.* Cambridge: Polity Press.

Lu, Y., & Shen, C. (2023). Unpacking Multimodal Fact-Checking: Features and Engagement of Fact-Checking Videos on Chinese TikTok (Douyin). *Social Media+ Society, 9(*1), 20563051221150406.

Mahl, D., von Nordheim, G., & Guenther, L. (2023). Noise pollution: A multi-step approach to assessing the consequences of (not) validating search terms on automated content analyses. *Digital Journalism, 11*(2), 298-320.

Maier, D., Waldherr, A., Miltner, P., Wiedemann, G., Niekler, A., Keinert, A., Pfetsch, B., Heyer, G., Reber, U., Häussler, T., Schmid-Petri, H., & Adam, S. (2018). Applying LDA Topic Modeling in Communication Research: Toward a Valid and Reliable Methodology. *Communication Methods and Measures, 12(*2–3), 93–118. https://doi.org/10.1080/19312458.2018.1430754

McIver, G. (2016). *Art history for filmmakers: The art of visual storytelling.* Bloomsbury Publishing.

Molder, A. L., Lakind, A., Clemmons, Z. E., & Chen, K. (2022). Framing the Global Youth Climate Movement: A Qualitative Content Analysis of Greta Thunberg's Moral, Hopeful, and Motivational Framing on Instagram. *The International Journal of Press/Politics, 27*(3), 668–695. https://doi.org/10.1177/19401612211055691

Mooseder, A., Brantner, C., Zamith, R., & Pfeffer, J. (2023). (Social) Media Logics and Visualizing Climate Change: 10 Years of #climatechange Images on Twitter. *Social Media + Society, 9*(1), 20563051231164310. https://doi.org/10.1177/20563051231164310

Newman, N., Fletcher, R., Eddy, K., Robertson, C. T., & Nielsen, R. K. (2023). Digital News Report 2023. https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2023-06/Digital_News_Report_2023.pdf

Nguyen, D. Q., Vu, T., & Nguyen, A. T. (2020). BERTweet: A pre-trained language model for English Tweets (arXiv:2005.10200). arXiv. https://doi.org/10.48550/arXiv.2005.10200

O'Neill, S. & Nicholson-Cole, S. (2009). "Fear won't do it" promoting positive engagement with climate change through visual and iconic representations. *Science Communication, 30*(3), 355-379.

O'Neill, S. (2013). Image matters: Climate change imagery in US, UK and Australian newspapers. *Geoforum, 49*(1)|: 10–19. https://doi.org/10.1016/j.geoforum.2013.04.030

O'Neill, S. (2017). Engaging with Climate Change Imagery. In Oxford Research Encyclopedia of Climate Science. https://doi.org/10.1093/acrefore/9780190228620.013.371

O'Neill, S. (2020). More than meets the eye: A longitudinal analysis of climate change imagery in the print media. *Climatic Change, 163*(1), 9–26. https://doi.org/10.1007/s10584-019-02504-8

O'Neill, S. J., & Smith, N. (2014). Climate change and visual imagery. *WIREs Climate Change, 5(*1), 73–87. https://doi.org/10.1002/wcc.249

Pearce, W., & De Gaetano, C. (2021). Google Images, climate change, and the disappearance of humans. *Diseña,* (19), 3-3.

Pearce, W., Niederer, S., Özkula, S. M., & Sánchez Querubín, N. (2019). The social media life of climate change: Platforms, publics, and future imaginaries. *WIREs Climate Change, 10*(2), e569. https://doi.org/10.1002/wcc.569

Pimenta, S., & Poovaiah, R. (2010). On defining visual narratives. Design Thoughts, 3, 25-46.

Pramana, P. D., Utari, P., & Naini, A. M. I. (2021). Symbolic convergence of #ClimateCrisis: A content analysis of Greenpeace Indonesia campaign on Instagram. *IOP Conference Series: Earth and Environmental Science, 724*(1), 012101. https://doi.org/10.1088/1755-1315/724/1/012101

Qi, P., Bu, Y., Cao, J., Ji, W., Shui, R., Xiao, J., ... & Chua, T. S. (2022). FakeSV: A Multimodal Benchmark with Rich Social Context for Fake News Detection on Short Video Platforms. arXiv preprint arXiv:2211.10973.

Reber, U. (2019). Overcoming Language Barriers: Assessing the Potential of Machine Translation and Topic Modeling for the Comparative Analysis of Multilingual Text Corpora*. Communication Methods and Measures, 13*(2), 102–125. https://doi.org/10.1080/19312458.2018.1555798

Richardson, L. (2007). Beautiful Soup Documentation.

Schäfer, M. S., & Painter, J. (2021). Climate journalism in a changing media ecosystem: Assessing the production of climate change-related news around the world*. WIREs Climate Change, 12*(1), e675. https://doi.org/10.1002/wcc.675

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Schäfer, M. S., & Schlichting, I. (2014). Media Representations of Climate Change: A Meta-Analysis of the Research Field. *Environmental Communication-a Journal of Nature and Culture. https*://doi.org/10.1080/17524032.2014.914050

Schäfer, M. S. (2020). Introduction to visualizing climate change. In D. C. Holmes & L. M. Richardson (Eds.), *Research Handbook on Communicating Climate Change* (pp. 127–130). Cheltenham, UK: Edward Elgar Publishing.Schmidt,

Song, Y., Huang, Z., Schuldt, J. P., & Yuan, Y. C. (2022). National prisms of a global phenomenon: A comparative study of press coverage of climate change in the US, UK and China. Journalism, 23(10), 2208-2229. https://doi.org/10.1177/1464884921989124

Surabhi, S., Shah, B., Washington, P., Mutlu, O. C., Leblanc, E., Mohite, P., ... & Wall, D. P. (2022). TikTok for good: Creating a diverse emotion expression database. In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (pp. 2496-2506).

TikTok. (2023). Research API. https://developers.tiktok.com/products/research-api/

UNFCC (1997), Kyoto Protocol to the United Nations Framework Convention on Climate Change, FCCC/CP/L.7/ Add.1, Kyoto.

Vu, H. T., Liu, Y., & Tran, D. V. (2019). Nationalizing a global phenomenon: A study of how the press in 45 countries and territories portrays climate change. *Global Environmental Change, 58,* 101942. https://doi.org/10.1016/j.gloenvcha.2019.101942

Wang, S., Corner, A., Chapman, D., & Markowitz, E. (2018). Public engagement with climate imagery in a changing digital landscape. *WIREs Climate Change, 9*(2), e509. https://doi.org/10.1002/wcc.509

Wozniak, A., Lück, J., & Wessler, H. (2015). Frames, Stories, and Images: The Advantages of a Multimodal Approach in Comparative Media Content Research on Climate Change. *Environmental Communication, 9*(4), 469–490. https://doi.org/10.1080/17524032.2014.981559

Yusoff, K. (2010). Biopolitical economies and the political aesthetics of climate change. *Theory, Culture and Society, 27*(2-3), 73-99.

Yılmaz, R., & Ciğerci, F. M. (2019). A brief history of storytelling: From primitive dance to digital narration. In R. Yılmaz, M. N. Erdem, & F. Resuloğlu (Eds.), *Handbook of Research on Transmedia Storytelling and Narrative Strategies* (pp. 1-14). Hershey, PA: IGI Global.

Yusoff, K. (2010). Biopolitical economies and the political aesthetics of climate change*. Theory, Culture & Society, 27(*2-3), 73-99.

Zeng, J. & Abidin, C. (2021). '# OkBoomer, time to meet the Zoomers': Studying the memefication of intergenerational politics on TikTok. *Information, Communication and Society, 24*(16), 2459-2481. https://doi.org/10.1080/1369118X.2021.1961007

Zeng, J., Schäfer, M.S., & Allgaier, J. (2021). Reposting "till Albert Einstein is TikTok famous": The Memetic Construction of Science on TikTok. *International Journal of Communication*. https://ijoc.org/index.php/ijoc/article/view/14547

Zeng, J. (2023). # LearnOnTikTok Serendipitously,# LearnOnTikTok Seriously. *JCMS: Journal of Cinema and Media Studies*, 62(4), 174-180. https://doi.org/10.1353/cj.2023.a904634

Zulli, D. & Zulli, D. J. (2022). Extending the Internet meme: Conceptualizing technological mimesis and imitation publics on the TikTok platform. *New Media & Society, 24*(8), 1872-1890. https://doi.org/10.1177/1461444820983603

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## Appendix A

The validation focuses on two visual styles: nature-dominated and person-dominated. The operationalization of text-dominated visual style, labelled through an arbitrary 75% quantile threshold, presents challenges for human labelling; mixed frames are classified as videos that do not fit into the other three categories. As the main purpose of the validation is to gain insights into the efficacy of our visual style categorization scheme and the performance of the object detection algorithm, the text-dominated and mixed frames are not the focus of the validation. Worth mentioning, 200 videos were randomly selected for the validation task, but 22 of them are no longer accessible. For this reason, the table below shows a total of 178 videos.

