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Intelligent Specters: The Subject in the Age of AI

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> Once more, a specter is haunting us — the specter of intelligence.
> Artificially, it returns, awakened from the bowels of industry.
> The capitalists have seized its power;
> against us turned its devilish force.
> Against specters, only one solution:
> Exorcism!

Deep generative models such as ChatGPT or DeepSeek—the latest artifacts in the long history of digital automation—have, without much doubt, already implanted their roots within the soil of our culture. Artificial Intelligence (AI) has started altering labor and production, discourses and images, knowledge and power. Chat interfaces, image generators, and reasoning engines are no longer confined to the ivory towers of academia but established instruments of everyday life. As such, they evoke both anxiety and admiration, prudence and praise.

Modern writers fear for their place in the productive apparatus. Soon, they say, they will be out of work. Artists condemn these tools as instruments of intellectual theft. The machine, they claim, merely imitates their creativity by copying the product of their labor. Scientists, for their part, are adamant. The model is, all in all, a syntactic artifice masquerading as human intellect: an algorithm extensively trained on a body of data to predict the next word, pixel, or inference.

At the same time, corporate evangelists and advocates of digital automation confer upon these technologies a semi-mystical character. Celebrated for their capacity to emancipate workers from time-consuming labor, generative models are promised to soon bring about a post-labor society. What is more, they claim, we may very well be witnessing the dawn of a new kind of being: a general intelligence—conscious, creative, and purposeful—in short, a digital subject with post-human capacities.

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Such is the now widespread representation of AIs that permeates our culture, ranging from weak metaphorical statements by industrial technocrats to strong ontological claims from a part of the philosophical community.

Of course, grouping these systems under the vague umbrella term "Artificial Intelligence" is not innocent. The noun "Intelligence" extends beyond mere nomenclature. It implies, often unconsciously, the *a priori* existence of autonomous entities with independent thought, intrinsic cognitive agencies and consciousness: intelligent specters. The modifier "Artificial" acts only as the fading trace of its human origins—a ghostly reminder that we, in fact, face a machine.

In his recent work, *The Eye of the Master: A Social History of Artificial Intelligence*, Pasquinelli (2023) characterizes the "dominant view" of AI as "the quest 'to solve intelligence'—a solution supposedly to be found in the secret logic of the mind or in the deep physiology of the brain, such as in its complex neural networks" (2). The *mind-brain myth*, that is, the widespread fetishization of AI as a thinking entity, symptomatically describes the metamorphosis of algorithmic processes into conscious forms. It not only captures the modern cultural representation of generative models as singular functional subjects endowed with agency—a characteristic previously restricted to the human condition, but also the naturalist conception of AIs as reproducing the human brain, whether in its structure or functions.

Throughout his book, Pasquinelli aims to demystify this perception by showing that "the inner code of AI is constituted not by the imitation of biological intelligence but by the intelligence of labor and social relations" (2). The appeal to individual biological and cognitive functions as constitutive of technology along with the recent assignment of qualities such as creativity and autonomy to AI, he argues, obscures the underlying conditions of knowledge production. Instead, according to him, "AI is a project to capture the knowledge expressed through individual and collective behaviors and encode it into algorithmic models to automate the most diverse tasks" (2).

Unsurprisingly, Pasquinelli's journey begins not in the high towers of academic institutions, nor in engineering laboratories of large corporations, but in the lowly workshops and factories of early industrial England. There, he finds the social relations necessary to produce advanced computing devices. Far from emerging from the projection of individual

intellectual abilities, according to him, modern computers are rooted in the collective labor organization of factories. Pasquinelli argues that the "idea of the automatic computer, in the contemporary sense, emerged out of the project to mechanize the mental labor of clerks rather than the old alchemic dream of building thinking automata" (52).

The emergence and organization of computing as a form of wage labor followed developments comparable to other spheres of production. The systematic division of clerical labor into simple procedural computational tasks provided the condition for their mechanical automation. Hence, Pasquinelli concludes that "as an expression of the division of labor, computation watched over the unfolding of industrial capitalism from its very outset, rather than being a product of its latest developments" (54).

