THE NATURALIZATION OF ARTIFICIAL INTELLIGENCE

A NATURALIZAÇÃO DA INTELIGÊNCIA ARTIFICIAL

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ABSTRACT
The aim of this article is to introduce three successive modalities of our relationship with Artificial Intelligence. First, we will attempt to show that Artificial Intelligence (AI) remains indebted in its intellectual genesis on the cybernetic man-machine analogy, and that this is important to understand the ambiguous modeling relationship (Dupuy, 2005) that this metaphor constitutes for distributed knowledge in general. However, we will not be content with this discursive observation, and will look for the more material causes of what we see as a naturalization of Artificial Intelligence, in the idea of AI as the reification of an organization of work (Pasquinelli, 2023). Finally, we put forward the more general hypothesis of a faulty relationship with technology perceived as a form rather than a process (Young, 2021).

Keywords: Artificial Intelligence. Reification. Naturalization. Ghost work. Cybernetic.

Resumo: O objetivo deste artigo é apresentar três modalidades sucessivas de nosso relacionamento com a Inteligência Artificial. Em primeiro lugar, tentaremos mostrar que a Inteligência Artificial (IA) continua sendo devedora, em sua gênese intelectual, da analogia cibernética homem-máquina, e que isso é importante para entender a relação de modelagem ambígua (Dupuy, 2005) que essa metáfora constitui para o conhecimento distribuído em geral. No entanto, não nos contentaremos com essa observação discursiva e buscaremos as causas mais materiais do que vemos como uma naturalização da Inteligência Artificial, na ideia da IA como a reificação de uma organização do trabalho (Pasquinelli, 2023). Por fim, apresentamos a hipótese mais geral de um relacionamento defeituoso com a tecnologia percebida como uma forma em vez de um processo (Young, 2021)..

Palavras-chave: Inteligência Artificial. Reificação. Naturalização. Trabalho fantasma. Cibernético.

LIMITS AND AMBIGUITIES OF THE CYBERNETIC ANALOGY

Cybernetics has a long line of repressed heirs, including Artificial Intelligence and its theoretical counterpart, cognitive science. One seeks an independent source of intelligence that can deliver results as satisfactory or even more so than human intelligence, the other is concerned with replicating the cognitive processes, the "how", at work in human cognition. Both, however, find their origins in the cybernetic analogy between organism and machine. This metaphor, which we take for granted, is in fact the fruit of a long intellectual construction that is far from self-evident. Cybernetics emerged from a desire for interdisciplinarity, particularly in the intersection between the physical and social sciences, as demonstrated by the famous Macy conferences, which brought together anthropologists, physicists, engineers, mathematicians and biologists. This interaction has given rise to analogies that serve as bridges between disciplines, enabling us to isolate a common abstraction and analogical structures between organism and machine, from which other analogies will derive, such as that between brain and computer or neural network, between real neuron and artificial neuron, and so on.

AI is first and foremost an interdisciplinary program, within which technology plays a modelling role, that of explaining the miracle of human intelligence on a basis that is at once material (robotics), logical (computers and symbolic AI) and biological (neurons and connectionist AI), even if the biological dimension is only involved in a formal sense. This is not to say that AI is a substitute for human cognition. Quite simply, following Giambattista Vico's precept that human beings only know what they cause (Vico, 1987), we need to artificially recreate processes that individuals once attributed to divine or natural origins. And the cognitive sciences, co-constitutive of AI advances, derive their legitimacy from modeling functionalities of human cognition. These analogies, which start out as hypotheses, will, over the course of the

discussions and through iteration, sometimes become veritable axioms in the course of the conferences.

These analogies serve to establish a normative position by directing the imagination towards the similarities between brain and machine, neuronal and machinic functioning, bypassing the semantic gap between the two and highlighting their divergences. In this way, the analogy acts as a diversion in the direction of what the speaker wishes to emphasize, in spite of other characteristics that the speaker is trying to gloss over. In this way, we give explanatory privilege to the most salient cognitive characteristics, i.e. those that can be observed and modelled, as in the case of facial recognition, which has been elevated to the status of intelligence paragon as significant progress has been made in this field.