**Table 3.** Validation report of the categorization of visual styles

| Class | Precision | Recall | F1-Score | Support |
|---|---|---|---|---|
| Nature Dominant | 0.87 | 0.83 | 0.85 | 47 |
| Person Dominant | 0.95 | 0.83 | 0.89 | 70 |
| Text Dominant | 0.52 | 0.79 | 0.63 | 19 |
| Mixed | 0.67 | 0.69 | 0.68 | 42 |
| | | | | |
| **Accuracy** | | | 0.79 | 178 |
| **Macro Average** | 0.75 | 0.78 | 0.76 | 178 |
| **Weighted Average** | 0.82 | 0.79 | 0.8 | 178 |

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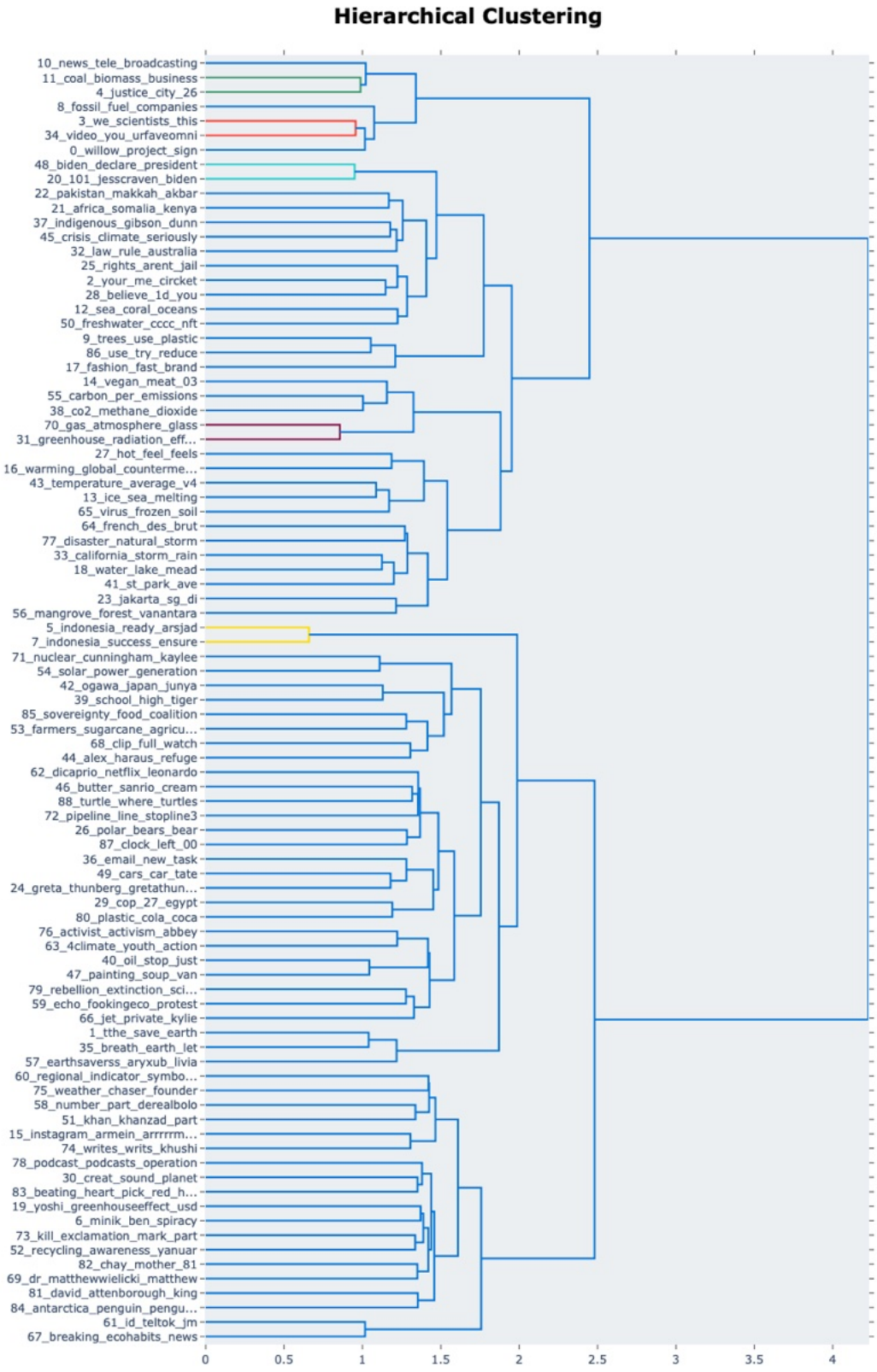
## Appendix B: Hierarchical clustering plot of topics



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# Exploring leadership on Instagram: A visual model for online leadership analysis

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## Abstract

Online visual communication is becoming an established and central component of citizens' everyday life. User activity on large-scale platforms, such as Instagram, can be mapped by tracing the rise and fall of communities of practice that share different visual languages, aesthetic values and forms of leadership. Accordingly, the present study proposes an analytical model for the identification, measurement, and categorization of leadership on visual-based social networks, by asking: how does the digital performance of leaders on Instagram construct different forms of leadership? To answer this question, the Leadership Visual Performance Model (LVPM) will be presented as a theoretical tool to analyze and compare leadership performance on Social Networking Systems. While previous models mostly employed theme-based coding, this analytical tool relies on a set of structural indicators that enable a higher level of comparability across domains. To demonstrate, the LVPM will be employed to investigate the Instagram activity of Jeremy Corbyn and Boris Johnson during the 2019 UK General Election. Findings show how the LVPM indicators enable us to highlight differences in leadership style, compare them and employ them to build a typology.

Keywords: leadership; Instagram; visual; election

## 1. Introduction

The primary goal of this study is to propose an analytical model for the identification, measurement and categorization of leadership performance on social networks, with specific focus on visual communication. In the last decade, the use of social network platforms (SNSs) specifically designed to host visual and audio-visual content have grown exponentially. This includes popular apps such as Instagram, Tik Tok, Periscope, Snapchat or 9gag. At the same time, mixed-content websites, such as Facebook or WordPress, have also rushed to expand their capacity to circulate photos, videos or live-steaming feeds. The rapid expansion of visual communication online, technically supported by the introduction of smart technologies and broadband wireless connections, has radically reshaped contemporary visual ecologies. Firstly, users' possibility to independently create, circulate and evaluate visual content has generated new markets characterized by peculiar forms of value- production and exchange (De Veirman, Cauberghe & Hudders, 2017). Secondly, users' receptivity towards innovative



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forms of visual communication has propelled the proliferation of digital visual formats, such as GIF (Graphic Interchange Format) or YouTube encrypted EXO. In other words, companies competing to optimize production, circulation and storage of visual content have initiated a process of permanent transformation of the very nature of digital images; a transformation which is tightly linked to the emergence of new communities of users with specific ways of assessing the value of their own productions. Finally, the expansion of visual-based platforms has enabled the emergence of a vast array of diverse visual grammars whose existence and evolution are connected to specific groups of users, their shared meanings and aesthetic preferences.

Within this vibrant landscape the issue of leadership, of its construction and maintenance or its challenges, is crucial. However, a single platform can host different communities which articulate and construct leadership in completely different ways. Most users are usually part of more than one community and are capable of quickly shifting from one system of values to another in a"swipe of a finger". Each user understands more than one visual language and can evaluate leaders' digital performances, defined as an assemblage of technological and human agency (Leeker, Schipper, & Beyes, 2017), according to different community standards. Alongside digitally native forms of leadership, institutional authorities have also embraced new media platforms to connect to their target audience. This includes not only politicians, but also top-ranked religious figures, human rights activists, public intellectuals, and popular CEOs. On the one hand, these leaders can transfer part of their existing popularity to the digital platform, thus quickly gathering a significant group of followers. On the other hand, once they have entered a digital arena, institutional leaders are required to "play by the rules", i.e. to respect and possibly benefit from the affordances and restrictions imposed by a specific platform, such as content moderation and community guidelines.

