

# From archive to dataset. Visualizing the latency of facial big data\*

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## ABSTRACT

The objective of the proposal is to analyze what latent space is within a Deep-Learning system and how its visualization is capable of triggering a meaning-effect concerning the epistemology of big data. The latent space is the mathematical space that maps what a Neural Network has learned from the training dataset. It is the result of the compression of the input data and the step before the Neural Network's output, a step that usually remains invisible to the human eye, rendering effective the promise of a transparent effect of reality generally promoted by Artificial Intelligence technologies. Precisely in contrast with this promise, the visualization of this complex spatiality makes accessible, and therefore intelligible, the epistemic and rhetorical relations inscribed within datasets, intended as archives that gather information. To achieve my objective, I will consider an artistic project realized by multimedia artist and coder Jake Elwes, *Zizi-Queering the Dataset* (2019), a multi-channel video where different facial portraits are shown in a morphing loop that visualizes what a Generative Adversarial Network has learned from the re-training of a dataset containing portraits with another one containing facial images of drag and non-binary individuals. This artistic gesture has led to a series of epistemic issues concerning big data and their situated and ideological meaning.

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## 1. Queering art with artificial intelligence

*Zizi-Queering the Dataset*, by AI artist Jake Elwes,<sup>1</sup> is a multi-channel digital loop video first installed in 2019 as part of the exhibition *Preternatural*, curated by Drew Hemment within *Experiential AI*, an artistic event developed at *Edinburgh Futures Institute* in Scotland. In a visual continuity effect, through a smooth, gradual, and seamless transformation, during the video loop we witness the synthetic unfolding of a series of portraits reproducing artificial faces. The video is, in fact, visually and cognitively connotated through a deep understanding of what it means to be human in the times of Artificial Intelligence. An understanding that for Elwes has to embrace a strong commitment towards a cognition necessarily enacted in the framework of a queer<sup>2</sup> sensitivity.

*Zizi-Queering the Dataset* is part of the broader *The Zizi Project*, an ongoing series of artwork where Elwes deals with the intersection of the rhetoric of Artificial Intelligence systems—and specifically of Deep-Learning technologies—, the sociocultural aesthetic that performs gender identity, and the ideologies that are entwined with these two phenomena. The articulation of these issues is also at the core of these pages and functions as an analytical lens in the understanding of how the visualization of big collections of visual data can produce knowledge, and specifically, how it can account for an epistemological reading of computational data. The main aim of this paper is to utilize the analysis of the aforementioned piece of art as a tool for comprehending the epistemic perspectives underlying the computational visualization of a particular type of digital archive, the large corpora of digital images.

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<sup>1</sup> As we can read in their website: “Jake Elwes is a media artist living and working in London. They studied at The Slade School of Fine Art, UCL (2013-17). Recent works explore their research into machine learning and artificial intelligence. Their practice looks for poetry and narrative in the success and failures of these systems, while also investigating and questioning the code and ethics behind them. Their current works in the *Zizi Project* explore AI bias by queering datasets with drag performers which simultaneously demystify and subvert AI systems. Jake's work has been exhibited in museums and galleries internationally, including the ZKM, Karlsruhe, Germany; TANK Museum, Shanghai; Today Art Museum, Beijing; CyFest, Venice; Edinburgh Futures Institute, UK; Zab-ludowicz Collection, London; Frankfurter Kunstverein, Germany; New Contemporaries 2017, UK; Ars Electronica 2017, Austria; Victoria and Albert Museum, London; LABoral Centro, Spain; Nature Morte, Delhi, India; RMIT Gallery, Australia; Centre for the Future of Intelligence, UK and they have been featured on TV: ZDF Aspekte (Germany) and the BBC Arts (UK)” (<https://www.jakeelwes.com/about.html>).

<sup>2</sup> In the *New Dictionary of the History of Ideas* we can read: “Since the early 1990s, the term queer has been strategically taken up to signify a wide-ranging and unmethodical resistance to normative models of sex, gender, and sexuality. (...) The term queer is necessarily indeterminate, taking on different—and sometimes contradictory—meanings in different articulations. Sometimes queer is synonymous with lesbian and gay, for which it becomes a convenient shorthand. At other times, it refers to a generational or even fashion-led distinction between old-style lesbians and gays and new-style sexual outlaws. Yet again, it can signify a coalition of nonnormative sexual identities—most often conceptually rather than materially realized—which might include lesbian, gay, bisexual, and transgender people. In other deployments, queer denotes not an identity as such but the taking of a critical distance from the identity-based categories of modern sexuality—in particular a distance from the identity politics central to traditional understandings of the lesbian and gay communities” (Jagose 2005, p. 1980-1981).