That is what renowned cybernetician John von Neumann pointed out by criticizing Warren McCulloch & Walter Pitts artificial neuronal network (1943) which would imply that the Boolean operations "And", "Or" and "Not" can be formalized by the neuron's digital operation, which is triggered according to a threshold system beyond which it "fires". Here we can understand how specific – not to say, arbitrary – elements deduced from our neuronal functioning are becoming idealized and emphasized at the expense of other characteristics. For von Neumann, for example, it is the electrical impulse of neurons that is privileged at the expense of the organicity of the support, the "formal" neuron thus deduced by a process of abstraction, becoming more prevalent than the "real" neuron, in a manner similar to the "real abstractions" described by the Marxist author Alfred Sohn-Retel (1970) or Baudrillard's (1981) concept of hyper-reality, by virtue of which a simulacrum becomes more "real" in the sense of more operative than the "real" itself:

> This focus on the only "visible" or intelligible part of the neuron's action, the firing, represents only part of a behavior with complex ramifications. It is, so to speak, only a focus on the "software" part that emerges, without seeing what is at stake in the arrangement of the physical support that determines this firing. The signal or symbol that appears beyond a certain threshold is

> taken to be the a priori rule, whereas it is merely a lacunar, residual, temporary result that does not exist in itself (Favier-Baron, 2023a, p. 7)[I].

So what is this "real" neuron made of ? Here again, von Neumann objects that McCulloch & Pitts' abstract neuron doesn't take into account organic limitations such as the recovery time required by the neuronal cell, whose fatigue limits repeated firing and dismisses "non-numerical elements rooted in biological materials and cell chemistry» (Favier-Baron, 2023a, p. 6)[II]. Here, von Neumann takes issue with McCulloch & Pitts' functionalism, asserting that simply transposing an abstract cognitive functionality from one medium to another is not enough to validate a model and achieve human-like intelligence. This point is essential, because it is no longer - if it ever was - this imitation of the "real", which is in any case unattainable given the intrinsic and undoubtedly unsurpassable limitations of scientific modeling, but the identity of result that is pursued in the connectionist AI paradigm, which renounces programming intelligence "from above".

Of course, as we previously said, the aim of AI is not, unlike cognitive science, to imitate the cognitive process, but the result - the "performance". But on the one hand, this distinction is constantly called into question because we compare ourselves to AI, whether to point out its shortcomings or to feed an anxiety-inducing discourse by measuring the speed of progress made. This point of friction is illustrated by the problem of AI "alignment": the projection of human standards and constraints, both in terms of cognition, epistemology and socialization, comes into tension with the ever-growing scale of AI computational capacity and learning speed. This creates a tension between the impe-

I "*Cette focalisation sur la seule partie « visible » ou intelligible de l'action du neurone, la mise à feu, ne représente qu'une partie d'un comportement aux ramifications complexes. Il ne s'agit pour ainsi dire que d'une focalisation sur la partie « software » émergée, sans voir ce qui se joue dans l'agencement du support physique qui détermine pourtant cette mise à feu. Le signal ou symbole qui apparaît au-delà d'un certain seuil est pris pour la règle a priori alors qu'elle n'est qu'un résultat lacunaire, temporaire, qui n'existe pas en soi*".

II "*éléments non-numériques pourtant ancrés dans les matériaux biologiques et dans la chimie des cellules*".

rative of AI systems' computational power and that of conformity to a social normativity.

On the other hand, the systematic deployment of AI runs the risk of elevating reductive aspects of human cognitive activity to cardinal values of what intelligence should be, in a kind of hierarchical inversion of the model. But we shall see that this inversion leads to a situation of reification, when the amount of work done to obtain AI is transferred from the worker to the object itself. The emerging properties of AI are now inherent to it, camouflaging the trace of the work that brought it into being. Faced with the growing complexity of neuronal networks, the engineer is relegated to the status of spectator, or at least to that of arranger of the conditions of emergence of AI systems, an arrangement that is measured by the achievement of a result rather than by virtue of know-how about his or her work object. According to Simondon, this movement corresponds to a process of abstraction as well as the transfer of technical authority from the figure of the craftsman (who had already become a worker in Marx) to that of the engineer, who now governs transductive chains made up of micro-taskers (Casilli, 2019) and ghost workers (Gray & Suri, 2019), as well as machines. The sophistication of technical objects leads to their "concretization" (Simondon, 2014), i.e. to the advent of an autonomous technique, as is the case with cybernetic-type machines, to such an extent that these objects themselves acquire a status of naturalness. While AI may appear to us as a coherent whole, its development in reality conceals a set of erratic and discontinuous operations and processes, which will be the subject of the next section.