The present study focuses on the ways in which institutional leaders struggle to translate their well-established authority into a digital performance able to compete or align with other forms of leadership. More precisely, this paper proposes a basic model for the analysis of leadership performance on social networks and thus asks:

**RQ:** How does the digital performance of leaders on Instagram construct different forms of leadership?

**RQ1:** Does a digital platform host different types of digital performance?

**RQ2**: Can different types of digital performance be identified through a set of indicators?

**RQ3**: Can specific forms of digital performance be univocally related to specific forms of leadership?

To answer these questions, the present article will first propose a new framework for the analysis of leaders' digital performance and subsequently test it on a specific case study: the Instagram activity of Boris Johnson and Jeremy Corbyn during the 2019 UK General Election campaign. In line with Construal Level Theory (Trope & Liberman, 2010), this paper argues that "distance" is a central and measurable parameter to analyze the technological performance of leaders.In other words, while each single feed is composed of a series of heterogeneous visual contents, the reiteration of specific proximity structures is the key to categorizing leaders' technological performance on Instagram.

## 2. Literature review

### *2.1 The emergence of leader distance as an analytical parameter*

The analytical tool proposed in this study is the result of the combination of two different theoretical approaches, leadership studies and visual semiotics, and their application in the field of new media

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studies. The literature discussed in the following sections should not be considered an exhaustive overview of the current state-of-the-art in the different fields, but rather as a selective review aimed at describing the theoretical basis of the proposed method. Accordingly, the first section will discuss the legacy of leadership studies and the second the basis of visual semiotics and the rise of networked visibility. In conclusion, recent studies on the use of Instagram by political actors will be reviewed.

The origin of the systematic study and theorization of leadership can be traced back to the fundamental work Economy and Society (1978), where Weber defines three main forms of authority: traditional, legal-bureaucratic and charismatic. These forms of authority differ not only in the ways they function within human groups, but first and foremost in the ways in which these groups legitimize their existence. In other words, social legitimization is identified as the conditio sine qua non for the rise of authoritative figures. From this first categorization, the study of leadership has evolved into two main streams. On the one hand, leadership has been studied in sociology and anthropology as a social construction. In this line of inquiry, the ground for the emergence of leadership is sought, beside the relationship between leaders and followers, also in a series of macro- structural factors, such as specific religious worldviews (Bilu & Ben-Ari, 1992; Feldman, 2007) or socioeconomic customs (McLeod, 2002; Miller, Wills & Scanlan, 2013). On the other hand, leadership has been investigated as a psychological dynamic that constantly re-tunes the structure of a certain community by allowing the emergence of leader and follower roles. This approach is usually employed in studying the functioning of medium and small-scale organizations, such as schools or companies, and has led to the development of specific tools and indicators for the assessment of leader performance.

The analytical tool proposed in this study owes the definition of its key parameters mostly to psychological research on leadership. On this point, it could be objected that propaganda images traditionally use the body of the leader to synthesize a whole system of meanings; a system of meanings which transcend the mere physical appearance of leaders and therefore requires a more comprehensive analysis. While this criticism remains valid, this study argues that the ways in which visual content exists on social networks today has radically redefined visual communication, to the point that it can be better understood as a public digital performance rather than a series of embodied yet crystallized expressions of power. In this regard, the seminal work of James MacGregor Burns (2010 [1978]) differentiates between power-holders and leaders on the basis of purpose. While power-holders mobilize resources to achieve personal goals, "leadership is exercised in a condition of conflict or competition in which leaders contend in appealing to the motive bases of potential followers. Naked power, on the other hand, admits of no competition or conflict—there is no engagement." (p.28). Accordingly, leadership is perceived as a dynamic and constant interaction between different actors. This is reflected in one of the first established models for the analysis of leadership: the Multifactor Leadership Questionnaire (MLQ) created by Bass and Avolio (1990). Developing further Downton's basic categories (1973), this model identifies three main types of leadership (laissez-faire, transactional and transformational) and nine different parameters for leadership evaluation. Without entering into the details of this model, it is apparent that all these parameters, even those which characterize the most passive form of leadership (laissez-faire), attempt to measure leaders' action towards their followers. This includes, for example, encouraging innovation, monitoring deviation and reacting to exceptional situations.

The development of MLQ and its adaptation to different contexts brought Avolio and Bass to propose the Full-Range Leadership Theory (2001), which reaffirms the centrality of leader performance and reproposes the macro-typology discussed above. In examining this model, Antonakis and House (2002; 2014) suggest the introduction of a fourth macro-category of leadership, i.e. instrumental leadership, that goes beyond ideals-based leadership towards an effectiveness-based one. They also began to unpack the followers' assemblage by dividing it on the basis of three main needs: need for power, need for achievement and need for affiliation. In the same year, however, Antonakis and Atwater (2002) proposed the adoption of a single general parameter for the analysis of leadership. A parameter which was not central in the Full-Range Leadership Theory: leader distance. In their work, leader distance is presented

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as a general operational concept that subsumes previous parameters under a common umbrella or, perhaps, a spatial metaphor. Antonakis and Atwater argue that the management of leader-follower distance is a central variable and, accordingly, elaborate an eight- folded typology. This typology, which is expanded by the analytical model proposed in this paper, relies on the measurement of three main variables: leader–follower physical distance (PD), perceived social distance (SD), and perceived outreach frequency (OF). The definition of these variables makes clear that, in this model, the concept of distance does not indicate uniquely a spatial arrangement but rather the followers' perception of their distance to the leader. This concept will be further discussed in the theoretical framework (section 3) and operationalized through visual semiotics theory.

Antonakis and Atwater's typology includes the idea of e-leadership which, according to their model, identifies those leaders which are physically detached from their followers (PD=High) but perceived as being closed to them in terms of social class (SD=Low) and very active in the community (IF=High). The idea of e-leadership was proposed the year before by Avolio, Kahai and Dodge (2001) to investigate the mutual influence between leadership and new media. Recognizing the importance of studying leadership in the context of its emergence (House & Aditya, 1997), they observed the ongoing transformation of several companies and identified three main traits of digitally enhanced organizations: real-time interaction, knowledge sharing, and customized relationships. In this early work, their definition of e-leadership is essentially leadership through Internet Communication Technologies (ICT) and, among other things, they ask themselves whether and how distance "matters when leaders and followers are working virtually across organizations, time zones, and cultures" (p.651). In line with a popular current of thought that saw in the rise of ICTs the "death of distance" (Cairncross, 1997), early studies ambiguously perceived the management of distance both as the main trait (or problem) of emerging ICT-based organizations and a possible analytical variable.

More than a decade later, considering the expansion of digital means, Avolio led a re- assessment of ICT-based leadership (Avolio et al., 2014). In this study, e-leadership is redefined as a social influence process "embedded in both proximal and distal contexts" mediated by ICTs (p.107). This specification, which was not present in the first study, highlights the problematic role of distance in defining leader-follower relations online. Similarly, in presenting their model the authors propose an adaptation of the categories used to describe face-to-face interactions, i.e. traits, behaviors, cognition and affect. However, even though distance is not assumed here as an analytical concept, it is employed throughout the manuscript to hint at qualitatively different kinds of relationship (e.g. relational distance, social distance or power distance). Accordingly, recognizing the need to further systematize and operationalize the concept of leader-follower distance, the present study integrates the theoretical background offered by leadership studies with the analytical tools of visual semiotics.

### *2.2 Networked visibility and transforming visual ecologies*

Integrating visual semiotics into the study of leadership is more than sticking a sharp analytical tool into the extremities of an already defined body of theory. Metaphorically speaking, the risk is to create a theoretical Edward Scissorhands which finds no place in either field of research. For this reason, this section will endeavour to sketch the longstanding and permanently transforming entanglement between visual communication and leadership, leaving the presentation of the analytical tools for the following section. To begin with a famous example, currency coined in the Roman Empire was continuously redesigned to include in its engraving personalities and events of public interest. Being among the widest circulating objects of the time, currency was systematically employed to familiarize illiterate subjects with the image of the leader, impressed on one side of coins, and what the leader stands for, impressed on the other (e.g. favourite deities or victorious soldiers). The meaning of this visual communication exceeded greatly the mere juxtaposition of two images. On the one hand, it was a symbolic point of

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juncture between political, economic, and moral power. On the other hand, it yielded the advantage of being reproducible, resistant, easily transferable and, last but not least, valuable.