These collections can be thought of as digital archives where data are gathered and shape the database of the collected images necessary for the training dataset of a Machine-Learning system. As in every archive, these large collections of data need to be situated in a “measurable and numerically-controlled space” (Dondero 2020: 101). Within *Zizi-Queering the Dataset* the space in question is the latent space, a virtual spatiality where what the Neural Networks used for the creation of the artwork have learned from the training datasets is archived. It is a mathematical spatial representation of synthetic data and its visualization, normally concealed to the human eye, can be useful for understanding how Artificial Intelligence produces meaningful effects.



Figure 1. stills from the video *Zizi-Queering the Dataset*

## 2. Queering AI with archives

The curatorial statement of the exhibition can be of help and may be interpreted as a first paratextual tool capable of framing the artwork, in its reference to the Merriam-Webster dictionary definition where the preternatural is described as: “that which exists outside of nature and exceeds what is natural or regular. It is the extraordinary, and inexplicable by ordinary means” (2019 w/p).<sup>3</sup> Exactly on the frontier between the ordinary and the extraordinary does *Zizi-Queering the Dataset* install its artistic proposal: the video makes visible the transparent nature through which Artificial Intelligence builds its rhetoric by rendering it intelligible, redeeming it from the inaccessibility with which the uninitiated normally deal. When mentioning the category of transparency, it is necessary to refer to the work of Louis Marin on visual enunciation (1994). For the French theorist, transparency is the representational quality that results from the process of concealing the material and codified character that shapes visual enunciation. Following this perspective, it is also possible to go a step further and consider that no image transparently argues itself in relation to the epistemic boundaries it involves: in visual enunciation, we also assist in the presentation of a representation (Dondero 2020). In order for the enunciation to take form, an image can manifest itself transitively—by representing something—and reflexively—by presenting a representation that reflects on its composition. In the same way, *Zizi-Queering the Dataset* reflects on the latent dimension of the “measurable and numerically-controlled space” by making it opaque, and visible. Thanks to this gesture of presenting a representation the training space where the dataset was fed, and which is normally concealed, is now visualized. This reification permits us to make our first analytical proposal: to consider the continuities of meaning that exist between archives, as collections of sociocultural data, and datasets, as empirical agglomerations of data archiving what an Artificial Intelligence knows. To probe deeper into this proposal, we will recur to a pragmatic understanding of archives within a semiotic perspective founded on a Peircean reading.

Since the last decade of the 20<sup>th</sup> Century, the production in relation to Archive Studies has increased exponentially, a growth that marks the feeling of an epoch. As reported by Patrizia Violi (2014) the archive can be studied both as an iconosphere, a shared repertoire of a local visual encyclopedia linked to a certain event; and, in the terms of Michel Foucault (1969), as a device of sayability, capable of generating new discursive forms and sociocultural practices. Every archive consists, in fact, of a certain accumulation of materials and requires a spatiality where these materials need to be stored and clustered for the embedding of memory and, therefore, of information.

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<sup>3</sup> The text is available here: <https://bit.ly/3tgO7dH>.



In semiotic terms, archiving implies re-enunciation through the use of a particular support that preserves data and rescues information from oblivion by becoming a memorandum. This re-enunciation, of course, has its limitations, so it requires a supplement which, in turn, is also mnemonic and informative because it proposes a technique for data collection and a technology for the annotation process. In previous research concerning the performativity of archives (Acebal, Guerri, Voto 2020), by applying the *Theory of Speech Acts* (Austin 1962, Searle 1969) and reviewing the Austinian concept of the “descriptive fallacy of language”, we have argued about the informational fallacy of the archive. At the same time it transparently archives, the archive also produces knowledge and has performative, and thus opaque and reflexive, consequences concerning what and how something is informed and remembered.<sup>4</sup>

Within this perspective, if we analyze an archive semiotically, by recovering the sign definition provided by Charles S. Peirce (C.P. 2.218)<sup>5</sup> it is possible to affirm that an archive, as a sign, is something which stands to somebody (a certain criterion that postulates the data to be remembered) for something (a concrete information forged in an experience or an artifact that operates as a mnemonic substitute) in some respect or capacity (according to a certain classification). By applying this semiotic perspective, the archive, intended as the large corpus of data that can be used within a Machine-Learning system, *makes sense* and produces knowledge when it organizes that computational criterion that removes the collected database from its amorphous storage, engaging it in a computational machine learning operation. This is why if we consider archives as the attempt to re-enunciate sociocultural data, we find parallels with data collection efforts in Machine-Learning.