AI'S REIFICATION

AI systems are technically complex, due to a fragmented, hyper-specialized production chain involving a number of arbitrations, filtering stages, calibration, actors and various mediations. The lack of understanding of the challenges and conditions of AI production is as much

due to its inherent technical complexity as to the design and discourse intentions of the digital platforms that are the main owners of the most sophisticated algorithmic solutions. The place that concentrates both the strike force and the mystique of digital platforms is the intelligent algorithm and its "black box". Behind a language often strewn with aqueous (Data Lake) and gaseous (Cloud) metaphors, a material, processual, disparate reality is revealed, whose invisibilization remains an issue of depoliticization and industrial secrecy.

To understand this, we need to start with the term Artificial Intelligence, which, is more of an advertising term than an analytical one. As we shall see, Artificial Intelligence itself is neither truly intelligent, nor truly artificial. Rather, with the advent of AI, we are witnessing a gigantic undertaking to intercept and commodify collective intelligence, itself the product of a division of labor (Pasquinelli, 2023), and thus part of a historical tradition of the relationship between labor and technology. Rather than a scientific and imitative project in the biological or neurophysiological sense of human intelligence, as we have seen, it is an abstraction of an organization of work from which a surplus of collective intelligence emerges.

This dispels a number of false debates about the disappearance of human work, which in reality only undergoes displacement, reorganization or casualization. The prowess of AI, for which we anticipate the extinction of work, is in fact still largely indebted to underlying human labor. It is not just about the design and engineering work that is more in the spotlight, but the work of the invisible little hands that do the sorting, the substitute, maintenance work that secretly trains and feeds the AIs. Where the initial promise of AI was to relieve work of the most intellectually depreciating tasks, leaving only leisure, idleness and creativity to the humans, the advent of generative AIs is instead attacking "noble" areas of human thought, while having at its service an army of human auxiliaries to carry out the dull and alienating tasks promised to the automaton. Amazon, for example, has given up on fully automating its supermarkets, realizing that this would require more human workers to operate the AIs than hiring traditional workers.

AI thus seems to be reified in Lukács's sense, i.e. subtracted from the labor relation necessary to obtain a functional AI, thus commodified and transformed into its inherent property: "the power of the person has been transformed into the power of things" (Marx, 1980, p. 93)[III]. This alienation of human activity antagonizes the worker from his labor, who finds himself subjected to the "objectivity, alien to men, of natural social laws" (Lukács, 1974, p. 114)[IV]. This human activity is integrated into AI as an intrinsic characteristic that makes it a concrete, autonomous object. To use Marx's vampiric metaphor for capitalism, AI systems constitute dead labor, feeding by constant sucking from living, human labor. Dead labor" in Marx's sense, for example, refers to a machine built by a previous worker's effort that now functions without the worker's intervention, and is thus embodied in machines, objects or means of production. In this sense, while AI is rightly accorded a certain autonomy, it does not constitute such a radical paradigmatic break with the industrial machine in terms of maintenance, except for that it makes intellectual production immediate and permanently available instead of energy. To understand this historical lineage of the commodification of work, to which AI is no exception, we need to delve into a counter-history of Artificial Intelligence and its technical genesis.

A COUNTER-HISTORY OF ARTIFICIAL INTELLIGENCE

AI is rife with misunderstandings and misinterpretations, for the reasons given above, namely the opacity inherent in its technical complexity, and a premeditated strategy. We mentioned the intellectual genealogy of AI via the organicist metaphor of cybernetics, but we'll take our genealogy a step further here by completing it with the contribution of the work of Matteo Pasquinelli (2023), who presents a history of Artificial Intelligence largely uncoupled from scientific causes in favor of

III "*le pouvoir de la personne s'est transformé en pouvoir de choses*".
IV "*soumises à l'objectivité étrangère aux hommes, des lois sociales naturelles*".

an industrial and managerial motive dating back to Babbage's analytical machine.

