



## Artificial intelligence and the reproduction of inequality: The role of algorithmic bias in social class imaginaries

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### Abstract

The expansion of artificial intelligence has intensified debates concerning its social consequences, yet prevailing perspectives often assume algorithmic neutrality. Existing research insufficiently theorizes how digital infrastructures reproduce class-based inequalities, particularly within education, labor markets, and access to financial resources. Addressing this gap, the present study develops a critical framework grounded in Pierre Bourdieu's concepts of reproduction and habitus, integrating insights from digital sociology to interrogate the structural effects of algorithmic systems. Employing document analysis and theoretical critique, the study examines how technological determinism obscures the translation of cultural, historical, and economic capital into computational processes. The findings suggest that artificial intelligence does not function as a neutral arbiter but rather consolidates existing power relations by embedding class-based preconceptions into digital decision-making. This dynamic risks crystallizing social stratification into what may be conceptualized as a digital caste system, thereby constraining social mobility and undermining democratic publicness. The study concludes that overcoming the crisis of legitimacy surrounding algorithmic governance requires abandoning the illusion of neutrality and advancing a data justice framework capable of monitoring and transforming the class consequences of algorithmic rule.

**Keywords:** Algorithmic governance; data justice; digital inequality; habitus; social reproduction.

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## 1. INTRODUCTION

In the digital transformation process of modern society, artificial intelligence (AI) and machine learning systems are described as rational, unbiased, and efficiency-oriented "technological arbiters" that cleanse decision-making stages of human subjectivity and the cognitive errors it brings. This optimistic discourse of technological determinism, based on the assumption that algorithms offer pure mathematical clarity, suggests that these systems operate on a ground of ontological neutrality, beyond social hierarchies (Gillespie et al., 2014). However, current discussions in digital sociology show that algorithms are not built in a social vacuum; rather, they are built at the very heart of historical injustices, economic asymmetries, and cultural preconceptions (Carter & Dale, 2025). In this context, an algorithm is not merely a technical code sequence, but a political subject that, in Bourdieu's (2006) definition, reproduces and legitimizes "the classifications of the classifier" in the digital world.

The regulatory mechanism of artificial intelligence systems is, by its very nature, based on past data. Data, while reflecting social reality, also contains the class stratification, racial prejudices, and gender-based inequalities of the past (Noble, 2018). Recent sociological and ethics research demonstrates that when AI systems are trained on biased historical datasets, they replicate and amplify inequalities across domains such as healthcare, hiring, and criminal justice (Hussain et al., 2025). Therefore, when algorithms are trained on this "dirty data," they not only replicate existing inequalities but also render them impervious to debate by framing them as mathematical necessities. This causes algorithmic systems to function not as tools for constructing social justice, but as "social class engineers" that reinforce the status quo (O'Neil, 2017).

### 1.1. Purpose of study

The study adopts a qualitative analysis method that combines Pierre Bourdieu's concepts of "reproduction" and "habitus" with the possibilities of digital sociology to provide theoretical depth. Based on a critical literature review and theoretical analysis, this research analyzes the effects of technological infrastructures on social mobilization through fundamental areas such as education, the labor market, and access to financial resources. Work on perceptions of fairness in algorithmic decision-making further shows that differential outcomes across social groups can shape user trust and social acceptance of AI systems, reinforcing existing structural biases (Overbye-Thompson & Rice, 2025). This methodological approach followed in the study questions the view of data neutrality. This study aims to present, within a theoretical framework, the digital barriers erected in front of social class imaginaries in the age of artificial intelligence, and the risk of a 'digital caste system' inherent in this context.

