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studi di cinema e media



Media|Processes. Moving Images Across Interface Aesthetics and Gestural Policies

a cura di
Miriam De Rosa e Elio Ugenti



Bulzoni editore

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***Media | Processes: Moving Images Across
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HyperInterfaces-HyperMedia: Artificial Intelligence beyond Anthropocentrism

Valentino Catricalà

Abstract: Artificial intelligence today represents a constantly growing sector that is influencing a large part of society. Our economy, our life, every our behavior is influenced (or driven) by the introduction of new machine and deep learning mechanisms. If we look at the production of images, we realize we are entering in a new regime. The images are now increasingly constructed by machines whose processes and logics are inaccessible to the human, to quote the American artist Trevor Paglen: human eyes become «anachronistic». An interface is no longer conceivable as a single “object”, rather it is a “hyperobject”, an intertwined network of media distributed in time and space. Hyperinterfaces are no longer media that access information; they are the world, the humus, the atmosphere, in which we immerse ourselves, and, at the same time, they emerge and behave within a world made of organic materials, nature, minerals, plants and animals. Hyperinterface means conceiving media as a hyperobject, namely, hypermedia. The text aim at investigating this new media condition beyond new media. The last chapter is dedicated to the work of the artist Hito Steyerl.

Keywords: Interface; Artificial Intelligence; Anthropocene; Media Art; Hypermedia.

Pioneers. Snow's La Région Centrale and Farocki's Eye/Machine III

In an essay published in 2014 by New York based online journal «e-Flux», American artist Trevor Paglen identified a new dimension for images in the technological age. For Paglen, this new dimension was based on the fact that «ma-

chines are starting to see for themselves»¹. In this view, images lose their representational quality and gain an operational one (“operational images”). Images have become increasingly constructed by machines, generated by algorithms that make use of a language indecipherable by human beings. The machine then translates this into a visual language interpretable by the human eye. The human eye is no longer the end of the representation, the new images are no longer made for it. The human eye has become anachronistic.

Paglen’s interpretation is political:

Meat-eyes are far too inefficient to see what’s going on anyway. Nowadays operational images are overwhelmingly invisible, even as they’re ubiquitous and sculpting physical reality in ever more dramatic ways. We’ve long known that images can kill. What’s new is that nowadays, they have their fingers on the trigger².

Only a political approach can react to the new visual regime. This is the new task of art, in keeping with Harun Farocki’s interpretation, one of «the first to notice that image-making machines and algorithms were poised to inaugurate a new visual regime»³.

Eye/Machine III is an artwork made in 2000 by Farocki. The work is the third part of a trilogy and uncovers the invisible architecture behind images, together with the technological automatisms that lead to their production. Farocki shows us the shift between the two regimes – from a representational to an operational one. In the work, a mechanical eye spies on and controls the territory through gunsight. The figures we see are barely recognizable, but identifying them is not the aim of the video. What we are looking at is not a representation of something, it is the way in which a machine represents it, the way in which a “robot” sees it. If we are able to recognize something, it is because the machine allows us to do so, translating

¹ Trevor Paglen, *Operational Images*, «e-Flux», November 2014, <<https://www.e-flux.com/journal/59/61130/operational-images/>> (accessed October 27, 2021). Furthermore, Casetti and Pinotti argue that «Electronic images cease being “images” in the moment in which they cease to be displayed for a human eye on a screen, and start interacting in a machine-machine communication (the domain of surveillance is a major example) which excludes the participation of humans for most of their existence. A machine-machine communication which is only improperly (and way too anthropomorphically) designated as “machine vision”». Francesco Casetti, Andrea Pinotti, *Post-cinema Ecology*, in Dominique Chateau, José Moure (eds.), *Post-cinema. Cinema in the Post-art Era*, Amsterdam University Press, Amsterdam 2020, p. 210.

² Trevor Paglen, *Operational Images*, cit.

³ Ibidem.

what it scans and making it understandable for the antiquated human eye, «machines don't need funny animated yellow arrows and green boxes in grainy video footage to calculate trajectories or recognize moving bodies and objects»⁴.

If Farocki can be considered one of the pioneers of “operational images”, Michael Snow, looking back in history, can be identified as the pioneer of the “operational gaze”. Rather than gathering and editing images created by machines, Snow made the machine itself, demonstrating the impersonal act of making and seeing of the machine. Under this gaze, the Human Being is removed from the creation of the image and the viewing of the image itself.

I am referring to Snow's *La Région Centrale* (1971), a 180-minute-long film shot by mounting a camera on a robotic arm with pre-programmed movements. As highlighted by Regina Cornwell in the text for the artist's retrospective at MoMA between 1975 and 1976, «Snow sought a totally wild landscape and untouched by the man-made device»⁵. In Snow's words, «I wanted the spectator to be the lone center of all these circles. It had to be a place where you can see a long way and you can't see anything man-made. That has something to do with a certain kind of singleness or remoteness that each spectator can have by seeing the film»⁶. “Anything man-made” must not be seen, says Snow, nor anything that recalls the human touch.

