

Light in the Distance: Re-evaluating the Photograph as Index after AI

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Extended Abstract:

Visual generative artificial intelligence (AI) tools have made it easier to create images that mislead the viewer.¹ Early deepfakes, created in the mid-to-late 2010s, typically grafted one person's face onto another person's body, and they often required specialized skills to create.² The development of text-to-image models, however, has significantly lowered the barrier for the creation of deepfakes and other types of misleading images.³ The increased accessibility of AI tools that facilitate the creation of such images has renewed debates about the extent to which photographs can be trusted as documents.

The idea that photographs are unmediated imprints or, as the academic literature often terms them, semiotic indexes, has haunted the discourse on photography since the 1970s.⁴ As Peter Lunenfeld points out, both Peircian and Saussurean semiotics were developed after the advent of photography and contemporaneously with cinema. Lunenfeld claims that, given this, it is difficult to imagine semiotics without photography as a point of inspiration: "Only after the intrusion of the mechanical photographic apparatus ruptures the dichotomy developed between poetry and painting—between the symbolic and the iconic—is semiotics possible. The mechanical apparatus of photography vastly expands the realm and power of the indexical sign."⁵ In other words, the idea of indexicality does not precede photography and thus describe its place in a semiotic structure but, rather, semiotics responds to and incorporates the photographic paradigm of image-making in its conception.

In this paper, I analyze AI-generated imagery through the lens of indexicality, harnessing the theoretical history of the concept in order to problematize its connection to photography and AI-generated images. I investigate the ties between the photographic training data in AI models and the eventual image output. These images are artificial constructions—"fakes"—that are paradoxically connected to the registration of light for image-making in a distant way. The collective form of this registration is statistically abstracted but still present in AI-generated images.

The concept of the index featured prominently in "The Art Seminar" conversation between noted scholars of photography in 2005 led by James Elkins. Elkins begins the conversation with the provocation that "calling a photograph 'indexical,' or saying its most important property is indexicality, is misreading Peirce."⁶ Joel Snyder continues this line of thinking, responding that those that make the claim for photographic indexicality "generally confuse photons with objects."⁷ Martin Lefebvre investigates Peirce's own understanding of the categories he defines, explaining that, according to Peirce, an index is also always iconic. There is, therefore, no pure index in the sense that some scholars use the term with regard to photography.⁸

Lefebvre argues that the idea that photography is indexical, whereas a portrait painting or a computer-generated image (CGI) is not, is built on faulty assumptions. Academic discourse on photography has, seemingly, so whole-heartedly accepted that a photograph is *made by* that which it represents that it creates a situation where one can no longer see the artifice in photography nor the indexicality of, say, painting—if indexicality is taken to mean an indication of something that once was.⁹ Other types of representation are thus dismissed as constructed fantasies while photography holds a place of privilege in its singular indexicality.

Following Lefebvre, AI-generated images can also be considered indexical since representative imagery of all kinds, including these, contain traces of what was. Given the photographic data that underpins generative AI models, coupled with the architecture of the model itself, they can be understood as a collective index to objects that have been indexed by photographs in the training data. In addition to this, however, the modes and forms of photography are indexed or pointed to through this systematic condensation of the machine learning model. Simultaneously, the affordances and particular function and format of the neural network is also indicated in the output of generative AI.

¹ Hannah Smith and Katherine Mansted, “What’s a Deep Fake?,” in *Weaponised Deep Fakes: National Security and Democracy* (Australian Strategic Policy Institute, 2020); Rob Cover, “Deepfake Culture: The Emergence of Audio-Video Deception as an Object of Social Anxiety and Regulation,” *Continuum* 36, no. 4 (2022): 609–21; Chandell Gosse and Jacquelyn Burkell, “Politics and Porn: How News Media Characterizes Problems Presented by Deepfakes,” *Critical Studies in Media Communication* 37, no. 5 (2020): 497–511.

² Tiffany Hsu, “As Deepfakes Flourish, Countries Struggle With Response,” Business, *The New York Times*, January 22, 2023, <https://www.nytimes.com/2023/01/22/business/media/deepfake-regulation-difficulty.html>.

³ Alec Radford et al., “Learning Transferable Visual Models From Natural Language Supervision,” arXiv:2103.00020, preprint, arXiv, February 26, 2021, <https://doi.org/10.48550/arXiv.2103.00020>.

⁴ A few key texts that launched the vogue for theory on photographic indexicality in the 1970s and 1980s, including: Joel Snyder and Neil Walsh Allen, “Photography, Vision, and Representation,” *Critical Inquiry* 2, no. 1 (1975): 143–69, <https://doi.org/10.1086/447832>; Roland Barthes, “Rhetoric of the Image,” in *Image Music Text*, trans. Stephen Heath (Fontana Press, 1977); Rosalind Krauss, “Notes on the Index: Seventies Art in America,” *October* 3 (1977): 68–81; Rosalind Krauss, “Notes on the Index: Seventies Art in America. Part 2,” *October* 4 (1977): 58–67; Georges Didi-Huberman, “The Index of the Absent Wound (Monograph on a Stain),” trans. Thomas Repensek, *October* 29, no. Summer (1984): 63–81; Roland Barthes, *Camera Lucida*, trans. Richard Howard (Vintage, 2000).

⁵ Peter Lunenfeld, “Art Post-History: Digital Photography and Electronic Semiotics,” in *Photography after Photography: Memory and Representation in the Digital Age*, ed. Hubertus V. Amelunxen et al. (G+B Arts, 1996), 95.

⁶ “The Art Seminar,” in *Photography Theory*, ed. James Elkins (Routledge, 2007), 131.

⁷ “The Art Seminar,” 131.

⁸ Lefebvre, “The Art of Pointing: On Peirce, Indexicality, and Photographic Images,” 229–30.

⁹ Lefebvre, “The Art of Pointing: On Peirce, Indexicality, and Photographic Images,” 231.