From this viewpoint, it is possible to state that archives and Machine-Learning datasets can pursue common goals:

Recent fairness initiatives in the Machine-Learning community echo procedures and language already developed and used in archival and library communities (...) [such as] guidelines for how to label data; the collection and accessibility of private information; sharing datasets across platforms; critical reflections on diversity and inclusivity; theory of appraisal and selection (Jo & Gerbu 2020 w/p).

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<sup>4</sup> “In accordance with an informational, representational approach to language, all verbal statements are conceived, in a first approximation, as descriptions, registering an extra-discursive experience. Austin argues that certain statements, in certain circumstances, do not “register” the name of an object or a person, but rather “name” it—for example, at baptism—; they do not simply describe a social relationship between two subjects, but construct it by the very act of speech that involves them—for example, when a marriage takes place. In this perspective, the study of statements or discourses moves from “representational verification” to “the conditions of effectiveness” of those statements” (Acebal, Guerri, Voto 2020: 35-36).

<sup>5</sup> This is the definition as reported in the *Collected papers*: “A sign, or representamen, is something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the interpretant of the first sign. The sign stands for something, its object. It stands for that object, not in all respects, but in reference to a sort of idea, which I have sometimes called the ground of the representation” (C.P. 2.218).

Nevertheless, at the same time, archives and Machine-Learning datasets are traversed by differential characteristics due to the phenomenal and epistemic distance that can exist between the curatorial practice within an archive (Cáceres Barbosa and Voto 2021) and the minimally supervised labeling within Machine-Learning. This is why nowadays, considering the epistemic boundaries of the archives with which Artificial Intelligence is fed means laying the groundwork for the design of a more egalitarian future, where representativeness in data becomes a right to which everyone has access.

### 3. Queering AI art with epistemology

The series of video portraits that compose *Zizi-Queering the Dataset* is shown through the visual effect of facial morphing<sup>6</sup> as the result of a particular training of a Deep-Learning system.

Thanks to this artistic gesture the work of art helps us to understand the main hypothesis underlying these pages: the firm belief that all the diverse technologies that engender visibility have a differential meaning-effect on the epistemic reason of the engendered visual artifacts. Stressing deeper our hypothesis, we can affirm that in those artefacts where gender divide is assumed as a visual factum the transparent quality of the enunciation conceals the material and situated conventions that regulate such representations. These conventions, in a historical and highly codified genre such as portrait, are based upon determined and measurable gender features that have been normed through the perspective of disciplines such as eugenics and anthropometry. As affirmed by Wendy Chun: “the links between eugenics and recent studies on facial recognition technology are not only topical or aspirational, but also methodological” (2021: 194). In this regard, the rhetoric transparency that, throughout centuries, has made the gender divide as a biometrical and thus quantitative and verifiable fact (alike the relation of jaws to cheeks, the prominence of Adam’s apple, the relation of nose width to eyes, and relation of forehead to hairline, etc.) also shaped the conventions of biological phenotype scientific representations, as we will see in greater detail in the next section. This prescriptive and normative legacy still reaps its bitter fruits today through the features regulating automated recognition systems and database collections with which Deep Learning systems are fed. Challenging, or perhaps we should say, repairing this legacy *Zizi-Queering the Dataset* aims

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<sup>6</sup> When speaking about morphing we are referring to the visual digital effect, a visual strategy consisting in a gradual transformation between images that differ in shape.

at ungendering the computational facial recognition parameters through the visualization of the latency that made binary gender divide as a visual factum. Through its visual strategy, the work of art makes the computational process on the determined and measurable designed facial features tangible and shareable. By visualizing the latent space, that is, by rendering visually intelligible the filtering, recomposing and compressing of the facial visual data gathered in the database, it makes opaque to the presentation of the gender representation, in the terms of Marin.

At this point, it seems necessary to provide a methodological clarification. While Artificial Intelligence, Machine-Learning, Deep-Learning or the Generative Adversarial Network may seem to be the same thing, they are not, although there is a deep connection among them. As far as this inquiry is concerned, the correlation we are looking for among these technologies is the question of the epistemic entanglements regarding the visualization of big data.

Today it is widely accepted that the disciplinary status of Artificial Intelligence dates back to the *Dartmouth Summer Research Project* in 1955,<sup>7</sup> when J. McCarthy (Dartmouth College), M. L. Minsky (Harvard University), N. Rochester (I.B.M. Corporation), and C.E. Shannon (Bell Telephone Laboratories) proposed a study of two months' duration: "to proceed on the basis of the conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it" ([1956] 2006: 12). Almost seventy years later, that simulative and descriptive promise seems to have failed to live up to the triumphant tones with which it was announced. Restricting ourselves to a computational vision we can say that nowadays, as far as the design of Artificial Intelligences that are capable of seeing and interpreting images is concerned, this defeat has been inflicted thanks to the hard blows dealt by the archive policies of data collections used as databases to feed technologies.