Reality can only be accessed through a robotic arm's mechanical gaze and its pre-programmed movements, thus introducing a pre-human landscape. Human beings are hence separated from the new relationship between machine and reality, we do not decide the movement of the camera, we do not choose the subject, and we do not decide what we see. We can only watch the film from an external point of view; we are no longer part of the representation, nor are we creating it. This “robotic vision” is the interface which mediates between the world and Us, where “Us” is not the center-point, but one of many elements among others. It is the beginning of a new way of seeing, a new gaze.

⁴ Ibidem. For a more in-depth analysis of Farocki's work see Thomas Elsaesser, *Harun Farocki. Working on the Sightlines*, Amsterdam University Press, Amsterdam 2004.

⁵ Michael Snow, *Film And Photography Exhibitions At The Museum Of Modern Art*, press release, February 19, 1976.

⁶ Annette Michelson, *About Snow*, «October», vol. 8, Spring, 1979, p. 121; re-published in Annette Michelson, Kenneth White (eds.), *Michael Snow*, MIT Press, Cambridge (Ma) 2019. For more information, Stéfani de Loppinot, *La Région centrale de Michael Snow: Côté Films #16*, Yellow Now, Crisnée 2010; James King, *Michael Snow: Lives and Works*, Dundurn Pr. Ltd, Toronto 2019; Antonio Bisaccia, *Effetto Snow*, Costa & Nolan, Milano 1995.

For a New Idea of Information

Today we are far from *La Region Centrale* (1971), and even from *Eye/Machine III* (2000). What was in embryo in the two aforementioned works is today “hyper”. “Hyper” is a prefix used in the erudite and scientific language to denote a higher grade of quality and quantity of a certain phenomenon; “hyper” can mean both “above” and “beyond”, both a concrete physical positioning “above” and a broader philosophical concept of “beyond”. “Hyper” is a wide-ranging term that enables the naming of phenomena from a philosophical point of view, phenomena that sometimes goes beyond human comprehension.

On this basis, philosopher Timothy Morton explains the concept of “Hyperobject”: «to refer to things that are massively distributed in time and space relative to humans»⁷, objects that are made of a high level of complexity. Inspired by the *Object-Oriented Ontology (OOO)*⁸, Morton explains how a hyperobject

could be the Lago Agrio oil field in Ecuador, or the Florida Everglades. A hyperobject could be the biosphere, or the Solar System. A hyperobject could be the sum total of all the nuclear materials on Earth; or just the plutonium, or the uranium. A hyperobject could be the very long-lasting product of direct human manufacture, such as Styrofoam or plastic bags, or the sum of all the whirring machinery of capitalism. Hyperobjects, then, are “hyper” in relation to some other entity, whether they are directly manufactured by humans or not⁹.

More than simple single phenomena, these are real, physical “objects”: «hyperobjects are here, right here in my social and experiential»¹⁰.

Perhaps exaggerating, in line with Morton’s conception, we can assert that we are living in a hyperinterface era. A new concept that can help to better understand how our relation to the world is today mediated by increasingly intelligent interfa-

⁷ Timothy Morton, *Hyperobjects: Philosophy and Ecology after the End of the World*, University of Minnesota Press, Minneapolis 2013, p. 1.

⁸ For a more in-depth analysis of Object-Oriented Ontology cfr. Ian Bogost, *Alien Phenomenology*, Open Humanities Press, Ann Arbor 2012; Levi Bryant, Graham Harman, Nick Srnicek (eds.), *The Speculative Turn: Continental Materialism and Realism*, re.press, Melbourne 2011; Graham Harman, *Tool-Being: Heidegger and the Metaphysics of Objects*, Open Court, Chicago 2002; Id. *The Quadruple Object*, Zero Books, London 2011; Timothy Morton, *The Ecological Thought*, Harvard University Press, Cambridge (Ma) 2010.

⁹ Timothy Morton, *Hyperobjects*, cit., p. 1

¹⁰ Ivi p. 27.

ces that work on a higher grade of complexity compared to the ones in *La Region Centrale* and *Eye/Machine III*.

Hyperinterfaces share the same characteristic identified by Morton to describe hyperobjects. They are *viscous*, «they are stuck to us and we are stuck to them»¹¹; *non-local*, they are not here, despite we can perceive the presence; they are *phased* because they occupy an higher dimensional space than other entities can perceive; they are *temporally undulated*, because they are «time-stretched to such a vast extent that they become almost impossible to hold in mind»¹²; and they are *interobjective*, because they are «crisscrossing» force fields¹³.

