

Call for papers for

Transbordeur *photographie histoire société*

Issue 9

“Photography and Algorithms”

Since the early 2010s, the vast field of digital images has been increasingly impacted by the presence of deep learning algorithms (one of the fields of so-called “artificial intelligence”), which are transforming the way images are captured, generated, transformed and seen. Four types of deep learning algorithms and models, in particular, are fueling these transformations:

- 1 Convolutional Neural Networks (CNNs) have been introduced during the early 2010s (but based on research dating back to the second half of the 1950s, with Frank Rosenblatt’s Perceptron). They have made possible the increasingly rapid development of computer vision and machine vision technologies that are now capable of detecting, recognizing and classifying objects, places, bodies and faces among vast quantities of images. These images, in order to be machine-readable, don’t have to be displayed on screens, so they are not necessarily visible to human eyes.
- 2 Generative Adversarial Networks (GANs) were developed in 2014 and have given rise to several variations (CGAN, CycleGAN, StyleGAN, ESRGAN, BigGAN, etc.). They have been used either to transform pre-existing images, through a whole series of operations, or to generate new images, which can be photorealistic, hybrid, or entirely abstract.
- 3 Text-to-image models (DALL-E 2, Stable Diffusion, Midjourney, etc.) were introduced to the general public between 2021 and 2022. Relying on vast datasets combining images and text, they can now generate or modify still or moving images (with text-to-video models) based on prompts written in natural language. Based on the idea that a whole series of algorithmic techniques for generating and modifying images can be replaced by instructions written in natural language, these models produce new

articulations between the visible and the sayable, and point towards a visual culture in which words and images will be increasingly indissolubly associated.

- 4 For several years now, various algorithms have been discreetly integrated into the cameras of our smartphones, in order to perform a whole series of operations that are often based on statistical analyses of users' choices and preferences through social networking platforms: introducing filters, adding parts of images (moon, sunset, horizon, etc.) from stock images, correcting color and focus, generating a single image capable of synthesizing a whole series of images from the same scene, etc.

These four major phenomena illustrate the growing presence of deep learning algorithms in contemporary visual culture. As they feed abundantly on photographic images, they in turn have a profound impact on photography, its status and its uses. However new they may seem, their history can be traced back to the earliest moments of the digital image, and even earlier, to the first automated processing of analog images. Whether it's the history of stock photo agencies and their indexing methods, computer-aided design, architectural modelling software, visual recognition systems such as the Perceptron mentioned above, or image sharpening and contrast enhancement processes, the technologies developed over the last fifty years have contributed to the advent of the algorithms we are dealing with here. Admittedly, this evolution has taken place in waves, with periods referred to as "AI winters," and if it is true that statistical models only recently replaced vector modeling systems, the unprecedented situation we are in today can only be grasped and understood in the context of a history of visual generation, classification and recognition technologies. The technological and ideological issues that underpin them cannot be analyzed without looking back to the past. Five groups of questions in particular stand out, among others, which require us to distance ourselves historically from these contemporary phenomena. In this way, we can develop an archaeology of algorithmic images and of the algorithmic processes used to generate and modify them.

Photographs and datasets

What role do photographic images (in some cases, video stills) play in the vast image datasets that, like ImageNet (2009) or LAION-5B (2021-2022), are used to train the various deep learning algorithms and models we have just mentioned (CNNs, GANs, text-to-image or text-to-video models, as well as the algorithms built into our smartphone cameras)? Where do these photographic images come from? Can we reconstruct their history? How and why were they chosen to form part of these datasets, and on the basis of what criteria? Who was responsible for indexing all these images, and how was this done? Are these models still relying on outsourced, underpaid click workers, or are they also using automatic, algorithmic forms of captioning and indexing?

What are the legal and economic models and ideological presuppositions of these datasets?

Integrated algorithms

The integration of algorithms into image capture technologies is commonplace today. What are the operations performed by the deep learning algorithms that, after being integrated into the cameras of our smartphones, intervene in a discrete, opaque and often inaccessible way to users from the moment the picture is taken? These operations include the possibility of animating still images, increasing image definition (upscaling), extending the image beyond its initial frame (outpainting), modifying image content (inpainting), or transferring a "style" from one image to another (style transfer). What technologies preceded the use of these algorithms in image and photo processing software (such as Photoshop from 1990 onwards)? How were these operations chosen? On the basis of what criteria? How do these operations fit into the vast field of computational photography?

Photorealisms

The use of GANs (for example, the photographic portraits in *This Person Does Not Exist*, 2019) and text-to-image models has radically transformed our relationship to photography. But the amazement with which we perceive these developments seems to obscure a whole history of the paradoxes of photorealistic images. How do the criteria for defining the documentary image evolve under the influence of image-generating techniques? The fields of photojournalism and the archive have undergone profound changes. What are the intentions that led to the generation of these images (anticipation, political satire, counterfactual history, deep fakes, simple amusement) and in what contexts have they circulated? How can we interpret the "documentary" uses that are sometimes made of these "photorealistic" images, for example to visualize events of which we have only verbal testimonies?

Prompts

How do we explain the presence, among the most frequently used words in prompts, of terms that refer more generally to the field of photography, its history, uses, protagonists, devices and techniques (precise references to cameras, lenses, analog film, photographers, photographic movements or styles, etc.)? Why, in these new models, does photography remain a reference medium? How are the lists of prompts developed? Why aren't certain words used or usable? Who establishes and implements these forms of censorship? Is there a grammar of prompts, a stylistics? What skills does writing these command sentences require, at a time when new professional figures such as "prompt engineers" are emerging?