According to Pasquinelli, the role of science in the development of AI and technology in general lies more in its role as agglomerator and reifier of a collective intelligence that depends on the organization of work. In the same way that the neuron's digital signal is taken as the cause in place of the spatio-temporal arrangement that supports it, science "merely" perfects and synthesizes an efficiency that stems from the division of labor, and thus from a human and collective effort that has become fixed a posteriori. We shall see that many technical advances often reflect, or even analogize, a contemporary labor management regime, and not the other way around. AI develops according to an interplay of abstraction and concretization, internalization and externalization; it is part of a dynamic of centralization and massive interception, but emerges in a distributed and collective way. This reification of social, cultural and economic relationships confirms arbitrary relations and power, and confuses them into a reflection of objective science.

Let's now anchor this reification as a historical constant in the relationship between labor, technology and capital. As we have said, AI is not a matter of imitating human intelligence in the biological sense, but, as Pasquinelli argues, at the socio-organizational level. If we take the example of intelligent driving, the limits currently encountered stem from the realization that driving is a highly social and cooperative activity (Pasquinelli, 2023), just as the genealogy of modern computation is to be found more in the factories of the industrial age than in the science and naturalist philosophy contemporary with it. The history of technology is littered with such examples of the reification of a given spatio-temporal regime; we've already mentioned the cybernetic metaphor, but the telegraph was used as an analogy for the nervous system in the 19th century. Similarly, Taylorism, with its rigorous measurement of work execution time and movements with a view to segmentation and optimization, culminated a century later, and can well be studied as a spatio-temporal regime at the origin of a mode of production and organization described as "cinematic mode of production" (Pasquinelli, 2023, p. 5).

The technical tool reifying kinetic energy and gesture becomes, with the assembly line, the reification of a "synchronous organism" (Pasquinelli, 2023, p. 5) and its integral functioning. In this respect, however, AI is a more complex operation, in the sense that collective knowledge is commodified, converted into technique and thus into dead labor. Pasquinelli shows, for example, that the term "computer" was originally used in the 17th century to designate a person performing mathematical calculations before the advent of the calculating machine. For Pasquinelli, work and its organization constitute an algorithm before the (learning) algorithm, but its genesis is camouflaged by a mythical narrative about AI and an invisibilization of the work required for its operation. Radically deterministic approaches to this difficulty actually reinforce the mythical, monolithic character of AI as a "master of collective intelligence" (Pasquinelli, 2023, p. 12). On the contrary, it is the activity and living labor of workers that tends to be at the forefront of AI's success, and not just as passive subjects subject to harvesting.

To understand the emergence of AI, it is crucial to examine its socio--economic origins, beginning with Babbage's machine, as Pasquinelli points out. The division of labor arose from the need to reduce costs, and Babbage's machine was part of this effort, alongside Bentham's panopticon and the development of statistics. Babbage's machine embodied the collective intelligence and the socio-technical context of its time. In much the same way, modern generative AI, such as ChatGPT, is a product of the socio-technical landscape shaped by billions of digital interactions that disseminate knowledge. This often-overlooked history of the intersection between technology and labor also suffers from a kind of political amnesia, where the power of labor is hidden and the concept of "cognitive labor" is muddled. As Pasquinelli notes, Ricardian socialists like W. Thompson and T. Hodgskin saw knowledge as essential to even manual labor. They argued, in a surprisingly foresighted manner, that knowledge operates within an economy that defies the principles of scarcity, instead following a logic of abundance and growth—much like the data-driven economy of today. Both authors also argued that factories were designed to keep workers ignorant of the mechanisms that controlled the machines, suppressing the full po-

tential of their minds. This way, the products of their labor were taken from them through various means, essentially stripping workers of the fruits of their own work. In this context, knowledge became "an instrument capable of being detached from labor and opposed to it" (Pasquinelli, 2023, p. 86).

