The Infrastructures of Visual Memory

Musil Robert[a]

[a] *Università della Svizzera italiana, Via Giuseppe Buffi 13, 6900 Lugano, Index, Switzerland*

1. Introduction

Visual search engines increasingly make images searchable not only through text, tags, or captions, but through images themselves. Google Lens, Pinterest Lens, and multimodal large language models transform search into a visual operation in which similarity, relevance, context, and aesthetic quality are calculated before users encounter results. Building on work on search engines and algorithmic ordering (Manning, Raghavan & Schütze, 2008; Gillespie, 2014; Lewandowski, 2021), this paper asks how visual memory is created: not as a stable archive of images, but as an infrastructural process through which some visual forms become findable, repeatable, and commercially valuable, while others are rendered less visible.

The paper brings search engine studies into dialogue with social memory studies. Rather than treating social memory as stored content, I follow approaches that understand memory as a process of selection between remembering and forgetting (Luhmann, 1996; Olick & Robbins, 1998), intensified by the "connective turn" in digital memory (Hoskins, 2011, 2018). Visual search engines are therefore approached as mnemonic media: socio-technical arrangements that classify, rank, retrieve, and repeat images.

Empirically, the paper shifts attention from users and interfaces to the producer-side infrastructures that prepare images for algorithmic recognition. It argues that visual memory is created through a chain of professional actors who translate uncertain search-engine logics into practical rules for image production. Five company types are central to this process. Content producers and providers generate images and define what products, people, settings, and styles should be shown. Digital asset management providers standardize these images through metadata, cropping, background editing, tagging, and other forms of optimization. Visual search engine optimization agencies interpret platform requirements and advise clients on how images should be composed to become discoverable. Visual AI infrastructure companies provide APIs that tag, categorize, rank, and score images at scale. Finally, visual brand performance analytics firms predict which images will attract attention or convert users, feeding those predictions back into production.

Together, these actors form what I call the infrastructure of visual memory. They do not simply respond to visual search engines; they actively anticipate them. Drawing on around 20 expert interviews with practitioners across these sectors, the project examines how "algorithmic imaginaries" are negotiated (Walter & Friesike, 2025): how professionals infer what visual search systems value, how they operationalize these assumptions in workflows, and how these assumptions become aesthetic norms. This is a visibility game (Cotter, 2019), but one played through backgrounds, product angles, metadata, resolution, composition, and automated aesthetic scoring.

The paper contributes to search engine studies by extending debates on optimization and ranking beyond text-based search (Ziewitz, 2019; Schultheiß & Lewandowski, 2021). It also contributes to memory studies by conceptualizing visual search infrastructures as mnemonic assemblages (Latour, 2005; Mandolessi, 2023). By opening the black box of visual search from the producer side, the paper asks how societies will come to remember visually, and who gets to decide what becomes visually memorable.

SEASON 2026, September 15–17, 2026, Hamburg, Germany
EMAIL: robert.musil89@gmail.com (A. 1)
ORCID: 0009-0002-5855-0809 (A. 1)
© 2026 Copyright for this paper by its authors.
Use permitted under Creative Commons License Attribution 4.0 International (CC BY 4.0).

2. References

Cotter, K. (2019). Playing the visibility game: How digital influencers and algorithms negotiate influence on Instagram. *New Media & Society, 21*(4), 895–913.

Gillespie, T. (2014). The relevance of algorithms. In T. Gillespie, P. J. Boczkowski, & K. A. Foot (Eds.), *Media technologies: Essays on communication, materiality, and society* (pp. 167–194). MIT Press.

Hoskins, A. (2011). Media, memory, metaphor: Remembering and the connective turn. *Parallax, 17*(4), 19–31. https://doi.org/10.1080/13534645.2011.605573

Hoskins, A. (2018). The restless past: An introduction to digital memory and media. In A. Hoskins (Ed.), *Digital memory studies: Media pasts in transition* (pp. 1–24). Routledge.

Latour, B. (2005). *Reassembling the social: An introduction to Actor-Network-Theory*. Oxford University Press.

Lewandowski, D. (2021). *Suchmaschinen verstehen* (3rd ed.). Springer Vieweg. https://doi.org/10.1007/978-3-662-63191-1

Luhmann, N. (1996). Zeit und Gedächtnis. *Soziale Systeme, 2*(2), 307–330.

Mandolessi, S. (2023). The digital turn in memory studies. *Memory Studies, 16*(6), 1 1513-1528. https://doi.org/10.1177/17506980231204201

Manning, C. D., Raghavan, P., & Schütze, H. (2008). *Introduction to information retrieval*. Cambridge University Press.

Olick, J. K., & Robbins, J. (1998). Social memory studies: From "collective memory" to the historical sociology of mnemonic practices. *Annual Review of Sociology, 24*, 105–140. https://www.jstor.org/stable/223476

Schultheiß, S., & Lewandowski, D. (2021). "Outside the industry, nobody knows what we do": SEO as seen by search engine optimizers and content providers. *Journal of Documentation, 77*(2), 542–557. https://doi.org/10.1108/JD-07-2020-0127

Walter, C. E., & Friesike, S. (2025). Behind the screens: How algorithmic imaginaries shape science content on social media. *Journal of Science Communication, 24*(2), Article A02.

Ziewitz, M. (2019). Rethinking gaming: The ethical work of optimization in web search engines. *Social Studies of Science, 49*(5), 707–731. https://doi.org/10.1177/0306312719865607