

GUEST EDITORIAL

Images, clusters and types – Making sense of (large) image corpora and related practices in and with digital media

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1 Introduction

In November 2021, the Visual Communication Division of the German Communication Association (DGPK) celebrated its 20th anniversary at the University of Trier with a one-year pandemic delay. Marion G. Müller, Katharina Christ and Christof Barth organized an excellent conference to mark the occasion and to reflect on past and current trends, topics, and challenges in visual communication research. Resuming the thematic scope of the division's first conference held in Hamburg in 2000, the conference focused on "The power of images – Images of power. On visual political communication in digital contexts." While analyses of press photography in the tradition of political iconology were the main approaches twenty years ago, the program of the anniversary conference demonstrated diversified thematic foci and methodological approaches. The presentations examined a broad range of visual digital media and visual communication exerted by various actors ranging from the press to politicians to activists and citizens. Concurrently, we also saw a considerable diversity concerning methodological approaches and a rising influence of computational methods for analyzing the increasingly large numbers of images in digital media environments. With the panel "Image type / image cluster analysis as an approach to analyzing large numbers of images in online environments," a discussion on diverse methodological approaches and their potentials and challenges among our members started. After the conference, we decided to

open up our internal discussion and reach out to international colleagues working on similar questions. The long-term result is this Thematic Section on diverse methods for structuring image data corpora drawing on different traditions of visual analysis.

2 Images, clusters and types – old and new questions

The analysis of visual patterns has always been central to the field of visual studies. Classical scholars dedicated much of their work to retracing the "pathos formula" (Warburg) or to identifying "image types," defined by Panofsky (1955) as specific styles of representation through which certain actors, actions, events, ideas, or themes are visualized. Visual communication researchers have adopted previous works in art history and have stressed the importance of combining iconographic and iconological expertise with profound knowledge of communication processes and image contexts (Knieper & Müller, 2019). Research on image types has helped to analyze the highly routinized and conventionalized selection and use of images in news media, which iterate topic- or discourse-specific repertoires of images with recurring motifs and representational characteristics with which events, constellations of actors, and their (inter)actions are depicted. Image types bundle visuals with motifs of similar content or meaning and distinct representational features (Grittmann & Ammann, 2009). Importantly, image type analysis has shown a way



to link a systematic analysis of quantifiable structures and patterns in data sets with a detailed qualitative interpretation of representation techniques and compositional features and the manifest and latent meaning of image types (for recent applications, see e.g., Brantner, Lobinger, & Stehling, 2020; Pentzold, Brantner, & Fölsche, 2019). Concurrently, communication research has played out its long-standing expertise in quantitative content analysis and elaborated new forms of quantitative image (content) analysis (e.g., Bock, Isermann, & Knieper, 2012; Geise & Rössler, 2013; Parry, 2020; Rose, 2016).

Recent developments in platform media environments and “visual social media cultures” (Leaver, Highfield, & Abidin, 2020), as well as in methodological tools and procedures, call for a re-intensified reflection and work on image types and relational and comparative classification such analyses allow and require. We have witnessed a significant shift in both (visual) media environments and research agendas over the past 10–15 years. Media and news media coverage were dominant subjects of inquiry until the early 2000s; researchers then increasingly focused on digital images in online environments. Later on, research more and more focused on the analysis of the multiple visualities on social media (Hand, 2016; Highfield & Leaver, 2016), considering that with networked photography, i.e., the convergence of digital photography, mobile communication and social media, sharing visuals had become a standard and increasingly visible part of everyday and social media communication. Visual communication research contributed with both *image analyses* of selfies, memes, and other visuals, and by increasingly taking *image-related practices* such as “sharing” into account (Autenrieth & Neumann-Braun, 2011; Gomez-Cruz & Lehmuskallio, 2016; Lobinger, 2016; Schreiber, 2017). Studies thus have shed light on how different sorts of visuals are appropriated and used in everyday practices of individuals or different social entities and have tried to make sense of the constant stream of (ephemeral) images in times of “networked” and “algorithmic images” (Rubinstein & Sluis, 2008, 2013). Still, methodologically, researchers are confronted with a two-fold challenge, i.e., how to

make sense of large image corpora by identifying structures and patterns on the level of visual representations and concerning dispersed image-related practices in and across networked digital media environments.