Both techno-determinists and techno-optimists make technology the driving force of the industrial age, rather than a medium between labor and capital, a factor in the same way as the collective intelligence of labor or the social relations it generates; for every machine interface with labor is at the same time a social relation "The machine is a social relation, not a thing" (Pasquinelli, 2023, p. 119), as is capital. In modern philosophy, mental activity has long been dominated by a dualist tradition that makes laborious, automatizable tasks a devalued affair in relation to noble, sanctuarized thought. While Italian operaism valorized the cognitive dimension of work in a salutary and visionary post-Fordist critique, pointing to the emergence of a now-familiar "knowledge economy", all work already had a cognitive component that had been ostracized even by Marx, who feared that this emphasis on cognitive work was the translation of bourgeois exaltation in favor of individual, creative genius, at the expense of collective effort. In Marx, the figure of the general intellect (*gesamtarbeiter*) replaces that of the romantic inventor, just as technological genesis is the fruit of a process of division of labor that materializes in more or less conscious forms. We shall now see how this general intellect is reified within new avatars in the age of cybernetics and, finally, Artificial Intelligence.

AI AS THE REIFICATION OF AN IDEAL OF SELF-ORGANIZATION

The cybernetic age is characterized by a mobilization of the concepts of autonomy and self-organization, which have influenced both military-industrial institutional culture and counterculture, in entirely opposing ways, according to Pasquinelli. In the cybernetic era, the general

worker becomes a super-organism that integrates both machine and human indiscriminately. Drawing on James Beniger's (1986) hypothesis, Pasquinelli attributes the emergence of cybernetics to the dynamics of industrial transformation that began at least with the American Westward expansion, which required a more fluid and abstract circulation of information. This is reflected in Shannon's mathematical theory of communication, which allows for the abstraction of a logical form from its informational content so that it can function independently of any external medium or context, in a homeostatic manner. It was also during this period that we see a semantic shift from the term intelligence to that of information, which is more quantitative, measurable, and reified, erasing the concepts of human and cognitive labor. Binary numbers were adopted because they could be integrated into electrical circuits, meeting the demands of such a pace of communication and labor automation.

According to Simondon, while the industrial era converts labor into energy, the cybernetic era converts labor into information, which is now synonymous with intelligence. This shift no longer represents the reification of the worker's gesture but rather the reification of the supervisor's control instructions. The industrial era creates a separation between mind and hand through the division of labor, which corresponds to a decoupling of energy and information, transforming them into quantifiable operations to measure intelligence. According to Pasquinelli, this quantitative measurement of intelligence in the form of psychometrics of work and social behaviors paves the way for Artificial Intelligence by reducing it to psychological and internalist concerns. This reification turns intelligence into a scientific object that can be measured statistically, anticipating the cybernetic metaphor of the brain-computer. In contrast to this narrative, Pasquinelli offers an externalist reading: the intelligent algorithm captures a snapshot of a spatio-temporal organization of work and social relationships, rather than directly imitating the self-organization of living beings.

For cyberneticians, autonomy holds a homeostatic value, representing balance and reorganization in response to external disruptions, in a passive, controlling, and conservative manner. In contrast, the counter-

cultural interpretation of autonomy draws from the ancient Greek meaning, where it is about the ability to create one's own rules. The project of Artificial Intelligence itself is caught in this tension between the need to govern social forces by encoding forms of social cooperation and the desire to create an autonomous intelligence in the emancipatory sense («making a mind versus modeling the brain» (H.L. Dreyfus & S.E. Dreyfus, 1991)). In reality, the recording of a world filled with power relations and social dynamics through the reifying filter of algorithms turns these relations into "real abstractions" (Sohn-Retel, 1970), regarded as immutable because they are detached from any trace of social construction.

The dialectic between the abstract and the concrete is a mode of knowledge that applies beyond just commodity form or the West, discussed by both Marx and Hayek. Abstraction is needed both to function and critique capitalism. Hayek, influenced by cybernetics, views the mind as a connectionist algorithm that abstracts and classifies, inspiring the development of the Perceptron algorithm. This algorithm mirrors Marxist Alfred Sohn-Retel's concept of «real abstraction,» but while commodity exchange creates the illusion of intrinsic value, the connectionist mind functions like a stock in continuous market exchange. The key difference is that real abstraction takes an externalist approach to history and economy, unlike Hayek's internalist view.

Neither the inductive nor deductive approaches of AI replicate human intelligence, which remains a social and contextual phenomenon. Instead, AI's performance in tasks like classification or visual recognition is more about external conventions, such as the meaning of an image or interpretation of a symbol, than about an internal formal logic. Big data represents an extension of the modeling of reality, recording social knowledge and collective techniques, which is then reprocessed and presented through AI's statistical lens, reinforcing social hierarchies.