Hyperinterfaces are the humus, the atmosphere, in which we immerse ourselves, and, at the same time, they emerge and behave within a world made of organic materials, nature, minerals, plants and animals. Hyperinterface means conceiving media as a hyperobject, namely, hypermedia.

The concept of interface has become increasingly important in media studies since the beginning of 2000, «Interfaces are back, or perhaps they never left»¹⁴, said Alexander R. Galloway in 2012. In saying that, he brought to the fore a new idea of interface, not as a technological thing, but as an effect, as something that produce and create a world. According to Galloway, interface means

being on the boundary, it is that moment where one significant material is understood as distinct from another significant. In other words, an interface is not a thing, an interface is always an effect. It is always a process or a translation¹⁵.

Today, the role of the interface is dominant, more than in the time when Galloway wrote, as well as the effect produced has gained an incredibly high grade of complexity. This complexity is given by three factors that have changed the way in which we conceive and produce information: 1) the scientific improvement of AI systems; 2) the burgeoning of big data; 3) the role played by the continuous interactions between users.

If we want to understand the shift from single media to hypermedia (from interface to hyperinterface), we should start by understanding “information” differently from the conventional way in which it has been presented in media studies,

¹¹ Ivi, p. 28.

¹² Ivi, p. 58.

¹³ Ivi, p. 98.

¹⁴ Alexander R. Galloway, *The Interface Effect*, Polity, Cambridge 2012, p. 25.

¹⁵ Ivi, p. 33.

going beyond the idea that information is simple data to be exchanged¹⁶. According to Cesar Hidalgo, information «is the only thing we produce, whether we are biological cells or manufacturing plants. This is because information is not restricted to messages»¹⁷. For Hidalgo, information

is inherent in all the physical objects we produce: bicycles, buildings, streetlamps, blenders, hair dryers, shoes, chandeliers, harvesting machines, and underwear are all made of information. This is not because they are made of ideas but because they embody physical order. Our world is pregnant with information. It is not an amorphous soup of atoms, but a neatly organized collection of structures, shapes, colors, and correlations. Such ordered structures are the manifestations of information, even when these chunks of physical order lack any meaning¹⁸.

We, as Human Beings, simultaneously are information and generate information. Information is shaped depending on our ability to create and orient it,

it is the accumulation of information and of our ability to process information that defines the arrow of growth encompassing the physical, the biological, the social, and the economic, and which extends from the origin of the universe to our modern economy. It is the growth of information that unifies the emergence of life with the growth of economies, and the emergence of complexity with the origins of wealth¹⁹.

Therefore, information is not only machine-related, or simply present in a message or a bit, it is intrinsic to all the physical objects we produce. For Hidalgo, the capacity to beget information in order to create complex economical structures belongs to human beings. However, it seems that today this ability also belongs to

¹⁶ I am aware that many media studies have analyzed information beyond the conventional idea of “data exchanging”, nevertheless, this idea is still strongly present in the information studies. The idea of “data exchanging” has his basis in modern era in the Information Theory of Claude Shannon: cfr. Claude Shannon, Warren Weaver, *The Mathematical Theory of Communication*, University of Illinois Press, Urbana 1949. For a wider point of view on information cfr. James Gleick, *The Information: A History, a Theory, a Flood*, Pantheon Books, New York 2011. Today many theories around information are converging to the notion of Big Data.

¹⁷ Cesar Hidalgo, *Why Information Grows: The Evolution of Order, from Atoms to Economies*, Basic Books, New York 2015, p. 27.

¹⁸ Ibidem.

¹⁹ Ibidem.

artificial beings and artificial intelligence. Hyperinterfaces are a new way to create and manage information by networked automatic algorithms; a worldwide network in which elaborated machines and deep learning systems instantly gather and process an incredibly high amount of data that influences our economies and our environment, giving rise to a new idea of complexity.

When I select a movie on Netflix, when I look at something on Amazon, when I ask Google Maps the quickest way, when I say something to Alexa, when I play music on Spotify, when I walk down the street, when I am writing this essay, I am a little part of a global (hyper) intelligence network – I am «simultaneously a consumer, a resource, a worker, and a product»²⁰.