Computational and digital methods promise to provide new insights and approaches for analyzing the increasing volume of images published in various online contexts and related practices at large scales (Niederer & Colombo, 2019). For a long time, automated methods in communication and media studies had solely focused on verbal text, neglecting visual elements of communication flows. In fact, automated approaches often struggled to do justice to the holistic-associative logic of images and to capture levels of meaning and interpretation beyond identifying motifs and objects in images. However, more and more contributions process “big image data” corpora (Rogers, 2021; Mooseder, Brantner, Zamith, & Pfeffer, 2023) with the help of artificial intelligence and / or discuss the potential and challenges of machine learning tools to enable large-scale content analysis and classification of images (e.g., Araujo, Lock, & van de Velde, 2020). In particular, Manovich’s (2020) “Cultural Analytics” approach gained broader prominence across disciplines. In the realm of digital humanities, even art history discusses the advent of “(generative) digital art history” (Offert & Bell, 2020).

This Thematic Section aims to focus on the specific demands of visual communication while thinking through 1) how to make sense of large image corpora and related practices in and with digital media and 2) the ways in which identifying structures, types, and patterns challenge not only quantitative but also qualitative approaches to visual analysis. The Thematic Section sets out to discuss and present both persistent and new challenges as well as pathways in qualitative, quantitative, or mixed approaches for analyzing and constructing visual patterns, image types, or clusters on the level of image contents and representation, and / or for typologizing routinized or conventionalized image-related practices on the level of media and image appropriation and usage.

3 Contributions

Analyses of “big image data” often impress with the sheer volume of images they process or the ways in which results are displayed with the help of, e. g., visual networks or slides comprising hundreds or thousands of images. However, how exactly are medium-sized or large corpora of images constructed and collected in digital media environments? Given the many possibilities and different conditions for collecting image data on platforms and visual social media, an intense reflection on corpus formation is central to inferential reasoning. *Yuliya Samofalova* opens the Thematic Section with systematizing strategies for collecting data from image-based social media platforms. The author differentiates visual corpora by the modalities they include and distinguishes between single-platform and multi-platform corpora. Five data collection strategies are presented and carefully weighed concerning their benefits and limitations: hashtag-based, account-based, metadata-based, random sampling, and the mixed approach. The literature review is complemented by a case study on “Change4climate,” with the help of which the author contextualizes and justifies decisions on data collection within the frame of a specific research project.

Digital methods and computational tools of machine vision set out to intermingle with human vision and interpretive abilities. The amount of data in social media can hardly be managed without the support of automated tools. At the same time, automated clustering intervenes in sensitive processes of describing and interpreting images. Machine vision challenges the agency of visual scholars as knowing experts. As such, critical questions arise: How can manual and automated forms of coding and analyzing visual data complement each other appropriately? Which limitations do AI-driven forms of image clustering have? Are image clusters and image types the same, or should we nuance conceptual differences? Two papers intensely discuss those questions and demonstrate their methodological approaches:

Raymond Drainville introduces his novel approach of “digitally-assisted iconology,” blending machine learning and data analysis to organize medium-sized image datasets

lacking metadata. The method involves an initial clustering of images based on fundamental formal representational features through machine learning. Subsequently, a thematic analysis, grounded in Aby Warburg’s “pre-coined expressive values,” is applied. The presented approach, along with its limitations, is exemplified using a consistent dataset of images shared on Twitter in 2015 following the discovery of a drowned Syrian child off the Turkish coast.

In their article “Medals and likes,” *Carlos Roberto Gaspar Teixeira* and *Roberto Tietzmann* present a methodological framework for analyzing extensive image datasets and illustrate their approach on the example of Instagram profiles of elite athletes. They showcase the use of a Cultural Analytics methodology and computer-aided tools in this investigation. Analyzing 87 730 images of 389 Olympians published on Instagram between September 2011 and November 2020, the authors employed computer vision processing and interactive visualization tools for structuring and organizing the images. The authors successfully identify distinct patterns within the image clusters by combining quantitative and qualitative methods.