Pasquinelli explains that from Babbage's analytical machine to Turing's computation, the design of computation follows the division of labor and carries a colonial subtext. This is reflected in modern algorithms, such as Google's PageRank and Facebook's Open Graph, which quan-

tify human relationships and reinforce social hierarchies. AI doesn't just automate work but rather its governance, automating management rather than manual labor. AI models are built on cultural and social data, automating collective intellect at a great cost, mostly fueled by a small group of actors. Pasquinelli argues that automation isn't just a technological issue but also a political and epistemological one, extracting knowledge and privatizing collective intelligence. He calls for dismantling the abstractions of AI to reveal the socio-economic roots beneath. While Babbage saw industrial management as the origin of automation, today's complexity of AI masks the labor and infrastructure that supports it. This is reminiscent of Canguilhem's warning about the degradation of science into ideology (1978), where the work and energy required for sophisticated AI are often ignored.

Finally, the image of fully automated, seamless platforms is misleading; they rely on constant user interactions, gig workers, and platform engineers. The history of platform infrastructure is an accumulation of small, opportunistic practices that capitalize on a «participatory» nature. The section also outlines how AI's depoliticizing and naturalizing function co-evolves with the naturalization of the mind, as explored in philosophy and cognitive sciences, and warns of AI potentially being positioned as a «natural» form of intelligence. The naturalization of AI often leads to forgetting its origins and the hidden labor behind its production, such as the «ghost work» or «micro-tasking» that underpins the platform economy

THE SHADOW WORK OF GHOST WORKERS AND MICRO-TASKERS

As we previously mentioned, hidden labor is involved in the development and operation of artificial intelligence (AI). It focuses on how certain tasks essential for AI, which are often perceived as automated, actually rely on human workers—referred to as «ghost workers.» These workers perform behind-the-scenes tasks that enable AI sys-

tems to function, such as content tagging, proofreading, model training, and data correction. The labor of these individuals, typically operating through platforms like Amazon Mechanical Turk or similar gig economy services, is invisible, undervalued, and largely unregulated.

Gray and Suri (2019) addresses the concept of a «ghost economy» that fuels AI, where the work of these laborers is not officially recognized or compensated according to traditional labor laws. This economy is growing rapidly, and at the time of writing, it was estimated that around 8% of American workers were involved in such invisible tasks. These workers are often part of an international workforce that spans countries in the Global South, as well as precarious workers in the Global North, contributing to the «invisibility» of their labor. The reliance on these workers is central to the functioning of modern AI systems, which are not as autonomous as they may appear but are instead dependent on human input to «train» and «teach» the systems.

This work often involves tasks like labeling data, correcting AI outputs, training models, or reviewing content. The workers performing these tasks are in a paradoxical situation where they are essential for AI's success but are often treated as interchangeable, invisible, and dispensable. The design of AI systems and platforms intentionally masks this human labor, creating the illusion that these systems operate autonomously, without human intervention. This illusion of «intelligent» automation is a deliberate strategy that conceals the human effort required to maintain and improve these systems.

The authors also discusses the power dynamics behind the «ghost economy,» where platforms such as Amazon Mechanical Turk, Microsoft UHRS, Google, Facebook, and others have created systems that automate much of their operations while exploiting human labor. These platforms set up mechanisms that dehumanize workers by treating them as interchangeable and anonymous «clients» selling their labor for minimal pay, without any direct accountability. For example, feedback from AI or human supervisors is minimal, and workers are penalized for errors, often without explanation. The workers' tasks are rated by algorithms or other humans, which contribute to their reputation

within the platform. However, platforms use these ratings to further exploit workers by promoting taskmasters (or «requesters») who hold power over the workers' access to tasks, often exploiting their vulnerability.