Building an Artificial Intelligence system always requires datasets that, in the words of Kate Crawford and Trevor Paglen: "Shape the epistemic boundaries governing how AI systems operate, and thus are an essential part of understanding socially significant questions about AI" (2019 w/p). This frontier is the epistemological discrimination between what will be archived and what will not, what will be labeled and what will not, determined by the selective criteria of classification that

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<sup>7</sup> However, the design and theoretical proposal for a machine that could replicate some traits of the human mind began to be advanced as early as 1949 with the text *Cybernetics: Or Control and Communication in the Animal and the Machine* by Norbert Wiener. According to the author, it was possible to find similarities between biological and artificial systems through the idea of feedback: a common phenomenon liable to establish a predictability subsumed by progressive mechanisms of hypothesis checking. In a true cultural zeitgeist, one year later, in 1950, a young Alan Turing wrote the essay *I.-Computing Machinery and Intelligence* hypothesizing the possibility of intelligent machines.

organize the archive. Furthermore, the epistemic stakes rise dramatically, as do the ethical repercussions in the design of human-computer interaction, when Artificial Intelligence is not programmed with logical correlations but is allowed to program by learning on its own as in Machine-Learning and Deep-Learning. Within these technologies, the artificial learning experience is trained on datasets that function as the empirical archived knowledge to which the system has access. Training consists, in fact, of parameterizing a function for input signals to produce the expected information at the output and, in the case of unexpected results, it will be the technology that has to adjust its outputs autonomously. Datasets are therefore fundamental for acquiring the competence and performance necessary for Machine-Learning since “the system cannot acquire knowledge beyond the data that it is fed, unless it comes a priori, encoded in the data itself or in the system” (Audry 2021 w/p), as we saw concerning the binary divide as a visual factum. Providing a description of the operation of Machine-Learning related to the epistemic component that its performance can nourish, we can say that when faced with a given task, it is the system that adjusts its model to improve performance on the dataset. The dataset, the model, and the training process are the components that allow the system to use the data through decisions by means of an evaluation function that measures skills and behaviours to permit the performance. In the case of Deep Learning, instead, considering it a sub-form of Machine Learning, in order to represent and interpret patterns present in the archived large collection of data, several interconnected layers of artificial neurons are used. In this regard:

Deep learning allows computational models that are composed of multiple processing layers to learn representations of data with multiple levels of abstraction. (...) Deep learning discovers intricate structures in large datasets by using the back-propagation algorithm to indicate how a machine should change its internal parameters that are used to compute the representation in each layer from the representation in the previous layer (LeCun *et al.* 2015: 436-9).

This technology can, in fact, be thought of as the latest progression of a technological strand that is based on the artificial stimulation of the mathematical models of neural networks present in the human brain. As we saw before, the interest in simulating human cognition through artificial models already originated in the 1950s but it was in the 1980s that it expanded further with Cognitive Sciences suggesting a focus on the more functional aspect of the human mind. This perspective marks a final epistemic paradigm shift, from the idea of the mind as software to that of the mind as hardware, a change not without ideological repercussions, as in the case of Generative Adversarial Networks. These are neural networks that produce data by working in pairs, with an adversarial agency. As described by its programmer, Ian Goodfellow:



It is a discriminative model that learns to determine whether a sample is from the model distribution or the data distribution. The generative model can be thought of as analogous to a team of counterfeiters, trying to produce fake currency and use it without detection, while the discriminative model is analogous to the police, trying to detect the counterfeit currency (2014: 1).

Even from this first description, the antagonistic character of this technology captures attention because it lays the groundwork for a semiotic reading capable of accounting for the ideological repercussions made manifest in the metaphor of the struggle between the forger and the connoisseur.<sup>8</sup> The battlefield for this struggle is precisely the latent space. Within Generative Adversarial Networks, the space of latency is the result of the concealed compression of the input data and the step before the Neural Network's output, a step that usually remains invisible to the human eye, maintaining the promise of a transparent effect of reality by Artificial Intelligence. It is: "the possibility space of creation, defining the coordinates of all possible outputs. Pure latent space is unconstrained and meaningless: it is an unlimited possibility. However, when a generative model is trained, it narrows the possibility space" (de Vries 2020: 2113).