Computational assistance is one major methodological innovation. However, changing media environments challenge qualitative approaches in visual communication research as well:

Michael R. Müller reflects on “iconic image clusters” as a specific mode of image presentation. Analogue forerunners can be found in museum collections, exhibitions, or photo series in magazines. In photographic weblogs and other visual platforms, communicating with image clusters has become a vernacular practice which demands analytical consideration. Treating holistic collections of many images bundled together as a communicative unit, the author differentiates “iconic,” “narrative,” and “classificatory image clusters.” Within iconic image clusters, montage techniques unfold iconic qualities on their own, a “superordinate visual whole.” The author provides a theoretical outline of the term “image cluster” and a sequence of analytical steps for research projects in the field.

Seraina Tarnutzer, *Katharina Lobinger*, and *Federico Lucchesi* also address new me-

thodological challenges arising alongside media change. With a focus on visuals in everyday life, the authors emphasize that image representation (i. e., what is shown on the image) and image practices (i. e., what is “done” with the image) can hardly be separated. They suggest a “texto-material approach” of image type analysis, that takes into account both the motif level of visuals as well as people’s reasoning and narration about how they use specific images in their everyday life. As such, they propose to advance image type analysis by also considering communicative functions, (material) practices in which images are embedded, and contextual information (e. g., contexts of production and use). The authors illustrate their methodological approach step by step using visual data from an empirical project on visual communication in couple relationships in Switzerland. Overall, they suggest a dynamic approach to visual analysis that enables a qualitative, in-depth analysis of larger visual samples. In their article, the authors explain the advantages of their approach and discuss how it builds on, connects to and advances methods within visual communication research.

The following contribution also deals with images as representations and practices. Its focus, however, is on the meso and macro level, analyzing how different groups of actors co-constitute public discourse on social media. While automated analysis offers powerful tools for clustering large image corpora, they are poor in contexts. *Wolfgang Reißmann*, *Miriam Siemon*, and *Moe Kinoshita* present a methodological exploration combining image network analysis and standardized practice analysis of social media data. Using the example of the German-speaking Twitter hashtag #systemrelevant, they first identify image clusters and then enrich them with contextual information on the posts in which the images were embedded and information on the groups of actors who predominantly used certain forms of images. Their methodological reflection also points to the challenges of automated image analysis and the nuanced difference between image clusters and image types.

Finally, *Maria Schreiber* explores the concept of image genres by directing attention to text posts on Instagram, an emerging and

increasingly relevant genre. This burgeoning phenomenon is initially contextualized and justified through contemporary evidence of modal expansion and the transformation of platform affordances. Subsequently, the author identifies recurring categories and characteristics and differentiates them across four discursive dimensions, drawing on years of ethnographic online participation and data collection. These dimensions encompass text types, forms of (re)mediation, stance, and tonality. The developed discursive dimensions serve as valuable heuristics and analytical categories, which can be adapted to various methodological approaches, ranging from in-depth qualitative studies to large-scale automated analyses. Through her analysis of this new image genre, the author underscores the dynamic nature of visual communication research and provides a systematic approach to navigating its complexities.

As we conclude this Thematic Section, it is evident that integrating computational and established qualitative and quantitative approaches has become pivotal in making sense of the diverse and dynamic landscape of digital images. The challenges posed by large image corpora necessitate a nuanced understanding of how machine vision, cultural analytics, and computational tools intersect with human interpretative abilities. Moreover, the exploration of image networks, iconic image clusters, and the texto-material approach to image analysis signifies a broader commitment to capturing a) the complexities of visual communication in an ever-evolving media landscape and b) the entanglements of representation, practice, and use.

Looking ahead, the trajectory of visual communication research promises further interdisciplinary collaborations, pushing the boundaries of traditional methodologies and embracing the potential of digital tools. We anticipate ongoing discussions on the ethical implications of automated clustering, the refinement of image typologies, and the continuous exploration of new image genres. May this compilation inspire future endeavors that unravel the intricate threads of visual communication in the digital age.

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