Furthermore, this high level of complexity no longer belongs to human beings, media and information. This high level of complexity involves the entire inorganic world in two interrelated ways. On one hand, plants, animals, inorganic matter, and the Earth, are all contingent to data mining. Information is trapped and acquired and in doing so, information acts in the World, therefore making the World. On the other hand, hypermedia is in a very strict relation to the natural elements, it comes from the Earth and takes action on the Earth. This new idea of complexity demands a new model, and demands that “computation” be analyzed not as isolated entities (robotics, machine learning, clouds, semantic web, etc.) but as a whole, as Benjamin Bratton points out in *The Stack*:

Planetary-scale computation takes different forms at different scales – energy and mineral sourcing and grids; subterranean cloud infrastructure; urban software and public service privatization; massive universal addressing systems; interfaces drawn by the augmentation of the hand, of the eye, or dissolved into objects; users both over-outlined by self-quantification and also exploded by the arrival of legions of sensors, algorithms, and robots. Instead of seeing all of these as a hodgepodge of different species of computing, spinning out on their own at different scales and

²⁰ Ibidem. It is interesting to connect this topic with hyperemployment, Domenico Quaranta, Janez Janša, *Hyperemployment. Post-work, Online Labour and Automation*, Nero, Roma 2020.

tempos, we should see them as forming a coherent and interdependent whole. These technologies align, layer by layer, into something like a vast, if also incomplete, pervasive if also irregular, software and hardware Stack²¹.

Beyond New Media

The Stack is, therefore, a new level of complexity, which include elements that, at first glance, are far beyond the conventional idea of media technology, such as mineral sourcing, energy, and natural elements all mixed with advanced technology such as artificial intelligence. Before analyzing the notion of artificial intelligence, it might worth to have a brief review on the latest trend of media theory and on how hyperinterface can help us to re-read media.

The history of the concept of media is long and can be traced back to Greek and Latin culture. Although *medium* is a Latin word, meaning “middle” or “something in the middle”, we find the term also in the language of the Greek philosophers. Democritus and Aristoteles used it primarily to identify the relationship between nature and perception, mainly referring to natural mediation. However, it is only between the first and second Industrial Revolutions, with the rise of technology, that the term medium found new life. It is precisely at this time that words began to take on new meanings – “technology” became independent from “technics”, “innovation” became linked to “progress”, and medium became the word for mass communication, concurrent with the rise of photography, cinema, and later, radio and television²². And medium became media. In fact, even today, when we say media we suddenly think of media technology; nevertheless, something is changing in media studies, media are increasingly conceive beyond technology.

²¹ Benjamin Bratton, *The Stack*, MIT Press, Cambridge (MA) 2015, p. 14. Bratton identifies six layers of The Stack: Earth, Cloud, City, Address, Interface, User. Similarly, Kate Crawford in her last book identifies eight layers: Earth, Labor, Data, Classification, Affect, State, Power, Space. As we will see, «The aim is to understand AI in a wider context by walking through the many different landscapes of computation and seeing how they connect»: Kate Crawford, *Atlas of AI*, University of Minnesota Press, Minneapolis, p.11. In his last book Ruggero Eugeni identifies five phases: extractation, transformation, transportation, exchange, disposal, in *Capitale algoritmico*, La Scuola, Milano 2021.

²² On this topic cfr. Leo Marx, *The Emergence of a Hazardous Concept*, «Technology and Culture», vol. 51, n. 3, July 2010; Valentino Catricalà, *The Artist as Inventor. Investigating Media Technology Through Arts*, Rowman & Littlefield, London 2021.

This switch is well visible in the notion of «elemental media», developed by John Durham Peters, with the aim to understand media not only «as sending a message» but also «as providing the conditions for existence». As he pointed out «once communication is understood not only as sending messages – certainly an essential function – but also as providing conditions for existence, media cease to be only studios and stations, messages and channels, and become infrastructures and forms of life. These material, environmental senses in form he recent reach of the media concept beyond messages to habitats»²³.

As we have seen, understanding media today means going beyond the conventional idea of information, it means seeing the phenomena from a wider point of view, (re)including the natural environment in media studies. If we want to understand the Internet, says Peters, we should consider elemental media (i.e. the sea) through the centuries in its practical and philosophical role of mediator, «we cannot think of computation without thinking about carbon, or of the cloud without thinking about data»²⁴.

A new trend in media studies has emerged as demonstrated by scholars such as Elizabeth Grossman²⁵, Jennifer Gabrys²⁶, Richard Maxwell and Toby Miller²⁷, Sean Cubitt²⁸, Jussi Parikka²⁹, and Keller Easterling³⁰, among others. In the book *A Geology of Media*, Parikka refers to geology as a new field in media studies, incorporating not only the ground on which we walk, but also subjects such as climate change and organic life. Natural elements have become a way of providing new interpretations for our media environment, as Parikka argues:

Instead of radio, I prefer to think what components and materials enable such technologies; instead of networking, we need to remember the importance of copper or optical fiber for such forms of communication; instead of a blunt discussion of

²³ John Durham Peters, *The Marvelous Clouds. Toward a Philosophy of Elemental Media*, University of Chicago, Chicago 2015, p. 14.

²⁴ Ivi, p. 49.

²⁵ Elizabeth Grossman, *High Tech Trash: Digital Devices, Hidden Toxics, and Human Health*, Shearwater, Washington DC 2007

²⁶ Jennifer Gabrys, *Program Earth: Environmental Sensing Technology and the Making of a Computational Planet*, University of Minnesota, Minneapolis 2016.