Let's once more appeal to the curatorial text, where we can find another indication regarding the situated epistemology concerning the intersection between Artificial Intelligence aesthetics and the question of gender identity and its representativeness. As a metaphor for the Generative Adversarial Networks' functioning:

Drag is similarly a duel of a kind. It is a play between convention and transgression. Drag artists often magnify stereotypes and accentuate differences to the point at which the cocoon shatters and a butterfly emerges. Giffney (2004) defines queer as a "site of permanent becoming." Zizi makes this aspect of drag explicit, through autonomously generated faces that are fluid and never still. Here, the permanent becoming of a Generative Adversarial Network represents the fluidity, ambiguity and transition of drag artists" (Hemment 2019 w/p).

Semiotically speaking, the latent space is made up of differentially modalized data and, in this perspective, of different interrelated spatialities with which to distinguish the place of the enunciation from the enunciated place. It is the virtual space that maps the actual representation of data learned by a Generative Neural Network, making it real through the potential of the Deep-Learning system.

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<sup>8</sup> For these reflections I am grateful to Professor Massimo Leone and his intervention in the symposium "Digital Pinocchio. Face and Fake in Contemporary E-Technological Societies" organized at the *CY Advanced Studies, the Institut d'études avancées of CY Cergy Paris Université* in 2021.

To visualize the latent space in *Zizi-Queering the Dataset*, Elwes started by using a specific large collection of images, a dataset containing 70,000 photographic portraits of faces—precisely the Flickr-Faces-HQ Dataset<sup>9</sup>—and re-trained it with the addition of 1000 images of drag and non-binary portraits “scraped from various websites and social media profiles” (Hemment et al. 2022 w/p). It is in this re-training that we can recognize the effort to making visible the dialectics between the engendering technologies and the ungendering artistic gesture. The result of this dialectics causes, in the artwork, the output data to shift away from the visual normativity of facial images—the images contained in the large collection of visual data the neural network was originally trained on—into an aesthetic and epistemic morphing, beyond the expectation of what a real face should look like. This visual shift from regular—to recall the curatorial text—to extraordinary automated facial morphing is made intelligible through the emergence of the latency of the “measurable and numerically-controlled space” from where the visual enunciation can be installed by presenting the representation—recovering the perspective of Louis Marin (1994)—of the knowledge inscribed in facial big data.

#### 4. Queering AI art with portraits

Within an artistic perspective, *Zizi-Queering the Dataset* can be inscribed in a visual genre that has crossed Western Visual Culture for centuries, namely, the portrait and, in this regard, it presents its major characteristics. The video shows a series of portraits where: i. the relationship between the figure and the background is specifically designed, so that the background appears rather neutral to allow the figure to emerge; ii. the figure is positioned in the center of the frame and appears particularly compact in relation to the background; iii. the figure is portrayed through a plastic pose (Dondero 2020). But the work of art also reflects another characteristic that constituted the genre, that is, the consideration of the aesthetics and ideologies that cross visual culture. The video installation, in fact, makes manifest the lack of visibility of non-binary facial aesthetics within databases, prompting a profound dialogue between artificial and human intelligence and their visual rhetoric.

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<sup>9</sup> This is the description of the database as provided by the platform *GitHub*: “The dataset consists of 70,000 high-quality PNG images at 1024×1024 resolution and contains considerable variation in terms of age, ethnicity and image background. It also has good coverage of accessories such as eyeglasses, sunglasses, hats, etc. The images were crawled from Flickr, thus inheriting all the biases of that website, and automatically aligned and cropped using dlib. Only images under permissive licenses were collected. Various automatic filters were used to prune the set, and finally Amazon Mechanical Turk was used to remove the occasional statues, paintings, or photos of photos” (<https://github.com/NVlabs/ffhq-dataset>).

The visual culture of each historical epoch, with its aesthetics and biopolitical manipulation that allowed the visibility of certain faces and not others, has determined the rhetoric and pragmatic purpose of the visualization of the face, enabling also a reading performed on the base of a resemblance or tolerated on the grounds of an idealization (Leone 2019). In addition, the material dimension that has supported all the facial aesthetics and ideologies that cross visual culture must be taken into consideration. There has always been, in fact, meaning inherent to the design features that have regulated faciality and facial artifacts, properties configured internally, or attributed by individual uses and collective habits. And it is exactly on this threshold between textual (internal) and performative (external) meaning that the visual facial aporia between gender and genre is installed (Lamas 1999, Voto 2020). In this sense, it is possible to affirm that not only genre meshes but also material ones are pragmatic and performative, as they both establish programs of action, and therefore value systems, rhetoric, and ideologies. This aporia *makes sense* while, at the same time, establishing the existence of a codified grid by means of which it individualizes a common matrix, a framework of intelligibility and sense-making that reads and encodes faces, bodies, and identities.