Economy and ideology

What economic model do these algorithms rely on? Does the hiring of click workers reproduce global economic inequalities? What are the ideological frameworks of these programs, and how can we explain their origins? Can we historically study the biases by which these programs favor certain types of images based on racial or social criteria? Can we trace the history of the automated censorship mechanisms that social networks have put in place? With these questions, our reflection will make room for a critical approach to the economic and ideological dimensions of these new technologies.

Following on from two previous issues of *Transbordeur*—no 3 “Câble, copie code. Photographie et technologies de l’information” (2019) and no 7 “Images composites” (2023)—this issue aims to situate the phenomenon of algorithmic images within a history of technical images and an archaeology of visual and photographic media. For example, it will trace the history of deep learning algorithms applied to images, and the datasets used to train them. It will also involve situating the criteria adopted to invent and deploy these technologies in a historical perspective. In order to understand the historical depth of a phenomenon that we all too often tend to confine to our immediate present, the years 1980-1990 will be particularly examined, given that the advances we are seeing before our eyes are the consequences of successful experiments or failures experienced at the time of the first, vast development of software technologies and the internet.

Direction

Estelle Blaschke (Universität Basel), Max Bonhomme (Centre allemand d’histoire de l’art - DFK Paris), Christian Joschke (Beaux-Arts de Paris) et Antonio Somaini (Université Sorbonne Nouvelle - Paris 3)

Calendar

September 22nd, 2023	Abstracts
September 30 th , 2023	Reply to authors
January 30 th , 2024	First draft of articles
End of February, 2024	one-day seminar
April 30, 2024	Second draft of articles

Information

Texts can be submitted in French, English, German or Italian. Abstract should not exceed 600 words. It is accompanied by 6-10 images, a brief bibliography and biographical information.

Prior to publication, a workshop will be held during which authors can discuss their articles and exchange with the issue’s editors and editorial

committee. The planning process for the workshop and the compilation of articles in the thematic issue requires a tight schedule. Authors must agree to keep to this schedule upon submission of their proposals.

Submission of an article to the journal implies that the author has read and accepted the [Publishing Terms and Conditions](#).

Proposals to be sent to the following address: info@transbordeur.ch

Information

Mitra Azar, Geoff Cox, and Leonardo Impett (eds.), “Ways of Machine Seeing,” special issue, *AI and Society* 36, no. 4 (2021), pp. 1093–1312

Estelle Blaschke, “From Microform to the Drawing Bot: The Photographic Image as Data,” in *Grey Room* 75, Spring 2019, pp.50-83

Estelle Blaschke, “Diskrete Operationen: Formen präemptiver Bildzensur in der KI-gestützten Fotografie,” in Katja Müller-Helle, *Bildzensur, Bildwelten des Wissens*, 16 (De Greyter, 2020)

Estelle Blaschke, “Infrastructures of Automated Photography,” in Milo Keller, Claus Gunti, and Florian Amoser (eds.), *Automated Photography* (Lausanne: ECAL / University of Art and Design Lausanne; Mörel Books, 2021), pp.205-212

Antonio Casilli, *En attendant les robots* (Paris: Seuil, 2019)

Grégory Chatonsky, Christian Joschke, Antonio Somaini, “Disréalismes: Une conversation entre Grégory Chatonsky, Christian Joschke, et Antonio Somaini,” in “Images composites,” special issue, *Transbordeur* 7 (2023), pp. 98–109.

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- Ruggero Eugeni, *Capitale algoritmico: Cinque dispositivi postmediali (più uno)* (Brescia: Scholé, 2021)
- Harun Farocki "Phantom Images," *Public*, no. 29 (2004), pp. 12–22
- Alexandre Gefen, *Vivre avec ChatGPT* (Paris: L'Observatoire, 2023)
- Adam Greenfield, *Radical Technologies: The Design of Everyday Life* (London: Verso, 2017).
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- Milo Keller, Claus Gunti, and Florian Amoser (eds.), *Automated Photography* (Lausanne: ECAL / University of Art and Design Lausanne; Mörel Books, 2021)
- Mario Klingemann, "Photography through the Eyes of a Machine," interview within the framework of the 2017 EyeEm Photography Festival, <https://www.eyeem.com/blog/mario-klingemann-ai-art>
- "Mario Klingemann: Neurophotography," The Photographers' Gallery, 21 March 2018, video, 5:37, www.youtube.com/watch?v=iJl-pM3FzSw.
- Anthony Masure, *Design sous artifice: La création au risque du machine learning* (Geneva: HEAD Publishing, 2023)
- Lila Lee-Morrison, *Portraits of Automated Facial Recognition: On Machinic Ways of Seeing the Face* (Bielefeld: Transcript, 2019)
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- Adrian MacKenzie and Anna Munster, "Platform Seeing: Image Ensembles and Their Invisibilities," *Theory, Culture and Society* 36, no. 5 (2019), pp. 3–22
- Lev Manovich and Emanuele Arielli, *Artificial Aesthetics: A Critical Guide to AI, Media and Design* (2021–2023), <http://manovich.net/index.php/projects/artificial-aesthetics>
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- Andrea Pinotti and Antonio Somaini, *Culture visuelle: Images, regards, médias, dispositifs* (Dijon: Les Presses du Réel, 2022)
- Allan Sekula, "The Instrumental Image: Steichen at War," *Artforum* 13, no. 5 (1975): 36–45.
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