This «ghost work» is a crucial part of AI's development, but it remains largely invisible to the general public. The systems involved are opaque, and their complexity adds to the mystique of AI's supposed autonomy. The term «last mile» paradox is introduced, where, despite workers' efforts to train AI systems, human labor remains integral to the process of automating tasks. Platforms often promote the idea of a future where human labor is eliminated, but in reality, this just creates more demand for invisible labor that supports the AI system. Platforms uses strategies such as «minimal interaction» with users to obscure the power structures that are inherent in the technologies. The platforms often present themselves as neutral entities, with no responsibility for the content they host or the labor they exploit. However, this so-called neutrality is a deliberate illusion, and the real power dynamics behind these systems are hidden by design choices that favor certain stakeholders, typically those who benefit financially from exploiting human labor. The more these platforms appear natural or effortless, the more their harmful practices and the exploitation of workers are overlooked. These platforms are designed to seem like simple tools, yet their design conceals the deeply political nature of the work they facilitate and the way they maintain control over users and workers.

The «ghost work» phenomenon is not new. It traces its roots back to earlier forms of auxiliary labor that existed even in the 19th century in industries such as textile manufacturing. In these contexts, human labor was always a temporary, replaceable commodity that helped augment or maintain automated systems. The ghost work in AI is just the latest iteration of this historical trend, where technological advancements continually rely on human labor, even as they seek to replace it. The opacity of AI platforms rely on this labor but work to conceal it, creating the illusion of fully automated systems. These platforms exploit workers by reducing them to interchangeable, disposable entities while profiting from the «ghost work» that enables AI systems to func-

tion. This process is framed within the broader context of technological progress and the dehumanization of labor, drawing attention to the need to recognize and address the realities of labor exploitation in the digital age.

Behind the reifying illusion lie design directions, political intentions, epistemological decisions, and finally the material conditions for the production of AI that require invisible labor, also referred to as micro--task workers (Casilli, 2019). This labor sustains the idea of an intelligent and automated web, and the complexity of supervised algorithms has reached a point where it is no longer possible to understand them logically, but only retrospectively, which reinforces the belief in their autonomy at the expense of this subcontracting and human dependency. It is expected of the algorithm that it generates value in and of itself, emancipated from any trace of humanity, creating an illusion of naturalization that corresponds to «the concern specific to capitalism to self-legitimize as a self-generated system within which AI could play this nearly imperceptible role, like the 'invisible hand' of the 'self-regulating' market» (Favier-Baron, 2023a, p. 12)[V], as might be the case in fields like management, finance, or brokerage.

NATURALIZING AI

The project of the cognitive sciences is the naturalization of the mind, which itself has its origins in 18th-century psychology, and consists, as we have said, in making intelligence measurable and regular. Nevertheless, the discourse around AI often ignores the intentions and power structures behind its algorithms, masking the human mediation in the development process. AI is perceived as a natural, autonomous entity, obscuring its human origins and the political and economic choices

V "ce souci propre au capitalisme de s'auto-légitimer comme système auto-engendré au sein duquel l'IA pourrait jouer ce rôle quasi-imperceptible, telle la « main invisible » du marché « autorégulateur »".

behind its design. AI is often treated as a self-sufficient tool, distancing it from human action and making it seem objective and neutral, which, in turn, contributes to the depoliticization of its use. The portrayal of AI either as a superior, autonomous force or a neutral machine serves to distract from its inherent ideological biases and the power relations embedded in its design. Furthermore, AI contributes to the dream of self-regulation, removing human intervention and reinforcing liberal economic values that disregard socio-economic power dynamics. AI is conceptualized – as a naturalized, autonomous intelligence – which mirrors a broader trend in cognitive science and philosophy, where intelligence is treated as measurable and individualistic, ignoring its social and collective nature. This naturalization of AI risks extending to a broader naturalization of intelligence itself, reinforcing a model that obscures its social foundations.

The more AI is made to seem detached from human action, the more it serves as a tool for naturalization and depoliticization. The perceived technical independence of AI systems is then turned into a form of self-legitimacy, reinforcing the belief in the otherness attributed to AI in the narrative surrounding it. As a result, AI is used in various fields as a symbol of objectivity, discouraging the need for external regulation while removing any political critique of its existence :

> Artificial Intelligence is both naturalizing and depoliticizing. Firstly, because AI needs to deny its own artificiality in order to legitimize itself. Secondly, because this apparent neutralization of the human factor gives it an appearance of objectivity in the fields in which it is deployed (Favier-Baron, 2023b, p. 12)[VI].