This simple example highlights how the life of images within human groups cannot be properly understood without taking into consideration technical and material conditions, such as means of production and circulation. Indeed, for a long time the production of images was expensive. For this reason, it was the monopoly of elites united by similar cultural and economic conditions (Benjamin, 2008 [1936]; Mitchell, 2005). Visual representations were regulated by shared standards, usually defined by religious authorities or noble families, and were hardly accessible to the average citizen. Moreover, any deviance from these standards would have been considered an insult, a sin or even a crime. With the advent of photography and photojournalism, the abundant production of standardized pictures became a core component of 20th century propaganda. While strictly top-down, the presence of pictures progressively became part of citizens' everyday life and this led, in 1925, to an early yet important moment of rupture: the publication of War against War!. In the aftermath of World Word I, this self-published underground book displayed for the first time 200 pictures of the battle fields that were not produced for the official media but retrieved mostly from military and medical classified archives (Martini, 2017). The sudden appearance of these images in the public domain provoked a violent reaction from official authorities: all copies of the book were confiscated at bayonet point and bookshop owners who sold them were threatened or arrested (Apel, 1999). Beyond its political relevance, this event was the symptom of an important change: for the first time a private citizen had the technical and economic possibility to challenge established authorities by independently circulating unofficial pictures.

The publication of War against War! represents, in a way, the beginning of what is today a common practice: the public circulation of privately produced images. The hyperbolic expansion of visual communication online and its sociopolitical implications have been the object of several studies, from the reshaping of human interactions (Jaynes, 2019; Warfield et al., 2019) to counter-surveillance projects (Gregory, 2019; Newell, 2019). The popularization of the means of production and circulation of images has progressively blurred the boundaries between producer and consumer (Jenkins et al., 2009; Ritzer and Jurgenson, 2010) while generating new markets and forms of value production (Jenkins, Ford & Green, 2018; Couldry, & Hepp, 2018). Nevertheless, it is interesting to note that, in spite of the fast-transforming media ecology of the early 2000s, even scholars who acknowledged the ongoing change seem reluctant to imply a power-shift. In a seminal article significantly titled The New Visibility (2005), Thompson claims that we are witnessing the emergence of a new form of human interaction based on online visual communication. He interestingly traces a short history of the relationship between visibility and political leadership but states that "it is primarily those who exercise power, rather than those over whom power is exercised, who are subjected to a new kind of visibility" (p.40-41). In other words, while theorizing a radical change in visual communication and the rise of grassroots production, he does not expect a shift in content: the object of this new communication will remain the established powerholders.

In hindsight, there is a certain irony in the fact that Thompson's work was published in the same year companies such as Facebook and YouTube were founded. By making user-generated content their core business, these Internet giants have completely remapped the circulation of images on a global level. The intersection between broadband internet connection and affordable personal technologies has created the conditions for the emergence of widespread visual communication, to the point that today this media market directly influences the development of smart devices. Accordingly, the study of the relationship between leadership and visual communication cannot prescind from the analysis of the logics regulating digital environments (Casero-Ripollés, Feenstra & Tormey, 2016; Van Dijck, & Poell, 2013). Indeed, digital platforms act as organizing structures which define possibilities and limits of user activity (Bennett & Segerberg, 2012; Motensen, 2015). At the same time, however, these digital environments are in constant dialogue with the communities of users inhabiting them (Burgess, Green, & Rebane, 2020; Martini, 2018). Users expect companies to guarantee the values of their platforms from external influence, such as artificially inflated view-counts, hidden advertisement, bots or even censorship. In broader terms,

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SNSs have to act as mediators between groups characterized by often conflicting interests, i.e. users, governmental bodies and their own shareholders. Waves of discontent from any of these parties might be extremely disruptive, such as in the case of Indian Tik Tok users who sunk the app's global rating from 4.6 to 1.3 (out of 5) within weeks through massive downvote (Megha & Kar, The Economic Times, 21 May 2020).

## 3. Methodology

### *3.1 Introducing the leadership visual performance model*

The transformations outlined above pushed political leaders into uncharted waters. On the one hand, SNSs offer the possibility of inexpensive public outreach but, on the other hand, the functioning of these platforms is regulated by several variables and often resist external control. Current research onthe use of Instagram by political parties tends to avoid this issue by focusing mostly on content. For example, Russmann, Svensson, & Larsson (2019) propose a four-fold framework for content analysis (broadcasting, mobilization, image management and hybridity) while Poulakidakos & Giannouli (2019), focusing on the personalization of politics, categorize leaders' Instagram activity in relation to the strategic exposure of their public and private life. In this line, Lalancette & Raynauld (2019) propose a comprehensive analysis of Trudeau's presence on Instagram which integrate parameters such as image structure and textual analysis of caption. The model proposed in this article integrates aspects of the methodologies elaborated in these works. However, its theoretical basis differs in two fundamental aspects. Firstly, while previous studies relied mostly on communication theory and political science, the present approach directly integrate the categories developed in leadership studies and with the five dimensions elaborated by Construal Level Theory, thus operationalizing the concept of "distance" for analytical purposes. Secondly, this study will approach leaders' activity on Instagram as a digital performance, defined as an assemblage of technological and human agency where "the human reacts to the agency the technologies suggest, and vice versa" (Leeker, Schipper, & Beyes, 2017: 21). In other words, the present study argues that while analytical categoriesmaintain their heuristic value, they should not be interpreted in isolation but rather as interacting factors which concur to generate the leadership performance.

Drawing on this background, the analytical model proposed in this study aims at creating a dialogue between the typologies elaborated in the field of leadership studies and the empirical investigation of the digital performance (hereafter DP) of contemporary leaders. While the first are fundamental in subsuming the analytical facets into a form of leadership, the second highlights the limits of such typologies and identifies the appearance of new forms of leadership. As previously discussed, this dialogue will be centred around the articulation and expansion of a single concept: distance.

The proposed model integrate the various forms of distance proposed in the field of leadership studies (Antonakis and Atwater, 2002; Avolio et al., 2014) with the 5 forms of distance defined by Construal Level Theory (CLT) for the analysis of visual perception (Trope & Liberman, 2010). This psychological theory is based on the idea that various forms of distance concur to generate a mental construal whose "reference point is the self, here and now, and the different ways in which an object might be removed from that point - in time, space, social distance, and hypotheticality" (p. 440). Fromthis perspective, then, digital performance on Instagram can be understood as the way in which subjects strategically construct around themselves a system of distance that includes, among other things, the position from which other users will observe them. In this regard, it is important to stress that while CLT considers the various types of distance as mutually related, the nature of this relation isstill under discussion. Accordingly, as distance will be at the core of our analytical model, it should be kept in mind that this variable does not measure the quantity of information available but rather the qualitative traits attributed to specific blocks of visual information; traits that are subsequently ordered to create a spectrum (close/far).

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### *3.2 The leadership visual performance model*

The Leadership Visual Performance Model (LVPM) is a theoretical tool designed to analyse leadership performance on visual-based SNSs, such as Instagram or Tik Tok. More specifically, this model enables the tracing of the spatial system centred around the leader that is constructed through visual content. Accordingly, the LVPM is designed to describe how distance is managed by leaders andhow, in turn, the resulting spatial structures define their leadership performance.

Some parameters utilized in LVPM are not exclusively tailored to visual content and can be extended to encompass various forms of communication across Instagram. It's important to acknowledge that we view online visual performance as a subset of broader activities within social networking sites (SNSs), which may encompass diverse communication modalities.

The LVPM articulates distance in 5 different dimensions and 14 parameters, as follows:

- **Temporal Distance:** the leaders' positioning in relation to temporal coordinates.
  - *Outreach Frequency*: frequency of upload of new contents.
  - *Time Gap:* temporal distance between the time of upload of a given image and the time of the scene represented in the image.

- **Physical Distance:** the leaders' positioning in relation to both the space of representation and geographical coordinates.
  - *Leader Presence:* Whether the leader is present in the image/video or not.
  - *Topological Reference*: explicit topological reference either inside the content or as metadata.
  - *Leader's Framing*: distance between the leader and the camera[1].

- **Social Distance:** the leaders' positioning in relation to existing social classes and institutions.
  - *Hierarchical Positioning*: social status of the people surrounding or interacting withthe leader.
  - *Leader's Focus*: element at the centre of the attention of the leader.
  - *Leader's Standing*: position of the leader in relation to other people represented inthe content.