²⁷ Richard Maxwell and Toby Miller, *Greening the Media*, Oxford University, Oxford 2012.

²⁸ Sean Cubitt, *Finite Media. Environmental Implications of Digital Technologies*, Duke University Press, Durham 2017.

²⁹ Jussi Parikka, *A Geology of Media*, University of Minnesota, Minneapolis 2015.

³⁰ Keller Easterling, *Medium Design: Knowing How to Work on the World*, Verso, London 2021.

“the digital,” we need to pick it apart and remember that also mineral durations are essential to it being such a crucial feature that penetrates our academic, social, and economic interests³¹.

Geology is strictly related to the concept of “Ecology”, but here the concept of ecology is used in a way that goes beyond the classical notion of “media ecology”. Since decades, media studies has conceived ecology, simplifying, as the technological environment created by media. These new media theories can be divided into three categories:

- 1) The first one is what is known as the classical theory of “ecology of media”. There are many variations of this interpretation, and an extensive bibliography, all based on the notion that media create the environment in which we immerse ourselves. Today, we live in a new media environment. This interpretation can be traced back to the Sixties³². The limit today is that this interpretation does not take into account what it is external to media technology.
- 2) The second interpretation is more recent and based on the enlargement of the notion of media to incorporate elemental media (geology, meteorology, etc.). Media technology and Elemental media coexist in a new synergy, to quote Peters «the old idea that media are environments can be flipped: environments are also media»³³. On one hand, there are natural elements as mediators, in the words of Janine Randerson, «we exist in a swirl of “elemental media” that compose and recompose our world, from clouds to celestial navigation»³⁴; on the other hand, there is the deep time interpretation of the natural elements that constitute our technology.
- 3) A third interpretation can be found in what Sean Cubitt calls «Finite Media», the fact that «media and mediation cannot be separated from their environ-

³¹ Jussi Parikka, *A Geology of Media*, cit., 2015, p. 4.

³² Matthew Fuller, *Media Ecologies: Materialist Energies in Art and Technoculture*, MIT Press, Cambridge (MA) 2005; Neil Postman, *Amusing Ourselves to Death: Public Discourse in the Age of Show Business*, Penguin, London 1985.

³³ John Durham Peters, *The Marvelous Clouds*, cit., p. 3.

³⁴ Janine Randerson, *Weather as Medium. Toward a Meteorological Art*, MIT Press, Cambridge (Ma) 2018, p. XVIII.

mental impacts, but for that very reason they are privileged tools in creating a future other than our dark now»³⁵. Media as impact on the Earth, «the dominant utopian mechanism today is technology, and its counterfaith is Gaia»³⁶.

If we want to understand this development, we need to look at media theory from an expanded point of view, a “hyper” point of view. This complexity has been enabled by a massive distribution of media technology, the unprecedented capacity of data mining related to the incredible amount of data, and the growth of artificial intelligence. A complexity that is influencing, quoting Bratton, the «planetary-scale computation», increasingly connecting organic and non-organic world. Hyperinterface-Hypermedia are exactly the place of connections between these worlds.

A new media theory must be understood in a new technological context driven by artificial intelligence actors. Therefore, what we need today is «a theory of AI that accounts for the states and corporations that drive and dominate it, the extractive mining that leaves an imprint on the planet, the mass capture of data, and the profoundly unequal and increasingly exploitative labor practices that sustain it»³⁷.

Furthermore, «it’s necessary to move beyond a simple analysis of the relationship between an individual human, their data, and any single technology company in order to contend with the truly planetary scale of extraction»³⁸.

Artificial Intelligence

Today AI is no longer a niche phenomenon reserved for a select few or the sole preserve of laboratories or companies. It has developed into everyday applications. It regulates a large part of the economy to the extent that it could be considered a real influencer on our imagination. According to Lev Manovich «AI has become a mechanism for influencing the imaginations of billions. Gathered and aggregated data about the cultural behaviors of multitudes is used to model our “aesthetic self”, predicting our future aesthetic decisions and tastes – and potentially guiding us towards choices preferred by the majority»³⁹.

³⁵ Sean Cubitt, *Finite Media*, cit., p. 9.

³⁶ Ivi, p. 6.

³⁷ Kate Crawford, *Atlas of AI*, University of Minnesota, Minneapolis 2021, p. 11.

³⁸ Kate Crawford, Vladan Joler, *Anatomy of AI*, <<https://anatomyof.ai/>> (accessed October 27, 2021).

³⁹ Lev Manovich, *AI Aesthetics*, Strelka, Moscow 2019, p. 8.