Since its origin, and within a genealogical reading that embraces photographic and computational portraiture (Lee-Morrison 2019), photographic portraying has completely changed the genre aesthetics and visual ideologies concerning identity by both reproducing new subjectivities, such as working-class women and children in August Sander's works (1929), and enabling a double system of representation capable of functioning both honorifically and repressively:

Photography subverted the privileges inherent in portraiture, but without any more extensive leveling of social relationships, these privileges could be reconstructed on a new basis. That is, photography could be assigned a proper role within a new hierarchy of taste. Honorific conventions were thus able to proliferate downward. At the same time, photographic portraiture began to perform a role no painted portrait could have performed in the same thorough and rigorous fashion. This role derived, not from any honorific portrait tradition, but from the imperatives of medical and anatomical illustration. Thus, photography came to establish and delimit the terrain of the other, to define both the generalized look- the typology- and the contingent instance of deviance and social pathology (Sekula 1986: 6-7).

The photographic device, in fact, allowed a differential reading of the genre logic of portraiture through the promise of objectivity that the technical reproducibility allowed. This was guaranteed by its very materiality and through a discursive rhetoric suited to the requirements of the time: photography definitively sealed the reproduced image of the face as an objective illustration with scientific value.

If, therefore, we reflect on the affordances<sup>10</sup> of the photographed face and compare them with those of the face portrayed through the moving image, it is possible to carry out a dialectic dialogue between the two materialities. If the still image has often worked by scientifically assembling the type in the face, the moving image has sought the boundary between life and typology to cross. The video portrait, thanks to the camera and the montage technique, ushers in an escape of the type from the face through the performance of an occurrence, a facial token. In this regard, it is possible to affirm that video art inaugurates an ode to a facial present, a face that exists in the present tense, in the time of its own unfolding. An example of this tensive drive can already be found in the work of Bruce Nauman, at the dawn of the first experiments in video portraiture (Belting 2017). Nauman makes a series of videos entitled *Art Make Up* (1967) where we witness the progressive separation of the facial type from the face token and the metamorphosis of the face into a living mask, just as in *Making Faces* (1970), where it is possible to watch his face becoming, in a present tense, a mask. In this same perspective, *Zizi-Queering the Dataset* also presents a live making of a face but through a tensive, synthetic, and algorithmic morphogenesis. The hairstyles, cheekbones, noses—that is, all the facial phenomena that make up that paradigmatic unit we call face—are all generated by Artificial Intelligence and reproduced by the visual strategy of morphing. However, in stark contrast to a visual ideology that is more widespread today than ever before and which makes Artificial Intelligence a platform for the transparent enunciation of reality, Elwes and their *Zizi-Queering the Dataset* reminds us that data always have an origin in experience. In this regard, their visualization also depends on cognitive processes, technological logic and sociocultural conventions.

## 5. Queering AI art with visualization

In *Zizi-Queering the Dataset*, the visualization of the latent space through video portraits works as a diagram in the Peircean way. For Peirce, diagrams depend on conventions that, thanks to their iconic aspect, take form in relational patterns that do not refer phenomenally to the object they represent but to the relationality with which cognitive processes must interface (Paolucci 2010). We saw how, in the artistic gesture of visualizing the latency of Deep-Learning by the choice of the portrait genre, the epistemological boundaries of facial big data intersect with

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<sup>10</sup> Introduced by James Gibson (1979), the term refers to those properties that the materials themselves possess or which arise through enunciative practice.



the visual rhetoric that concerns gender/genre aporia. The intersection between the epistemic boundaries and the visual enunciation determines the acceptability and the representativeness of specific portraits in visual culture. In this regard, since the rhetorical function always has the effect of reifying discourses to move them away from utilitarian use (Group  $\mu$ , 1982), visualizing the latent space also means rendering intelligible “the latent uncertainties in big data archives [and] encompass[ing] the unknowns or unknowables that we are blind to” (Thylstrup et al. 2021: 316). Visualizing both facial big data and gender/genre rhetoric permits a diagram to emerge that drifts from a specific meaning production, previously built from the sexual binary division that ascribes specific pertinence and values to identity. The diagram that *Zizi-Queering the Dataset* allows us to visualize interfaces us with the gender identity-making configurations of meaning enacted through artifacts, practices, technologies (de Lauretis 1987), and data.