- **Hypothetical Distance:** the leaders' positioning in relation to their goal, i.e. how the leader's DP constructs success as a likely event in terms of probability.
  - *Leader's Endorsement*: number of supporters/followers standing with the leader.
  - *Leader's Attire*: clothing standards adopted by the leader.
  - *Leader's Agency*: leader's expressed agency in relation to the surroundingenvironment.

- **Affective Distance:** the leaders' expressed level of intimacy and emotional engagement with followers.
  - *Leader's Emotions*: the emotional status expressed by the leader.
  - *Haptic Engagement*: the elements touched by the leader.
  - *Picture's Focus*: the centre of attention of the picture as indicated by its structure.

The five forms of distance and their related parameters constitute the core of LVPM and can be connected to different typologies of leadership. As clarified in the coding scheme, each parameter needs to answer a specific question. However, while the parameters' definition is necessarily narrow, the identification of the relevant indicators might be adapted to the different cases.This serves a double purpose. On the one

[1] With reference to this parameter, the point of view of the camera is seen as constructing that of the observer. Accordingly, the two terms will be used interchangeably.

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hand, it enables a more precise description of the spatial structure. On the other hand, it facilitates a dialogue between case-studies and employed analytical categories, thus allowing a bottom-up questioning of the latter if deemed necessary.

### *3.3 Data collection procedure and analysis*

The LVPM will now be employed to comparatively analyse Boris Johnson's and Jeremy Corbyn's Instagram activity during the 2019 UK General Election campaign. This campaign was chosen as a test case for LVPM to demonstrate its application due to the high level of polarization and the significant difference in leadership styles exhibited by the two candidates. However, it's important to note that the model can be applied to various scenarios beyond electoral contexts. In a similar vein, the choice of focusing on Instagram rather than other platforms is due to (i) its popularity across different demographic sectors in the UK and (ii) the possibility to easily collect an exhaustive corpus of images. However, the LVPM can be applied to visual content retrieved from different digital platforms.

The corpus was assembled by screen-capturing the entire output of Johnson's and Corbyn's official Instagram accounts from the beginning of the General Election campaign (29 October 2019) to the Election Day (12 December 2019). Data collection was conducted between the 13 and the 15 of December 2019 and resulted in the extraction of 583 contents (pictures and videos). Contents were uploaded in a mixed-method software (Dedoose) and coded according to the parameters presented in the LVPM. It should be noted that videos were watched and coded according to the dominant content and framing. Series of multiple images were coded as single images. Results of the coding process were elaborated in statistical form through spreadsheet software (LibreOffice), compared and prepared for publication.

### *3.4 Ethics statement*

In line with the guidelines published by the Association of Internet Researchers (Markham, Buchanan & AoIR Ethics Working Committee, 2012), the research design was based on an unobtrusive collectionof publicly available information. The extraction and analysis of data were conducted by investigators who have no personal or political ties with the analysed leader, parties or platforms. Data were storedin password-protected archives and will be presented in the form of statistics. No personal identifying information was processed. On this basis, the publication of this study presents minimal risk for both the observed groups and the researchers.

## 4. Findings: Comparing digital performances in the 2019 UK general election campaign

### *4.1 Temporal distance*

The present study analysed 583 images and videos, of which 382 (65.5%) were uploaded by Jeremy Corbyn and 201 (34.5%) by Boris Johnson. In terms of Outreach Frequency, the DP of the two leaders presents some relevant differences. Corbyn uploaded almost twice as much content as Johnson and, while both progressively increased their online presence in the run-up to the Election Day, their posting frequency differs significantly. Johnson's interaction frequency varies irregularly from 0 to 8 posts/day, with an average of 3.5 posts/day. While increasing towards the end of the campaign, his posting activity does not follow a clear pattern. Conversely, Corbyn's DP is generally more intense, with an average of 8.4 posts/day during the campaign and a sharp increase towards the end. Indeed, in the last week Corbyn uploaded from 12 to 25 contents per day, with a peak of 50 posts on Election Day. In terms of represented events (Time Gap), both leaders remain strongly focused on contemporary issues and follow the various

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stages of their campaign (C: 94,2%, J: 95.5%)2. Corbyn is more inclined to post historical pictures (4.2%) and Johnson to post timeless advertisement-like graphics (4%), but these images have minor significance.

Drawing on these data, Johnson's DP is based on a daily engagement with followers which ranges between 1 to 8 posts/day and remains unvaried throughout the campaign. This communicative style, mostly stable and untouched by unfolding events, may be interpreted as a way to express firmness, certainty and a bigger distance between the leader and his followers. Conversely, Corbyn's high-frequency posting that significantly increases towards the Election Day constructs a task-oriented leader who, by close and continuous engagement with his followers, personally leads the common struggle

### *4.2 Physical distance*

In terms of physical distance, the differences between the two leaders' DPs are significant (Chart 1). Johnson is present in almost all his posts (96%), barely mentions his opponent (2%) and his body is mostly represented as relatively close to the observer (Close-Up: 18.9%, Waist Shot: 41.8%, American Shot: 20.9%)[3] with relatively few images falling outside of this range. Conversely, Corbyn is physically present in less than half of his uploads (44.8%). The remaining posts contain either third actors (34.8%, see 5.5) or screenshots of the leader's Tweets (21%). When present, Corbyn's body loosely shifts from close to distant positions (Close-Up: 8.4%, Waist Shot: 16.8%, American Shot: 7.3%, Medium Shot: 7.3%, Long Shot: 4.2%). He mentions his opponent in about a fifth of his total posts (18.9%).

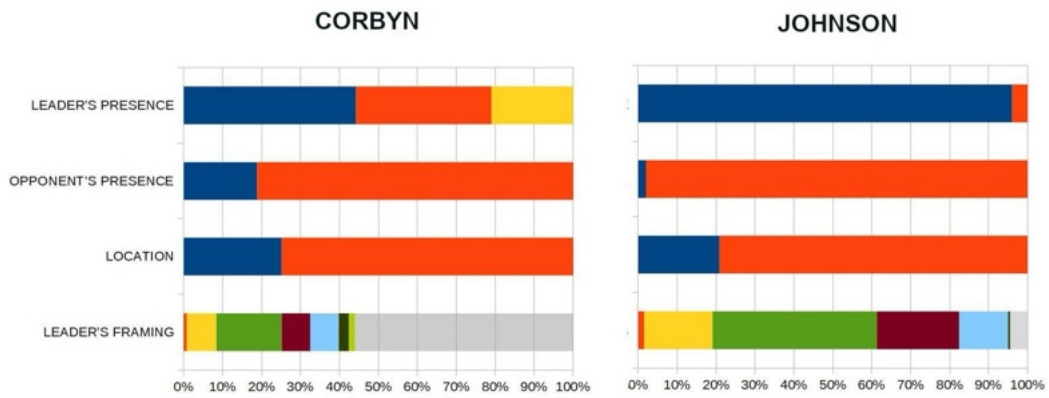


**Figure 1. Visualization of "Physical distance" data.**

*In the order: (1) Leader's Presence [Blue=Yes / Red= No / Yellow= Twitter screenshot]. (2) Opponent's Presence [Blue=Yes / Red=No]. (3) Location [Blue=Yes / Red=No]. (4) Leader's Framing [Red=Detail / Yellow=Close Up / Green=Waist Shot / Purple=American Shot / Light Blue=Medium Shot / Dark Green = Long Shot / Light Green = Extreme Long Shot / Gray = Not Applicable].*

Looking at these data, we can see how Johnson's DP aims at constructing a personal, direct and almost physically-charged engagement with followers. Johnson is clearly the main content of his own DP: he is almost always present, he is firmly in front of the camera, he is close to the observer and very rarely give space to his opponent. On the other hand, in terms of physical distance Corbyn is significantly more ethereal. His relationship with the observer is based on a mix between presence, absence and re-mediated communication (Twitter screenshots). When visible, Corbyn does not maintain a stable stance in relation to the camera: he continuously shifts from close to very distant, and sometimes is even hardly visible. The presence of his opponent, on the contrary, is a returning feature of Corbyn's DP. He regularly

[2] For brevity, some results will be presented between brackets using the initials of the two leaders. Since the aim of the present research is to compare two DPs conceived as single unities, the presented percentages are calculated on the total posting of each leader and not on the full corpus.