Although these sentences are all true and clear, what is less clear is what we refer to when we speak of AI. In fact, when we say AI, we are not referring to something clearly defined or definable in simple terms. Most attempts at a definition revolve around extremely general statements such as: «Artificial intelligence is a scientific discipline that aims to define and develop programmes or machines (software and/or hardware) which reflect behavior that would be defined as intelligent if it were displayed by a human being»⁴⁰. Alternatively, the impossibility of a single definition is acknowledged, «there are many proposed definition of artificial intelligence (AI), each with its own slant, but most are roughly aligned around the concept of creating computer programs or machines capable of behaviour we would regard as intelligent if exhibited by humans»⁴¹.

Consequently, the concept of AI is open to many interpretations according to how the phenomenon is viewed, and is frequently accompanied by ideas that belong more to the realm of science fiction than to science, with detailed descriptions of how we shall live and behave in the near future. This broad theoretical perspective has been supplemented by other concepts such as singularity, the possibility that AI will outstrip human intelligence. This tells us that the scientific sphere of AI, far from being well-defined, is an umbrella concept that refers to extremely different topics and, at the same time, represents a particular conceptual horizon.

When we speak of Singularity⁴² or Superintelligence⁴³ we are referring to possible futures, more similar to science fiction movies and novels than to tangible occurrences. The only concrete personification of AI today is what we call the “operational procedures of AI”, such as machine learning, deep learning or supervised learning. Beyond these, rather than AI, we are talking about the narrative of AI. According to Matteo Pasquinelli,

⁴⁰ Jerry Kaplan, *Artificial Intelligence*, Oxford University Press, Oxford 2016, p. 1.

⁴¹ Francesca Rossi, *Il confine del futuro*, Feltrinelli, Milano 2019, p. 4.

⁴² According to the Encyclopedia Britannica, «Singularity [is] a theoretical condition that could arrive in the near future when a synthesis of several powerful new technologies will radically change the realities in which we find ourselves in an unpredictable manner». The bibliography is extensive, cfr. Murray Shanahan, *The Technological Singularity*, MIT Press, Cambridge (MA) 2015 and the classic, Ray Kurzweil, *The Singularity is Near*, Gerald Duckworth & Co, London 2006.

⁴³ Superintelligence is a hypothetical agent that possesses intelligence far surpassing that of the brightest and most gifted human minds. Nick Bostrom, *Superintelligence*, Oxford University Press, Oxford 2014, among others.

There are at least three troublesome issues in the current narrative on the singularity of artificial intelligence: first, the expectation of anthropomorphic behavior from machine intelligence (i.e., the anthropocentric fallacy); second, the picture of a smooth exponential growth of machines' cognitive skills (i.e., the bootstrapping fallacy); third, the idea of a virtuous unification of machine intelligence (i.e., the singularity fallacy)⁴⁴.

The best way to overcome these troublesome issues is to refrain from looking at AI as a single object (machine learning, deep learning, singularity, etc.), but rather conceive it as a hyperobject. Until the advent of the Internet AI was designed as a single intelligent system (like the IBM Deep Blue computer that beat chess champion Garry Kasparov in 1996), a representation that is still present in many science fiction movies⁴⁵. Yet today AI is an ongoing global network running on every device (from TV's to Smartphones, from tablets to new generation consoles, etc.), a world wide membrane poised between the technological and the organic world.

Understanding the shift from a single system to a hypersystem means abandoning our Anthropocentric point of view and considering Us as part of an ongoing and autonomous network composed of organic and non-organic elements. Hyperinterfaces are, therefore, the membrane that runs and activates circular mechanisms from nature to digital and back, from organic to inorganic and back, from plants, humans, minerals, digital media and back. Hyperinterfaces are the way in which information is captured today, begotten and reworked in a new mechanical language through autonomous algorithms. We are entering a new domain, from a technology of representation to an operative technology, expounded by the development of the GAN-Generative Adversarial Network⁴⁶.

If we look at the recent ascent of the climate change movement, it is clear how this was made possible by a hyperinterface society. Today, our idea of the Planet, Earth, and Nature is based on data that was captured, designed and visualized by machines. Sensors catch the vibrations of the Earth and those of nature, together with the behavior of animals, then the data is gathered and reworked by auto-

⁴⁴ Matteo Pasquinelli, *Introduction*, in Id., *Alleys of Your Mind: Augmented Intelligence and Its Traumas*, Meson Press, Lüneburg 2015, p. 11.

⁴⁵ The idea of AI that is propagated by cinema is still close to that of a single robot, except for movies such as *Her* (Spike Jonze, 2013).

⁴⁶ According to Ruggero Eugeni, «GANs and other similar computational processes are no longer restricted to capturing images, processing them, assigning them a verbal description, manipulating the information they carry, and eventually displaying them; rather, they have started producing images». Ruggero Eugeni, *Capitale algoritmico*, cit., p. 192 (my translation).

matic algorithms. A new idea of Earth is possible because of a membrane that runs everywhere and is able to connect different layers all the while transforming raw information into hyperinformation (from nature to data), therefore having a direct impact on our environment.