## 2. MATERIALS AND METHODS

This study employed a qualitative research design grounded in document analysis and critical theoretical inquiry to examine the class-reproductive dynamics of artificial intelligence systems. Drawing primarily on the sociological framework of Pierre Bourdieu, particularly his concepts of habitus, capital, field, and symbolic violence, the research integrated interdisciplinary scholarship from digital sociology, critical data studies, and algorithmic governance literature. The materials analyzed consisted of peer-reviewed journal articles, foundational theoretical texts, policy-oriented reports, and contemporary empirical studies addressing algorithmic bias in education, labor markets, and financial systems. Through systematic thematic analysis and interpretive synthesis, the study examined how historical inequalities embedded in datasets are translated into computational models, and how technological determinist narratives obscure the conversion of cultural, economic, and social capital into algorithmic scoring mechanisms. The analytical procedure focused on identifying recurring patterns of class-based stratification across domains, interrogating the myth of algorithmic neutrality, and conceptualizing the emergence of a digital caste structure within contemporary regimes of data-driven governance.

### **3. RESULTS**

#### **3.1. Digital habitus and the algorithmic transformation of forms of capital**

Understanding how artificial intelligence systems reproduce social inequalities requires understanding the sociological foundation upon which these systems are built. Bourdieu's (2006) trilogy of habitus, capital, and field provides important analytical tools for deciphering the algorithmic order in the digitalization process. However, today these concepts have transcended physical space and permeated digital codes and datasets.

##### **3.1.1. Digital habitus: class traces in datasets**

According to Bourdieu's approach, habitus is a system of internalized and enduring tendencies shaped by an individual's social status. With the stages of digitalization, this concept has transformed into "Digital Habitus," defining an individual's meaning of existence in the online world (Ragnedda, 2017). An individual's search habits and memorized language usage on the internet, their interaction patterns on social networks, and even their speed of access to digital tools are actually manifestations of their socio-economic background. While algorithms accumulate these practices as raw data, they actually record an individual's class habitus. For example, a low socio-economic status individual's limited data consumption or distance from certain digital platforms may be read by the algorithm as an indicator of "insufficiency" or "risk." This situation causes habitus to become a digital stigma, further sharpening class boundaries (Ignatow and Robinson, 2017).

##### **3.1.2. Capital transformation: from cultural accumulation to algorithmic scoring**

Bourdieu defines capital not as an economic asset, but rather as a cultural, social, and symbolic dimension that is, as a person's "trump cards" in society. In the age of artificial intelligence, these types of capital are being transformed into "Data Capital" through massive data mining operations (Couldry and Mejias, 2019). A person's cultural capital (e.g., level of education or use of prestigious languages) is scanned by algorithms on platforms like LinkedIn and turned into a "suitability score." However, this transformation phase is not neutral. The habitus of those who design the algorithms and create the datasets (usually upper-middle class, technocratic, and Western-centric) determines the "ideal data profile." As a result, the life practices and types of knowledge possessed by the lower classes lose their value in this new capital market, while the habitus of the dominant classes is accepted as the "standard" and rewarded.

##### **3.1.3. Technological manifestation of symbolic violence: algorithmic legitimacy**

One of Bourdieu's most striking concepts, symbolic violence, refers to the perception and acceptance of domination as "natural" and "inevitable" by the oppressed. Algorithms represent the most modern and masked form of this violence. When an artificial intelligence model rejects a bank loan application or a job application, it justifies this decision through "objective data" and "complex mathematical modeling." The individual is deprived of the ability to question the underlying class biases (e.g., neighborhood-based discrimination or school prestige-based scoring) because the system operates like a "black box" (O'Neil, 2017). This leads to the acceptance of class inequality as a "mathematical fate," legitimizing the reproduction of inequality through technological governance, beyond a pedagogical action in the Bourdieuan sense.

##### **3.1.4. The digital space struggle and algorithmic governance**

Social spheres such as education, law, and economics arenas of struggle where actors take strategic steps with the capital they possess. However, today these have given way to 'algorithmic operational fields'. As Rouvroy (2013) puts it, 'algorithmic governance' fundamentally changes the rules of the game. Now, success or merit is a reflection of the statistical projection that the algorithm constructs on that individual, rather than individual effort. These projections become digital chambers that trap the individual in the data of their past. If the algorithm has 'memorized' the past unsuccessful experiences of similar profiles, the system makes the new actor accept this fate beforehand. As a result, the path of social mobilization that enables class mobility is blocked by digital determinism, and social fluidity is somewhat stifled.