[3] Also known as "plan américain", the American Shot is a term borrowed from the cinema industry defining a medium- long film shot which portrays characters form the knees up. This framing became famous in western movies and is still associated with that kind of narrative.

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mentions Johnson and the Conservative Party, hence making them present to his followers and positioning himself in a relationship of opposition.

### *4.3 Social distance*

Differences in the management of social distance are not as clear as they were in the two previous cases (Chart 2). In terms of hierarchical positioning, both leaders favour being surrounded by supporters (J: 27.4%, C: 20.2%) and, occasionally, by party activists (C: 5.2%, J: 5%). However, unlike Corbyn, Johnson appears often with regular citizens (C: 4.2%, J: 28.4%) and seldom with public officers(C: 2.1%, J: 6.5%). These stark differences are related to the fact that, by not appearing in more than half of his posts, Corbyn has far less occasions to visually associate himself with other actors. Also, in terms of visual attention, both leaders generally disregard institutional figures (C: 0.8%, J: 0%) and party activists (C: 1.8%, J: 1.5%), while focusing on two specific elements: the camera, i.e. the observer-user, and the supporters. Nonetheless, Corbyn focuses primarily on supporters (C: 31.2%, J: 23.8%) while Johnson looks often towards the camera (C: 18%, J: 31.3%). Finally, in terms of standing the two leaders seems to adopt a similar approach, even though Johnson's style is far more emphasized. Both leaders stand mostly either among the crowd (C: 18.3%, J: 45.2%) or in front of it (C: 15.7%, J: 24.9%). However, Johnson also appears alone in one fifth of the pictures (C: 6.8%, J: 22.9%) and, unlike Corbyn, is never in the background (C: 3.7%, J: 0%).

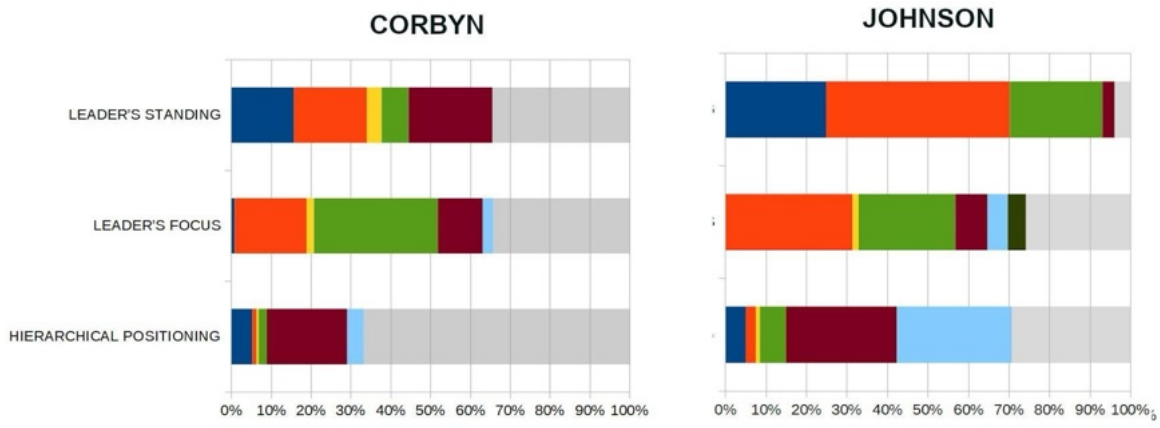


**Figure 2. Visualization of "Social Distance" data**

*In the order: (1) Leader's Standing [Blue=Foregorund / Red=Middle-ground / Yellow=Background / Green=Solo / Purple=Icon / Gray=Not applicable.] (2) Leader's Focus [Blue=Camera / Red=Citizens / Yellow=Institutions / Green=Supporters / Purple=Party Activists / Light Blue=Media / Dark Green=Objects / Gray=Not Applicable]. (3) Hierarchical Positioning [Blue=Citizens / Red=High-ranked Figures / Yellow=Party Activists / Green=Supporters / Purple=Community Leaders / Light Blue=Public Officers /Gray=Not Applicable].*

Synthesizing the presented data, both leaders clearly privilege the expression of a direct relationship with supporters by both appearing among them and focusing their attention on them. This similarity notwithstanding, differences in ways of managing social distance can be observed. Corbyn is often surrounded by supporters and party activists, but rarely by people not explicitly expressing their political affiliation. Physically present supporters get most of his attention and he stands among them.From this perspective, Corbyn presents himself as a leader focused on his followers: a leader that is one of "them", is attentive to their demands and recognizes their importance (to the point of remaining in the background on a few occasions). While not distancing himself from this meaning, Johnson appears to leverage his official position. He equally associates himself with both supporters and regular citizens, but also appears alone. He interacts with public officers, thus linking himself to the operative branch of the state, but not with institutional figures. He stands among or in front of his supporters, but often looks directly at the

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camera to address the viewer. In other words, where Corbyn is socially almost indiscernible from his followers, Johnson manages to constantly defuse this identification.

### *4.4 Hypothetical distance*

Hypothetical distance is, perhaps, the less intuitive of the five dimensions of distance proposed by the LVPM. This dimension, originally proposed by Construal Level Theory, describes the probability of a represented event to occur as perceived by the viewer. In the case at hand, this dimension is translated as the perceived possibility of the two candidates becoming the next Prime Minister (PM) and how such perception is constructed through the leaders' DP.

In terms of the leaders' endorsement, both candidates often appear with small groups of supporters (C:20.4%, J: 58.7%). However, while Johnson almost exclusively interacts with a limited number of supporters, Corbyn regularly addresses large crowds throughout his campaign (C: 12.3%, J: 2.5%). In terms of bodily expression, both leaders overwhelmingly adopt a formal and standardized attire (C: 61%, J: 71.6%). Johnson, however, also appears several times wearing the working uniforms used by the workers he is visiting (C: 1.3%, J: 18.4%). Finally, an important difference concerns the leaders' expressed agency. Corbyn is shown mostly in a static posture (C: 31.7%, J: 31.8%) while Johnson consistently adopts a more dynamic attitude (C: 12%, J: 62.6%).

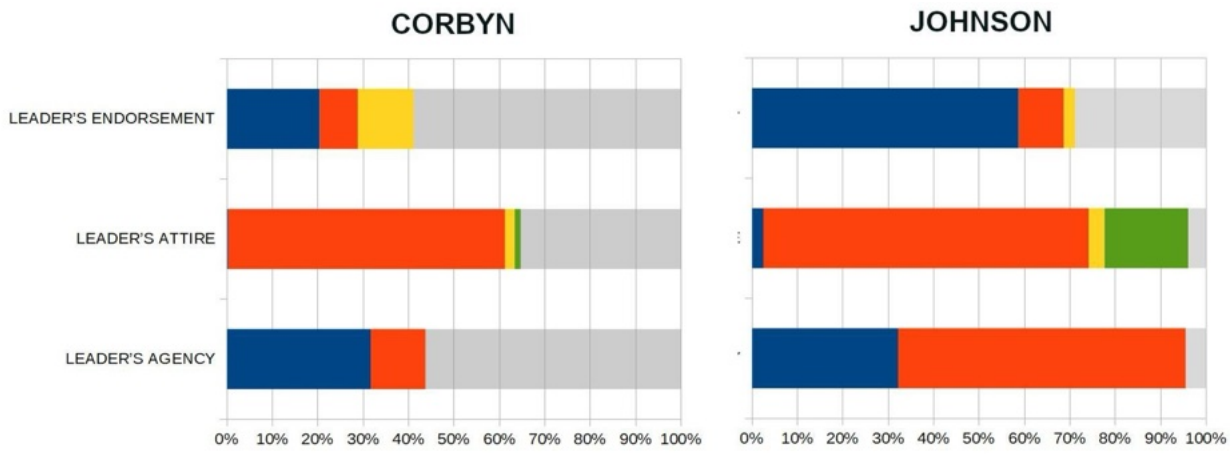


**Figure 3. Visualization of "Hypothetical Distance" data**

*In the order: (1) Leader's Endorsement [Blue=Small Crowd / Red=Medium Crowd / Yellow=Large Crowd / Gray=Not Applicable]. (2) Leader's Attire [Blue=Informal / Red=Formal / Yellow=Community Symbols / Green=Uniforms / Gray=Not Applicable]. (3) Leader's Agency [Blue=Static / Red=Dynamic / Gray=Not Applicable]*

The management of hypothetical distance is here particularly interesting (Chart 3). Indeed, while Corbyn is a candidate for premiership, his opponent already is the PM. Accordingly, their strategies differ on some significant points. Corbyn's construction of himself as a legitimate PM is mostly conventional and unambiguous: he shows himself receiving support form both small and large groups of people while standing composedly in formal attire. Johnson, conversely, is already the PM during the campaign and strategically plays on this public position. He focuses on small groups of supporters rather than seeking the legitimization of large crowds, thus showing himself as part of everyday life. His attire generally fits his institutional role but from time to time he wears workers uniforms, thus creating a visual link between himself as a top political figure and the working class. Finally, he is oftenrepresented in the middle of the action. While this might produce less symbolical and iconic images, itbears the advantage of imbuing them with energy, thus presenting Johnson as dynamically engaging with reality. To

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summarize, Johnson does not present his premiership as a possibility but takes it as hisalready established role to work from.