The deployment of Artificial Intelligence is consistently framed in a way that denies its economic and energy costs, as well as the political intentions behind its design. AI is not only presented as a product of

VI"L'Intelligence Artificielle procède d'une double action à la fois naturalisante et dépolitisante. D'abord parce que l'IA a besoin de nier sa propre artificialité pour se légitimer. Ensuite parce que cette apparente neutralisation du facteur humain lui confère un semblant d'objectivité dans les domaines où elle est déployée".

autonomous cognitive abilities, but also as a commodification that hides the collective work of programmers, taskers, analysts, engineers, and users, reified into a monolithic, uniform system. Additionally, AI serves as a Trojan horse for political agendas and arbitrary decisions, disguised as technical self-sufficiency. So it is up to us to "no longer consider AIs as creative machines (symbolically detached from material contingencies) but as stages of production" (Masure, 2023, p. 93)[VII]. AIs must first and foremost appear as the fruit of work, i.e. the recognition of an effort, a work and "a system of relations between men and between men and things" (Canguilhem, 2009, p. 35)[VIII]. Otherwise, the belief in dealing with AI as an autonomous entity makes it a real abstraction: "These inform and dominate a certain relationship, dictate a way in which we relate to things. They are abstractions that nevertheless govern us by exerting a power of fascination" (Favier-Baron, 2023b, p. 13)[IX].

The ambiguity of the role of scientific modeling, as described by Dupuy (2005), sheds light on the case of AI. The model represents both an alteration and an invention (Simondon, 2012) in relation to the real, which it models imperfectly, but which imposes itself as the real to be imitated in a way similar to Baudrillard's hyperreality or Marx's real abstraction. In fact, simulation is at the same time a form of deterioration, of degradation in relation to the real, which is redoubled in the case of AI, which is already a simulation of our ability to simulate. So, as its name suggests, real abstraction derives its legitimacy from a subtle dialectical tension between an inexorably abstract nature and a constant effort to embody itself in concrete form, as the abstract model surreptitiously becomes an overhanging Platonic model.

As we have seen, Artificial Intelligence is not about imitating human intelligence. Neural networks are not a physiological or neurological model, as they simplify the complex operations of the nervous system

VII "ne plus envisager les IA comme des machines de création (détachées symboliquement des contingences matérielles) mais comme des étapes de production".
VIII "un système de rapports des hommes entre eux et des hommes aux choses".
IX "Celles-ci informent et dominent une certaine relation, dictent une façon dont nous nous rapportons aux choses. Ce sont des abstractions qui nous gouvernent en exerçant un pouvoir de fascination".

into electrical impulses. The formal neuron abstraction is more about making the system manipulable and instrumental rather than mimicking biological processes. The focus on the numerical aspects of neural activity obscures the underlying physical arrangement that determines the firing process. The resulting signal is mistaken for a rule, but it is actually a temporary, incomplete result that doesn't inherently exist, representing only an abstract moment influenced by the underlying organic conditions. In summary, there is a confusion between automation and autonomy, where technical formats overlap with human concepts. Technologies treat signs as various types of data (e.g., speech flow, visual reasoning, editorial expression, traces, social media interactions) for industrial use. The history of AI and cybernetics reflects a long intellectual struggle over defining cognition and intelligence, which has been overshadowed by the naturalization of AI. As AI advances, the definition of intelligence is reshaped, with an emphasis on visual recognition being elevated as the benchmark for intelligence, to the detriment of other, more complex cognitive aspects like self-awareness, mental states, and representation.

CONCLUSION

AI, while often presented as a neutral, self-sufficient technology, is in fact built on a model that abstracts and simplifies human intelligence, reducing its complexity to something that can be replicated and controlled. This process of simplification involves both technical and political choices that mask the true underlying human labor and power structures involved in AI development. AI, through algorithms and predictive models, can obscure the social, economic, and political factors that influence its outcomes, creating an illusion of objectivity and autonomy. For example, police prediction algorithms may predict crime without considering the social causes, thus reinforcing biased assumptions. This leads to a form of «naturalization» of these results, giving them an unwarranted epistemic authority that depoliticizes the underlying political choices. AI, therefore, is not a true imitation of human

intelligence but an abstraction shaped by industrial, logistical, and political needs, often reinforcing power structures and creating new forms of control.

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