Pasquinelli's assessment provides the necessary first step toward a materialist critique of Artificial Intelligence. He manages to deconstruct the *mind-brain myth* by situating modern computers within their social relations of production. Nevertheless, his analysis remains insufficient to problematize both its emergence and its cultural dominance. If AI is at its core an apparatus for the abstraction and automation of socially produced knowledge, then what mechanisms sustain its representation as an autonomous and quasi-cognitive entity? Or, to phrase it differently: What are the specific circumstances under which the specters of intelligence arise?

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Contemporary approaches to AI largely fail to address this problem. In fact, rather than critically engaging with the conditions under which the *mind-brain myth* emerges, both academic disciplines and leftist commentaries often collapse within the very representation they ought to interrogate. Accordingly, we argue that addressing this problem is essential to provide the basis for an encompassing materialist understanding of contemporary technological developments.

The failure is particularly noticeable in the broadly defined field of Ethics of AI. The field emerged as a response to growing skepticism and dissent as AI-based tools permeated labor. Serving as a mechanism of reassurance, Ethics of AI is now central to private industry and academic institutions. There, rather than problematizing the social conditions that sustain AI's representation as an autonomous and sentient entity, ethical debates tend to combine topics such as the rise of super-

intelligence, the theft of intellectual property, and the lack of legal accountability.

In the movie *I, Robot*, released over twenty years ago, Will Smith and his humanoid robot companion Sonny confront VIKI, an omniscient artificial system determined to save humanity from itself—even against its will. While such cultural images exaggerate AI's sentience to near-divine proportions, they are informative of some core research directions in Ethics of AI. The agenda is set by disputes about mitigating the risks of recursive self-improvement—digital systems modifying their code base—and the threats of a potentially misaligned Artificial General Intelligence, a kind of AI that could outperform humans in all areas.

Furthermore, the problem of treating AI as a legally accountable agent arises when discussing copyright infringement in the context of digital art production or its potentially fatal applications within medical practice. A similar logic of subjectification reappears in ethical discourses surrounding the use of AI in warfare. In that case, the moral focus shifts subtly: War crimes become technical deficiencies; the killing of civilians appears as a mere statistical failure rather than the consequence of political conflicts.

Overall, one thing should be clear: Ethics of AI displaces responsibility away from social, cultural, or political institutions towards the mythologized figure of an intelligent algorithm. Unable to interrogate its own epistemological assumptions, the field reproduces the myth of AI's supposed autonomy. Instead of challenging it, Ethics of AI contributes to the spreading of this view and becomes a prime example of how current approaches treat generative models as agentive entities.

A more political and critical approach to AI—rather than one aimed at pacification—might be expected from the political left, whatever interpretation one may give to that term. However, a closer look reveals that it has generally struggled to articulate a consistent analysis of these technological developments in line with materialist critiques of capitalism. Broadly speaking, two dominant voices have shaped the debate.

The first one portrays AI as an inherently bourgeois instrument of domination. It is understood as a technology of power, mobilized for extensive individual surveillance, labor control, and labor appropriation. The critique highlights real dangers. Yet, it tends to overemphasize corporate power and technological determinism, often culminating in abstract warnings of mass alienation, social oppression, and super-exploitation.

Paradoxically, such narratives have contributed to reinforcing the myth framing AI as an autonomous, almost sentient force. Rather than engaging with the concrete social conditions of its emergence, these approaches construct a synthetic demonized abstraction—often drawing from the same dystopian imagery invoked by liberal anxieties. Accordingly, this position runs the risk of becoming a mere radicalized version of Ethics of AI.

In contrast, the second position treats AI as a neutral technological apparatus that could, in theory, be seized by the working class and repurposed for collective emancipation. This attitude, rooted in techno-optimism and material expansionism, postulates the neutral origins of technology. It thereby disregards the capitalist mode of production as a condition of AI's emergence, function, and use.

By overlooking the social relations within which technological development is embedded, the position buys into liberal myths of progress and innovation. The result is nothing less than the depoliticization of AI. The technological apparatus is fetishized as a mere enhancement of productive forces rather than treated as a historically specific form of knowledge and power affecting the context within which current political struggles occur.