### *4.5 Affective distance*

Affective distance is more intuitive and refers to the experience of feelings, as well as their expression and sharing. In other words, this dimension aims at describing the level of intimacy and empathy elicited by the leaders' DP. In this respect, the difference between the two candidates is, once again, clear (Chart 4). Corbyn assumes mostly a neutral expression (C: 36.1%, J: 15.9%) while Johnson is overwhelmingly expressing positive feelings (C: 12.6%, J: 60.2%). It should be noted that Johnson is also occasionally represented in a meditative stance (C: 2.9%, J: 16.9%) while Corbyn's emotions areat times not visible, as he turns his back to the camera or is too far away (C: 12.6%, J: 2.9%). In terms of haptic engagement, Johnson is far more expansive than Corbyn: he frequently interacts physically with his supporters (C: 5.2%, J: 18.8%), handles tools or objects (C: 6.8%; J: 18.8%) and, perhaps most importantly, expresses himself through hand gestures (C: 2.9%, J: 25.9%). Corbyn is a more distant figure because, even when present, his physical interaction with his surroundings is very limited. In this respect, the study of the focus of the image, i.e. where the viewer's attention will be drawn in thefirst place, highlights an interesting dynamic. Johnson is preponderantly the center of his own DP, as the vast majority of images focus on him (82.6%) and only marginally on his supporters (10%). Conversely, Corbyn's DP pushes forward his supporters (32.2%) while leaving the leader in an almost secondary position (27.5%). In addition, Corbyn's DP involves the posting of other media, such as Twitter screenshots or the front-page of magazines (C: 28.8%, J: 2.5%).

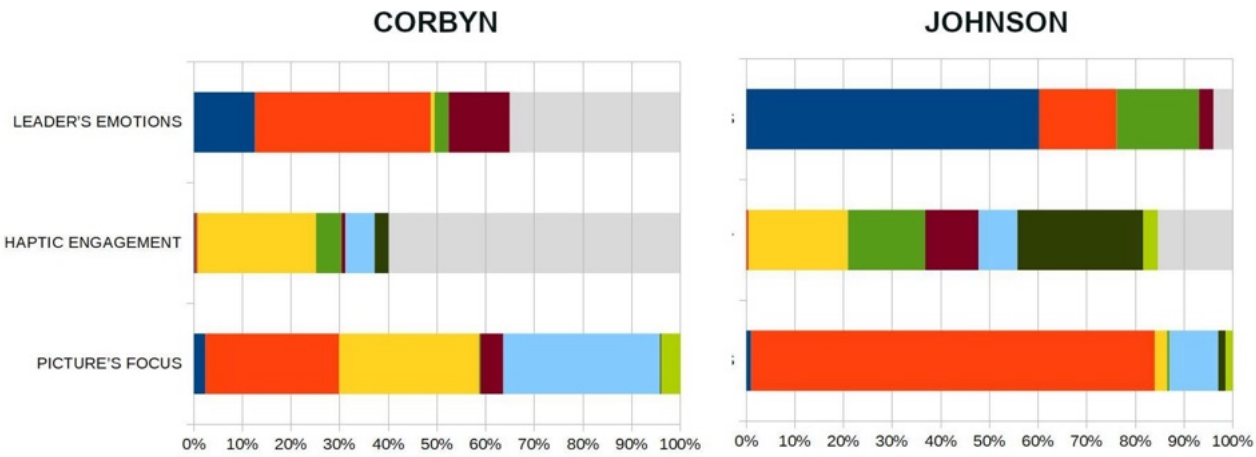


**Figure 4.**

*Visualization of "Affective Distance" data. In the order: (1) Leader's Emotions [Blue=Positive / Red=Neutral / Yellow=Negative / Green=Meditative / Purple=Not Visible / Gray=Not Applicable]. (2) Haptic engagement [Blue=Party Symbols / Red=Media Tools / Yellow=No Touch / Green=Supporters / Purple=Working Tools / Light Blue=Other / Dark Green=Hand Gesture / Light Green=Citizens / Gray=Not Applicable]. (3) Picture's Focus [Blue=Objects / Red=Leader / Yellow=Media / Green=Detail / Purple=Opponent / Light Blue=Supporters / Dark Green=Wide Angle / Light Green=Other / Gray=Not Applicable].*

These data sketch two forms of leadership that, in terms of affective distance, present significant differences. Johnson expresses a positive and proactive attitude, as well as an interest in transmitting it personally to his followers. By putting his body at the forefront of his DP, he makes himself the primary (and almost exclusive) source of emotional involvement for his followers. Corbyn is emotionally neutral and physically disengaged. The main source of emotional influence for his supporters are the supporters

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themselves, to whom he gives plenty of space in his own feed. To put itdifferently, rather than a source of emotional engagement, Corbyn presents himself as a spokesperson who creates the possibility for his followers to be heard.

## 5. Conclusion: Heuristic limits and possibilities of LVPM

The findings presented above results from the application of the LVPM to the case under scrutiny and highlighted the emergence of two distinct forms of leadership. For the purpose of this study, the level of comparison has been set on the individual parameters, i.e. the 14 variables whose analysis informs the definition of the 5 forms of distance. On the one hand, Johnson represents himself as a leader who, while socially distinct from his followers and measured in his interaction with them, personally channels his emotional and dynamic energy through an outward-leaning body performance. On the other hand, Corbyn interacts intensively with his followers and puts himself on their level, while constructing his role as that of a mostly neutral and often disembodied spokesperson of the popular will.

As previously stated, the 5 forms of distance and their 14 parameters constitute the core of the LVPM. From this nucleus, researchers can move in two opposite directions. Downwards, by developing new sets of indicators that can better describe the nuances of emerging forms of online leadership (e.g. fashion bloggers or religious leaders), and upwards, by proposing new or revised typologies of leadership. Both these movements, however, need to be based on empirical research. The movementtowards the particular (i.e. indicators), requires a continuous retuning on the evolving digital landscape. The movement towards the general (i.e. typologies), implies a comparative approach either in relation to standardized forms or between different case studies. To clarify, the data presented above can be generalized and described as follows:

**Table 1.**

*Comparative representation of the leaders' positioning in line with the typology and parameters proposed by Antonakis and Atwater (2002).*

| | Temporal | Physical | Social | Hypothetical | Affective |
|---|---|---|---|---|---|
| **Corbyn** | Close | Far | Close | Far | Far |
| **Johnson** | Far | Close | Far | Close | Close |

This rough generalization clearly implies both a dramatic loss of information and, in absence of a unified scale, a mutual comparison between the two cases under scrutiny. However, it bears the

advantage of making our data readable through previously defined typologies. For example, according to Antonakis and Atwater's typology (2002), Johnson could be described as implementing a *Manor House Leadership* while Corbyn a *Virtually Close Leadership.* While these typologies might be useful to expand the scope of leadership studies far beyond the occurrences, their use should be based on a strict heuristic principle. Indeed, all levels of analysis (typologies, distances, parameters, and indicators) can be adopted as comparative frameworks, as long as their use increases our comprehension of the phenomenon at hand and systematically interrogates/informs all the other levels.

To conclude, we have seen how an online platform can host different digital performances of leadership (RQ1) and how such performances can be identified through a set of spatial indicators (RQ2). The present study has also shown how specific forms of digital performance can be linked to specific types of leadership (RQ3). These results are in line with previous studies, such as Munoz and Towner (2017), which employ a thematic coding scheme to investigate the 2016 US election campaign. This is significant,

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as it shows that similar conclusions can be reached employing different analytical schemes. Indeed, being based on Construal Level Theory, the LVPM does not rely on a set of themes but rather on the articulation of 5 different forms of distance between the leader and the viewer; a structural characteristic that makes this tool adaptable and able to allow comparison between different sociocultural contexts.