Although at a superficial glance it might seem so, data are neither abstract nor pure. There is no such thing as raw data either, but “it’s essential to ask questions about the social, cultural, historical, institutional, and material conditions under which that knowledge was produced, as well as about the identities of the people who created it” (D’Ignazio & Klein 2020: 152). They are not just data at all: they are rather *capta* (Drucker 2020), since they always have an origin in experience:

Differences in the etymological roots of the terms data and capta make the distinction between constructivist and realist approaches clear. Capta is “taken” actively while data is assumed to be a “given” able to be recorded and observed. From this distinction, a world of differences arises. Humanistic inquiry acknowledges the situated, partial, and constitutive character of knowledge production, the recognition that knowledge is constructed, taken, not simply given as a natural representation of pre-existing fact (2020, w/p).

And facial big data surely are situated in experiences that rearticulate specific forms of diagrams, and knowledge under construction, to be determined from time to time. Subjects and identities, in this regard, always emerge in a net of relations both intersubjectively and interobjectively. Nevertheless, today the culture of data visualization within the digital iconosphere seems to dangerously conceal the diagrams that shape data, encouraging the idea of user-independent knowledge while making the data manipulation disappear from the final visualization. Due to this general understanding, the life cycle of data is frequently concealed or directly ignored, leading to a lack of problematization that coincides with a false equivalence between phenomena, experience, data, and their display (Drucker 2020). This diagnosis of the present time of our visual culture, however, can be mitigated: a return to the epistemologies of big data visualization and works such as *Zizi-Queering the Dataset* certainly represent the cure we need.

## 6. Final (and situated) thoughts

Throughout these pages, the proposal to retrieve the archive category for dataset analysis has served as a starting point for the comparison between human and artificial intelligence regarding the knowledge gathered in a collection of data. Successively, we considered the different artificial intelligence systems we are confronted with in our digital iconosphere to frame the epistemic problems arising from the increasingly widespread presence of big visual data and, particularly, facial big data. Today, when the aesthetics of portraiture have to deal with automated and computational affordances for the interfacing of socio-cultural identity, reflecting on the epistemic dimension of big data by recovering the concept of the diagram as understood by Charles S. Peirce can help open up a series of questions on the future of the culture of data visualization.

In a society where the disembodied dimensions of identity (Gates 2011)—visual identity representations that circulate independently of physical bodies and are acknowledged through a disembodied form of visual perception—progressively acquire greater visibility and performance, being able to rethink the situated and uncertain dimension of data becomes a tool with which to imagine a more humane artificial intelligence. In our visual culture, where the entanglements between human and artificial agencies are progressively tighter, it seems necessary to understand the meaning-effects these technologies enact while giving form to latent ideologies in the creation of artifacts. We have seen how a reflection on the rhetoric of the visual enunciation within products designed with Artificial Intelligence systems can help us frame the problem concerning the ethical consequences of knowledge production within the era of ‘dataism’ (Harari 2016). It is in this age that the exhortation to “exploring and analyzing what is missing from a dataset (...) and interrogating a dataset’s validity—that is, the degree to which it can be said to represent the concept being analysed—” (D’Ignazio & Klein 2020: 160) is absolutely necessary. For this reason, we chose to analyze a work of art such as *Zizi—Queering the Dataset* because the reflexivity guaranteed by the gesture of visualization of the latent space is capable of making us contemplate more egalitarian future uses of facial big data toward increasing fairness awareness concerning the collection of big corpora of data.

## References

- Audry, Sofian 2021. *Art in the Age of Machine Learning*. Cambridge, MA: The MIT Press.
- Austin, John L. 1962. *How to Do Things with Words*. New York: Oxford University Press.
- Belting, Hans 2017. *Face and Mask: A Double History*. Princeton: Princeton University Press.
- Cáceres Barbosa, Andrés Manuel and Voto, Cristina 2021. Archive, Practices, and Memory Policies. The Centro Editor de América Latina from a semiotic perspective. *Signata* 12, <https://doi.org/10.4000/signata.3071>