A hyperinterface (or hypermedia) is not only ecological because it creates a new technological environment (a classic idea related to the ecology of media). Hyperinterfaces are important because they push us to reconsider media and the ecology of media as beyond new media, to run the world differently, creating a circular relationship between the natural and digital worlds, the human and the non-human. According to Ben Vickers, «one of the most interesting aspects with AI art is that it creates a situation in which we can begin to reconsider our approach to non-human entities»⁴⁷.

Paraphrasing John Durham Peters, today hyperinterfaces are that which provide condition for existence, hyperinterfaces ceases to be only studios and stations, messages and channels, and become infrastructures and forms of life.

The question is, where are We? We are probably heading towards a new Anthropologic turn, our Anthropocentric way to look at media has flipped and we have become a little dot in a wide hypermedia system⁴⁸ made of human and non-human entities, made of information created, processed, reworked automatically. How can we change our point of view? Revealing the mechanisms of operational images and the operational gaze, as in the work of Harun Farocki and Micheal Snow, means uncovering the mechanisms of power that lie behind the production of information, in what at that time was starting to become a hyper-world. Today, looking at works of art not only means analyzing them through the lenses of art history, but also allowing them to provide us with clues with which to better understand our human condition.

⁴⁷ Ben Vickers, *Interview with Ben Vickers*, «Dazed», September 2018, <<https://www.dazeddigital.com/art-photography/article/41432/1/five-artists-show-important-relationship-ai-hito-steyerl-james-bridle-serpentine>> (accessed October 27, 2021). Cfr. also Valentino Catricalà, Ben Vickers in conversation, *The Post is Over*, «Nero», February 2019, <<https://www.neroeditions.com/the-post-is-over/>> (accessed October 27, 2021).

⁴⁸ At this point, «the key word here is system, even environment or ecology, since AI, nanotechnology, machine and deep learning, XR, robotics, and spatial computing denote not a use or an instrumentalization, but a system, more specifically, of co-presence and co-evolution between humans, plants, animals, and machines». Simone Arcagni, *ACT. Per una nuova cibernetica post-Covid*, in Giovanni Puglisi, Andrea Rabbito, Valentino Catricalà, Luigi Maccallini (a cura di), *ACT - Arti, Covid-19, Tecnologie*, Treccani, 6 April 2021, <https://www.treccani.it/magazine/atlante/cultura/Per_una_nuova_Cibernetica.html> (my translation, accessed October 27, 2021).

The Work of Hito Steyerl. A Case Study

In Marshal McLuhan's seminal book *Understanding Media*, published in 1964, the author uses the metaphor of the radar to underline the importance of art in media studies. McLuhan writes, «art as radar acts as an “early alarm system”, as it were, enabling us to discover social and psychic targets in lots of time to prepare to cope with them in arts the radar»⁴⁹. The last few years have witnessed a newfound interest in the work of artists that make use of technology, giving reason to McLuhan's suggestions. Today we can finally look at art as an important field not only in the contemporary art world, but as a new perspective on our hypermedia society. The work of Hito Steyerl is exemplary. Steyerl is an artist and writer with a strong cinematic background. In fact, Steyerl can also be considered a filmmaker as her work takes place on that thin line of demarcation between the use of the image among different cultural sectors.

Born in Munich, Steyerl studied at Yokohama Broadcasting Technical School (today the Japan Institute of the Moving Image) in Tokyo with Shohei Imamura, one of the most influential Japanese filmmakers, and, back in Germany, at the Munich Hochschule für Fernsehen und Film. Influenced by New German Cinema and Japanese New Wave Cinema, she worked with Wim Wenders in *Bis ans Ende der Welt* (*Until the End of the World*, 1991) and with Helmut Färber, film critic and founder of «Filmkritik». It is during this period that Steyerl became a documentarist, and began to be interested in the philosophy of images, in «the problem of truth, especially in an era in which doubts have become pervasive»⁵⁰. More importantly for us, Steyerl was influenced by the work of artists interested in the political aspect of images, Harun Farocki⁵¹ *in primis*. From this moment onwards, Steyerl's work was focused on the politics of the image, as defined in her famous text *In Defense of the Poor Image*, published on E-Flux in 2009.

The poor vs rich image is an act of resistance,

The poor image thus constructs anonymous global networks just as it creates a shared history. It builds alliances as it travels, provokes translation or mistranslation, and creates new publics and debates. By losing its visual substance it recovers some

⁴⁹ Marshall McLuhan, *Understanding Media: The Extensions of Man*, McGraw-Hill, New York 1964, p. xi. It is interesting to note how, despite the great success of McLuhan's theories, media studies has basically ignored this suggestion till the latest 10 years.