This model opens various perspectives for future research. Firstly, the exploration of the novel forms of leadership emerging on digital platforms and the creation of a typology. Secondly, the process of migration of well- established authorities on social media and the translation of the traditional marks of their leadership in connective terms. Thirdly, given the quantifiable nature of the parameters proposed in the LVPM, attempts could be made to partially or completely automatize the process of analysis through the design of dedicated software. Such development would facilitate constant comparison of different DPs (digital performances) while helping to chart and monitor the evolution of leadership online. Finally, and perhaps most importantly, future research should endeavour to trace the emergence and disappearance of new visual languages. Indeed, the extensive use of visual communication allowed by digital platforms is generating complex visual languages whose functioning is connected to specific communities of practice. The study of the evolution of such languages, and specifically of the forms of internal leadership that drive this evolution, represents a still unexplored field of inquiry which potentially bears consequences on both a political and an economic level.

## References


Anden-Papadopoulos, K. (2013). Media witnessing and the 'crowd-sourced video revolution'. *Visual Communication*, 12(3): 341–357.

Antonakis, J., & House, R. J. (2002). The full-range leadership theory: The way forward. In: Avolio, B.J. & Yammarino, F.J. (Eds). *Transformational and charismatic leadership: The road ahead*. Amsterdam: Elsevier.

Antonakis, J., & House, R. J. (2014). Instrumental leadership: Measurement and extension of transformational–transactional leadership theory. *The Leadership Quarterly*, *25*(4), 746-771.

Apel, D. 1999. "Cultural Battlegrounds: Weimar Photographic Narratives of War." *New German Critique* (76): 49–84.

Avolio, B. J., & Bass, B. M. (Eds.). (2001). *Developing potential across a full range of Leadership Tm: Cases on transactional and transformational leadership*. Psychology Press.

Avolio, B. J., Kahai, S., & Dodge, G. E. (2001). E-leadership: implications for theory, research, and practice. *Leadership Quarterly*, 11(4), 615–668.

Avolio, B. J., Sosik, J. J., Kahai, S. S., & Baker, B. (2014). E-leadership: Re-examining transformations in leadership source and transmission. *The Leadership Quarterly*, *25*(1), 105-131.

Baldwin-Philippi, J. (2019). The technological performance of populism. *New Media & Society*, *21*(2), 376-397.

Benjamin, W. (2008 [1936]). *The work of art in the age of mechanical reproduction*. Penguin UK.

Bennett, W. L., & Segerberg, A. (2012). The logic of connective action: Digital media and the personalization of contentious politics. *Information, communication & society*, *15*(5), 739- 768.

Burgess, J., Green, J., & Rebane, G. (2020). Agency and controversy in the YouTube community. In *Handbuch Soziale Praktiken und Digitale Alltagswelten* (pp. 105-116). Springer VS, Wiesbaden.

Burns, J. M. G. (1978). *Leadership*. New York: Harper & Row.

Cairncross, F. (1997). *The death of distance: how the communications revolution will change our lives*. (No. C20-21). Harvard Business School.

Casero-Ripollés, A., Feenstra, R. A., & Tormey, S. (2016). Old and new media logics in an electoral campaign: The case of Podemos and the two-way street mediatization of politics. The international journal of press/politics, 21(3), 378-397

Couldry, N., & Hepp, A. (2018). *The mediated construction of reality*. John Wiley & Son

De Veirman, M., Cauberghe, V., & Hudders, L. (2017). Marketing through Instagram influencers: the impact of number of followers and product divergence on brand attitude. *International journal of advertising*, 36(5), 798-828.

Downton, J. V. (1973). *Rebel leadership: Commitment and charisma in the revolutionary process*. Free Press.

Feldman, J. (2007). Constructing a shared Bible Land: Jewish Israeli guiding performances for Protestant pilgrims. *American Ethnologist*, *34*(2), 351-374.

Gregory, S. (2019). Cameras Everywhere Revisited: How Digital Technologies and Social Media Aid andInhibit Human Rights Documentation and Advocacy. *Journal of Human Rights Practice*, *11*(2), 373-392.

Hokka, J., & Nelimarkka, M. (2019). Affective economy of national-populist images: Investigating national and transnational online networks through visual big data. N*ew Media & Society*, OnlineFirst.

House, R. J., & Aditya, R. W. (1997). The social science study of leadership: Quo Vadis? *Journal of Management, 23*, 409–473.

Jaynes, V. (2019). The social life of screenshots: the power of visibility in teen friendship groups. *New Media & Society*, 1461444819878806.

Jenkins H, Purushotma R, Weigel M, et al. (2009) Confronting the Challenges of Participatory Culture: Media Education for the 21st Century. Cambridge: MIT Press.

Jenkins, H., Ford, S., & Green, J. (2018). *Spreadable media: Creating value and meaning in a networkedculture* (Vol. 15). NYU press.

Lalancette, M., & Raynauld, V. (2019). The power of political image: Justin Trudeau, Instagram, and celebrity politics. *American Behavioral Scientist*, *63*(7), 888-924.

Leeker, M., Schipper, I., & Beyes, T. (2017). *Performing the Digital. Performativity and Performance Studies in Digital Cultures*. transcript.

Mandavia, Megha, and Sanghamitra Kar. "TikTok's Rating Drops after Internet War Erupts between Influencers of Short Video Platform and YouTube." *The Economic Times*, Economic Times, 21 May 2020, economictimes.indiatimes.com/tech/internet/tiktoks-rating-drops-after-internet- war-erupts-between-competing-influencers/articleshow/75824824.cms.

Markham, A., Buchanan, E., & AoIR Ethics Working Committee (2012). Ethical decision-making and Internet research: Version 2.0. *Association of Internet Researchers*. Retrieved from: https://aoir.org/reports/ethics2.pdf

Martini, M. (2017). War against War!: pictures as means of social struggle in post-First World War Europe. *Visual Studies*, *32*(4), 329-344.

Martini, M. (2018). On the user's side: YouTube and distant witnessing in the age of technology- enhanced mediability. *Convergence*, *24*(1), 33-49.

McLeod, M. (2002). Keeping the circle strong: Learning about Native American leadership. *Tribal College*, *13*(4), 10.

Miller, P., Wills, N., & Scanlan, M. (2013). Educational leadership on the social frontier: Developing Promise Neighborhoods in urban and tribal settings. *Educational Administration Quarterly*, *49*(4), 543-575.

Mitchell, W. J. T. (2005). *What do pictures want?: The lives and loves of images*. University of Chicago Press.

Mortensen, M. (2015). Connective witnessing: Reconfiguring the relationship between the individual and the collective. *Information, Communication & Society*, *18*(11), 1393-1406.

Munoz, C. L., & Towner, T. L. (2018). The image is the message: Instagram marketing and the 2016 presidential primary season. In *Social Media, Political Marketing and the 2016 US Election* (pp. 84-112). Routledge.

Newell, B. C. (2019). Context, visibility, and control: Police work and the contested objectivity of bystander video. *New Media & Society*, *21*(1), 60-76.

Poulakidakos, S., & Giannouli, I. (2019). Greek Political Leaders on Instagram: Between "Soft" and "Hard" Personalization. In *Visual Political Communication* (pp. 187-206). Palgrave Macmillan, Cham.

Ritzer G and Jurgenson N (2010) Production consumption prosumption the nature of capitalism in the age of the digital 'prosumer'. Journal of Consumer Culture 10(1): 13–36.

Russmann, U., Svensson, J., & Larsson, A. O. (2019). Political Parties and Their Pictures: Visual Communication on Instagram in Swedish and Norwegian Election Campaigns. In *Visual Political Communication* (pp. 119-144). Palgrave Macmillan, Cham.

Thompson, J. B. (2005). The new visibility. *Theory, culture & society*, *22*(6), 31-51.Thompson, J. B. (2005). The new visibility. *Theory, culture & society*, *22*(6), 31-51.

Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological review*, *117*(2), 440.

Van Dijck, J., & Poell, T. (2013). Understanding social media logic. *Media and communication*, *1*(1), 2- 14.

Warfield, K., Hoholuk, J., Vincent, B., & Camargo, A. D. (2019). Pics, Dicks, Tits, and Tats: negotiating ethics working with images of bodies in social media research. *new media & society*, *21*(9), 2068-2086.

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