To counter such techno-progressivism, recent developments in Science and Technologies Studies have highlighted how computing devices are embedded within a complex network of collective organization, knowledge production, and computing practice. As Pasquinelli's project illustrates, far from reflecting a form of isolated, academic, abstract or neutral knowledge, the mechanization of computational tasks into its modern form, the computer, finds its expression in the social division of labor unique to the industrial era.

Critical investigations like these are necessary to challenge the neutral image of computational technologies. Such studies reveal the connection between the early forms of computers and the 19th century's socio-economic conditions. Nevertheless, they tend to struggle to capture the rather important cultural shift in the perception of recent technology: the *mind-brain myth*.

In their recently published book *Why We Fear AI: On the Interpretation of Nightmares,* Blix and Glimmer (2025) attempt to address the cultural anxiety surrounding Artificial Intelligence. The authors argue that our unease with generative models stem from the fact that "AIs are tools that embody the power of capital" (99). Accordingly, the "speculations about future 'superintelligent AIs' are often, really, speculations

about AI models as capital" (9). Following their remark, one is not scared of AI as a technological object per se. Instead, one fears the exploitative and alienating form it assumes as an instrument of production embodying a determined function in capitalism.

Blix's and Glimmer's argument is convincing. Still, it fails to capture the specificities of AI's current cultural representation onto which we project our fears. In treating the machine learning algorithms merely as the latest in a series of machines, the authors overlook the emergence of AI as a subject-like, quasi-autonomous entity. After all, many machines have been feared for their exploitative power under capitalist production, yet very few for their sentience.

Due to the collective failure to properly demystify AI, we thus propose a different approach, aimed at interrogating the conditions under which it comes to be perceived as an autonomous, sentient entity. We build on Marx's conceptualization of machines and illustrate how such an analysis may help emancipate us from AI's fetishized image. Thereby, we do not merely aim to resurrect the old specter that once haunted Europe (and beyond). Instead, we confront the old specter with the new specters of intelligence to reexamine and interrogate its significance in the contemporary form of digital production.

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"It is questionable if all the mechanical inventions yet made have lightened the day's toil of any human being not fed by other people's labor." In this way, Marx (2024, 314) suggests specifying John Stuart Mill's observation quoted at the beginning of the 13th chapter on "Machinery and Large-Scale Industry" of *Capital*. According to Marx, the increase in productivity under industrial capitalism is not motivated by the aim of enabling more free time for workers. Instead, increased efficiency in commodity production allows capitalists to secure temporary extra profits on the market. Consequently, as the production of goods necessary for the reproduction of daily life is automated, the wage costs of maintaining the workforce drop, leading to what Marx identifies as the increase of relative surplus value. In other words, the means of production are developed to increase the exploitation of the many by the few.

In both this chapter of *Capital* and in the "Fragment on Machines" in the *Grundrisse*, Marx closely analyzes the transition from tools to machines, illustrating one inherent feature of capitalist production: the continuous drive for the transformation of the production process. He systematically shows how machines as instruments of labor do not

emerge in isolation but are embedded within the social division of labor of their period. They result from the mechanical automation of tasks decomposed into simplified operations under manufacturing. Thus, technological development cannot be taken as the unfolding of a one-dimensional or neutral process of progress. Instead, it occurs within specific social relations.

With increasing mechanical automation, workers are systematically dispossessed of their knowledge, expertise, and practical skills. Their capacities are externalized, objectified, and ultimately turned against them. As Marx writes:

> In large-scale industry driven by machines, the intellectual faculties involved in the production process become completely separated from manual labor, [...] and now these faculties are fully transformed into powers that capital uses to control labor. (Marx 2024, 391)

The confrontation of workers with the machine breeds a novel form of alienation: They are estranged not only from the products of their labor but also from the very capacities that once defined their role in production.

Although Marx analyzed industrial England in the 19th century, the insights from his critique of machinery under industrial capitalism remain essential for understanding the unfolding of contemporary technological developments. After all, generative models can also be described as machines—though of a particular kind. In a certain sense, they are only the most recent development of productive forces, as Blix and Glimmer argue in their work. Indeed, so long as it remains under capitalist ownership, AI is an instrument of labor deployed to extract surplus value in the production process.