⁵⁰ Hito Steyerl, *Documentary Uncertainty*, «A Prior Magazine», n. 15, 2007.

⁵¹ This relation was recently expounded in the exhibition *Life Captured Still: Harun Farocki, Hito Steyerl* at Galerie Thaddaeus Ropac (London), 6 February - 4 April 2020.

of its political punch and creates a new aura around it. This aura is no longer based on the permanence of the “original,” but on the transience of the copy⁵².

The poor image evolves, changes, and is modified in its nature as well as in Steyerl’s work. Today the politics of images is aimed at uncovering the hidden architecture of artificial intelligence systems, systems that, according to Steyerl, rather than a «creative disruption» are creating a «creative destruction»⁵³ – «Automation of blue – and white – collar labor, artificial intelligence, machine learning, cybernetic control systems or “autonomous” appliances are examples of current so-called disruptive technologies, violently shaking up existing societies, markets, and technologies»⁵⁴.

Hito Steyerl’s exhibition *The City of Broken Windows* took place at Castello di Rivoli (Turin) between November 2018 and September 2019⁵⁵. The exhibition was displayed in the Museum’s Manica Lunga, a long, big room (similar to a wide corridor) that created a sort of backwards and forwards course. As we entered the room we walked into a space surrounded by sounds of breaking windows, writings and two screens at each opposite end of the room, defining its boundaries.

Steyerl aimed to analyze the practices of Artificial Intelligence industries, surveillance technologies and the contradictory roles Museums often play today. Neural sound recordings, together with atonal and discordant symphonies, are what could be heard in the room. These sounds were a record of the process of teaching artificial intelligence how to recognize the sound of breaking windows, a practice usually used for alarms but that symbolizes social disruption. Steyerl explores how AI affects our urban environment and how alternative practices may emerge through pictorial acts in the public space. The work showed the hidden architecture of the processes inherent to control systems driven by autonomous algorithms.

Some months after the exhibition at Castello di Rivoli, Hito Steyerl opened a new show at the Serpentine Gallery in London. Artificial intelligence was again the protagonist but this time it was connected to a peculiar topic: Power Plants. For the exhibition Steyerl produced an augmented reality app called Actual Reality OS. This allowed the park that surrounds the gallery to be viewed on a smartphone screen,

⁵² Hito Steyerl, *In Defense of the Poor Image*, «e-Flux», 10 November 2009, <www.e-flux.com/journal/10/61362/in-defense-of-the-poor-image/> (accessed October 27, 2021).

⁵³ Hito Steyerl, *Duty Free Art. Art in the Age of Planetary Civil War*, Verso, London 2017, p. 15.

⁵⁴ Ibidem.

⁵⁵ The exhibition was curated by Carolyn Christoph-Bakargiev and Marianna Vecellio, *Hito Steyerl*, Skira, catalogue of the exhibition, Milan 2019.

with its various elements overlaid with testimonies and data related to hunger, working conditions, austerity and housing. In the artist's intention, the app revealed the truths of the modern world by charting social inequality, the mechanism of "power".

At the same time, a series of video sculptures generated by neural networks were installed in the exhibition space. These networks were modelled on the human brain and programmed the future by calculating the next frame of the video. The contents of the videos were images of plants which in this case were not represented by a machine, but created by it. Inspired by the idea of a ruderal garden, an ensemble of plants growing on waste ground, the work of Steyerl is a perfect representation of our hyperinterface condition in which humans and non-humans, nature and technology, become part of a global network run by machines that act beyond human intention. As Steyerl shows, the problem here is political, it is no longer a matter of whether AI is good or not, if it will help human beings or if it will dominate them. The issue at stake is how to go beyond our Anthropocentric vision and start to look at Us differently. Only in this way real ethical and sustainable relationships with AI can grow.

Echoing Vicker's assertion, «one of the most interesting aspects with AI art is that it creates a situation in which we can begin to reconsider our approach to non-human entities that we're interacting with, which, forces us to rethink our relationship to other non-human entities, such as the entire animal kingdom, other forms of consciousness»⁵⁶.

Hito Steyerl bring us in a new complexity in conceiving AI as a new "hyper" context that connect natural world with humans and technology. His work (especially the one at Serpentine Gallery) conceives the interface as the door that connect AI and plants going beyond the technological interpretation of AI systems. For Steyerl, instead of fall again in the conventional dualism (AI will dominate or help humans?), the use of AI in arts is a way to search for new forms of consciousness through a theory that understand our world as immersed in a hyperinterface condition.

⁵⁶ Ben Vickers, *Interview with Ben Vickers*, «Dazed», September 2018, <<https://www.dazeddigital.com/art-photography/article/41432/1/five-artists-show-important-relationship-ai-hito-steyerl-james-bridle-serpentine>> (accessed October 27, 2021).

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