- Chun Kyong and Wendy Hui 2021. *Discriminating Data. Correlation, Neighborhoods, and the New Politics of Recognition*. Cambridge, MA: The MIT Press.
- D'Ignazio, Cathine and Klein, Lauren F. 2020. *Data Feminism*. Cambridge, MA: The MIT Press.
- de Lauretis, Teresa 1987. *Technologies of Gender: Essays on Theory, Film, and Fiction*. Bloomington: Indiana University Press.
- de Vries 2020. You never fake alone. Creative AI in action. *Information, Communication & Society*, 23 (14): 2110-2127.
- Dondero, Maria Giulia 2020. *The Language of Images: The Forms and the Forces*. New York: Springer.
- Drucker, Johanna 2020. *Visualization and Interpretation: Humanistic Approaches to Display*. Cambridge, MA: The MIT Press.
- Foucault, Michel 1972 [1969]. *The Archaeology of Knowledge: And the Discourse on Language*. New York: Pantheon Books.
- Gates, Kelly 2011. *Our Biometric Future: Facial Recognition Technology and the Culture of Surveillance*. New York: New York University Press.
- Gibson, James 1979. *The Ecological Approach to Visual Perception*. Boston: Houghton Mifflin
- Giffney, Noreen 2004. Denormalizing Queer Theory: More Than (Simply) Lesbian and Gay Studies. *Feminist Theory* 5 (1): 73-78, <https://doi.org/10.1177/1464700104040814>
- Goodfellow, Pouget-Abadie, Mirza, Xu, Warde-Farley, Ozair, Courville, Bengio 2014. Generative adversarial nets. *Advances in neural information processing systems* 27, <https://doi.org/10.48550/arXiv.1406.2661>
- Group μ 1992. *Traité du signe visuel: pour une rhétorique de l'image*. Paris: Seuil.
- Guerri, Claudio, Martin Acebal and Christina Voto 2020. The Performativity of the Archive from a Semiotic Perspective. *Southern Semiotic Review* 13(2): 13-47.
- Hemmet, Drew 2019. Preternatural. An exhibition of works by Jake Elwes. Curatorial Statement. Edinburgh Futures Institute.
- Hement, Zeilinger, Vidmar, Elwes, Warner, Sarmiento and Hill 2022. Towards a Heuristic Model for Experiential AI: Analysing The Zizi Show in The New Real. *Proceedings of the Design Research Society International Conference, 2022. The Design Research Society, Bilbao, Spain*.
- Jagose, Annamarie 2005. Queer Theory. In: Maryanne Cline Horowitz (ed.) *New Dictionary of the History of Ideas*, 5: 1980-1985.
- Jo, Eun Seo and Timnit Gebru 2020. Lessons from Archives: Strategies for Collecting Sociocultural Data in Machine Learning. *Conference on Fairness, Accountability, and Transparency (FAT\* '20)*, January 27–30, 2020, Barcelona, Spain, <https://doi.org/10.1145/3351095.3372829>
- Crawford, Kate and Trevor Paglen 2019. Excavating AI: the politics of images in machine learning training sets. *AI & SOCIETY*, <https://doi.org/10.1007/s00146-021-01162-8>

- Lamas, Marta 1999. Usos, dificultades y posibilidades de la categoría género. *Papeles de Población* 5 (21): 147-178
- LeCun, Yann, Yoshua Bengio and Geoffrey Hinton 2015. Deep learning. *Nature* 521: 436–444, <https://doi.org/10.1038/nature14539>
- Lee-Morrison, Lila 2019. *Portraits of Automated Facial Recognition. On Machinic Ways of Seeing the Face*. Bielefeld University Press: Transcript Verlag.
- Leone, Massimo 2019. The semiotics of the face in digital dating: A research direction. *Digital Age in Semiotics & Communication* 114 (2): 18-40.
- Marin, Louis 1994. *De la représentation*. Paris: Seuil.
- McCarthy, Minsky, Rochester and Shannon [1955] 2006. *A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence*. *AI Magazine* 27 (4): 12-14
- Paolucci, Claudio 2010. *Strutturalismo e interpretazione*. Milano: Bompiani.
- Peirce, Charles S. 1931-1935. *Collected Papers of Charles Sanders Peirce*, 8 vol., ed. Hartshore, Weiss et Burks. Cambridge, MA: Harvard University Press.
- Searle, John 1969. *Speech Acts*. Cambridge: Cambridge University Press.
- Sekula, Alan 1986. The Body and the Archive. *October* 39: 3-64
- Thylstrup, N. B., Agostinho, D., Ring A., D'Ignazio, C. and Veel K. (eds.) 2021. *Uncertain Archives. Critical Keywords for Big Data*. Cambridge, MA: The MIT Press.
- Turing, Alan 1950. I Computing Machinery and Intelligence. *Mind* 236: 433-460
- Violi, Patrizia 2014. *Paesaggi della memoria. Il trauma, lo spazio, la storia*. Milano: Bompiani.
- Voto, Christina 2020. Il volto semiotico dell'identità di genere. Un ritratto instabile tra catacresi e visualizzazione di dati. *Filosofi(e) Semiotiche* 7 (2): 67-75
- Wiener, Norbert J. [1949] 1961. *Cybernetics: Or Control and Communication in the Animal and the Machine*. Cambridge, MA: The MIT Press.

### Cited Works of Art

- Art Make Up* (1967), Bruce Nauman, 16mm film (colour, sound), 40 min.
- Face of Our Time* (1929), August Sander, 35mm photography (black & white), 60 units.
- Making Faces* (1970), Bruce Nauman, holograms (screen-print on paper).

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