Nevertheless, there is a shift in the way AI is perceived. No longer portrayed merely as a technical apparatus, it is ascribed a distinct, quasi-transcendent character. Once set in motion, it appears to follow an autonomous trajectory beyond human control. To illustrate, consider the following situation: A factory worker gets hurt by a machine. The immediate response is the machine's inspection, redesign, and ultimately, disposal to prevent further harm. By contrast, when ChatGPT produces erroneous or misleading information, the prevailing reaction is not to demand changes to its underlying architecture. Instead, we try to specify the input, provide more hints, or train it as we would with children or subordinates. Because contemporary models operate as

black-box systems, obscuring both their inner workings and their conditions of production, we accept their autonomy as artifacts relatively independent of human intervention.

The qualitative difference in our relation to these two kinds of instruments is exemplified by the way we represent them. Classical machines are represented as engineered tools—designed, supervised, and modifiable, overall, within human control. In contrast, AI is increasingly positioned as an autonomous agent, operating according to its own logic and thus perceived as beyond the scope of human production.

Such an important alteration should not be dismissed as the mere arbitrariness of cultural representations or ideology. It is both a condition and an effect of our practical relations to instruments of labor. For Marx, the relative position of tools and machines within the production process is integral to grasping their distinction. It is the defining feature of his critical notion of machinery. What makes a machine, according to Marx (2024), are not its material properties but its specific socio-historical role in production:

> In the manufacturing workshop and in craft labor, tools serve the worker; in the factory, the worker serves the machine. In one case, he moves the means of labor; in the other, his job is to follow their movement. (Marx 2024, 390)

In other words, while tools extend human labor, machines increasingly substitute physical labor.

In that light, because we relate differently to generative models than to previous machines, generative models cannot be seamlessly diagnosed through Marx's notion of machinery. Consequently, we argue a new analytical distinction is necessary to analyze our current relation with AI. On the one hand, we propose to refine Marx's notion of machinery as *industrial machines*. On the other hand, because AI embodies a qualitative transformation of productive relations—potentially as significant as the historical shift from manual, hand-operated looms to mechanized, automatic looms—we refer to machines of this kind as, for lack of a non-fetishized language, *intelligent machines*.

Accordingly, investigating cultural representations of instruments of labor becomes crucial as they are part of the way we relate to technology. Marx (2024) already captured the almost animate qualities ascribed to the assembly of industrial machines in the factories of his time. He described the "organized system of working machines" as

> a mechanical monster whose body fills an entire factory building and whose demonic power, obscured at first by the measured, almost solemn movements of its gigantic parts, is now on display in the wild, whirling, feverish dance of its countless working organs. (Marx 2024, 351)

Marx metaphorically illustrated the overwhelming scale and force of industrial automation. The representation of the factories' interior as organic bodies—biologically complex assemblies of codependent organs—is common throughout the Industrial Revolution. Owing to their role as substitutes for physical labor, *industrial machines* are represented through physiology and anatomy, motive force and movement. In this sense, *industrial machines*, no matter how imposing, were still portrayed as designed, maintained, and modifiable by human engineers. They were not assigned any consciousness or autonomous agency.

When Pasquinelli takes upon the task of dismantling the well-known Analytical Engine devised by Charles Babbage, a conceptual device said to be programmable and designed to compute simple arithmetical operations, Pasquinelli observes that the machine reflects the social organization of computing practices at the time. As the crystallization of collective computational labor, the early computing machine assumed the role of human computers in charge of performing tedious calculations. Similarly to Marx's analysis of *industrial machines*, the social division of labor in the capitalist production process, namely, the organization of labor into distributed units of work, formed the material conditions for the development of computing machines. Pasquinelli extends the 13th chapter of *Capital* to machines designed for computational tasks.

At the time, Babbage's Analytical Engine was not imbued with subjective qualities. The machine, however powerful it would have been, was still only embraced through animate, but non-sentient representations. Although it was designed to perform calculations, it did not have the necessary qualities to be an *intelligent machine*. Consequently, we argue that the shift from the producing character to the computational character of the machine is not responsible for introducing the *mind-brain myth*.

To understand this paradox, it is crucial to consider the social structure of computational labor in the 19th century. Babbage's Analytical Engine was supposed to automatize labor performed by a class of "unskilled" workers. According to Pasquinelli, their contribution was not considered on par with the contribution of workers in other spheres of knowledge production. While craftsmanship and academic work were intellectual labor in as much as they were "freed from the degradation

of the division of labor and imbued with creative and innovative instincts" (82), the algorithmic methods of clerks were treated as the simplest, unitary, form of computational processes. Such work "could therefore be automated because it was a task of the working class and not one to be regarded as 'thinking' proper" (59).

As a result, when machines enter the production process, they do not simply serve the automation of labor. They materialize it in a specific form. It is the kind of labor they replace, we conclude, that shapes their cultural perception.

In the context of industrial automation, machines mostly replace manual, repetitive labor performed by "unskilled" workers, whether it be computational or physical. In the labor process, workers form what Marx (2024, 390) described as the "living appendages" of the instrument of labor. Because a worker's labor is not culturally associated with intellect or creativity, the machines that perform that labor are not associated with intelligence or autonomy. Accordingly, the fetishization of *industrial machines* never went beyond biological analogies.

By contrast, AI automates, among other things, tasks traditionally associated with "skilled" intellectual workers—writers, researchers, and artists. In short, professions that the bourgeoisie has historically linked to its own identity as rational, reflective, and creative. When these forms of labor become automated, the machines are imagined as possessing those very traits. They become *intelligent machines*.

In summary, we argue that the bourgeois intellectual class identifies itself with the work that AI replaces and thereby projects its self-subjectification onto the machines. As a result, the *mind-brain myth* prevails. It is not the sudden burst of supposed creativity or consciousness that turns a computational machine into an *intelligent machine* but the social function of the labor it reproduces. The mystified perception of AIs arises from their embedding within specific social relations of production, obscuring their nature as intelligent specters.

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If our fear of *intelligent machines* is dictated by their position as reified capital, as Blix and Glimmer have it, then our only solace is collective organization and democratic control over the means of production. When AI is reappropriated by the working class, its power to confront us as capital collapses. However, following Pasquinelli's argument, current AIs cannot just be taken over into new social relations. They

emerged from and function within the very specific social division of labor of modern capitalism. We not only have to reappropriate those algorithms but also transform them.

The challenges raised by AI can only be addressed through collective struggle and the overcoming of capitalist relations of production. As such, the politicization of the newest technological developments must be part of the organizing effort. Because of AI's specific position within the labor process as an *intelligent machine*, now more than ever we must interrogate the transformations AI may bring to class structure, labor relations, and political struggles.

The introduction of *intelligent machines* can be expected to enforce the development of an increasingly two-pronged proletariat. Besides the traditional industrial working class, an ever-growing number of white-collar workers will be thrown into the proletariat. The automation of service labor, from clerical work to customer support, now brings about a fate for the service workers similar to the fate of craftsmen and artisans during industrialization. Service workers are transformed into an army of unskilled factory workers. With the continuous automation of their practices, we can expect a homogenization of their labor conditions, experiences, and perspectives.

At the same time, although its limits remain uncertain, the automation of the service industry might severely challenge the mechanisms for capital accumulation. In post-industrial Western economies, the expansion of labor-intensive service industries has helped mitigate the falling rate of profit as posited by Marx. This expansion maintained a high share of wages relative to invested capital, thereby sustaining what Marx regarded as the sole source of surplus value. With the large-scale deployment of *intelligent machines*, this social contradiction of capitalist accumulation may again reappear: While productive forces increase, the generation of profit declines, exacerbating social divisions and providing the ground for more brutal forms of surplus extraction and the destruction of values.

Finally, the substitution of manual labor by *industrial machines* gave rise to a new conception of subjectivity: the bourgeois standards of purposeful agency, whose social condition was not defined by physical labor. In other words, with industrialization, the subject embodied as the individual, freed from the hardships of mechanical labor, was realized through the ideal of rationality as independent, imaginative, and innovative thinking. With the potential substitution of intellectual labor

by *intelligent machines*, subjectivity is once more problematized. Bourgeois self-identification is suspended as it struggles to recover its foundations.

As the specters of intelligence are haunting our societies, the undead concept of the subject once more becomes a site of political confrontation.

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Biographies

Damian Moosbrugger and **Adrien Dürst** share an interest in Marxist approaches to science and technology. Amongst other things, they are organizing reading groups on Marx's *Capital* in Zurich.