### **3.2. Class mechanisms of algorithmic bias: digital frontiers of social mobilization**

The class barriers established theoretically by algorithmic systems go beyond being mere abstract sequences of code; they become entrenched in vital areas that determine a person's social position, such as education, employment, and access to financial resources. At this stage, artificial intelligence not only processes existing data but also, in a Bourdieuan sense, intervenes in the system's rules, acting as a social class engineer.

#### **3.2.1. *Inequality of opportunity in education: digital pedagogical filtering***

While education is traditionally seen as the driving force behind class mobility in sociology, AI-powered educational technologies (EdTech) are transforming this process into a filtering system. Today, prediction methods used in university admissions or scholarship allocation processes accept not only a student's grades but also various data related to their habitus (postal code, family income, parental education level) as input (Eubanks, 2018). For example, extracurricular activities or outstanding projects a student participated in during high school are actually an output of their cultural capital. When the algorithm codes this data as "high potential," it is actually rewarding class privilege, not individual intelligence. Conversely, gaps in the datasets of students living in low socio-economic areas are interpreted by the algorithm as a risk of failure, and these students are eliminated at the initial stage. This situation transforms the field of education into a class-based filtering center, registering poverty as a technical inadequacy.

#### **3.2.2. *Algorithmic habitus and the "cultural fit" filter in the labor market***

Modern recruitment processes favor Automated Candidate Tracking Systems (ATS), which score applicants not only based on their technical skills but also on a vague criterion called "cultural fit." Here, "cultural fit" is essentially a redefinition of the dominant classes' habitus through the language of algorithms (Longworth, 2021). When algorithms are shaped by data records of existing "successful" employees, they consider their speaking style, hobbies, affiliations, and even the word choices they use in their resumes as the "ideal profile." A candidate from a lower class, even if technically proficient, will be penalized with a "low score" and rejected by the algorithm if they lack the linguistic and cultural codes (code-shifting ability) of the upper-middle class. This is Bourdieu's concept of symbolic violence reflected in the digital realm: the candidate cannot even understand why they were eliminated, because the algorithm legitimizes this discrimination by disguising it as "productivity analysis" and "objective matching." Thus, the labor market transforms into a digital caste system, a closed circuit that protects the privileges of certain classes.

#### **3.2.3. *Financial resources and "digital redlining."***

The financial markets are the arena where algorithmic class engineering is experienced in its most extreme and destructive form. Artificial intelligence systems, going beyond traditional credit scoring systems, can consider an individual's consumption trends and habits, the economic status of their friends on social networks, and even their internet browsing speed as indicators of "reliability" (O'Neil, 2017). "This situation brings with it discussions of digital redlining, which transforms poverty from a fate into a technical 'risk factor'." Living in a poor neighborhood or interacting digitally with people in similar socio-economic conditions is a significant reason for the algorithm to lower a person's credit score. This is a case of the class habitus from which a person comes, mortgaging their future economic freedom. Because financial algorithms present past inequalities as "future projections," they also demonstrate how impossible it is for lower classes to access capital, one of the most important tools of class mobilization.

#### **3.2.4. *Algorithmic governance and the collapse of the myth of ontological neutrality***

Algorithmic interventions in all these areas are pushed outside the realm of social debate on the grounds of information-based rationality. Yet data is a frozen form of social struggle and historical inequalities. When algorithms use this data, instead of performing an impartial mathematical operation, they transform into political instruments that affirm and legitimize existing power relations (Zuboff, 2023). Algorithmic governance condemns the individual to the fate of the "statistical group" to which they belong, regardless of their own actions. Thus, the individual loses control over their own life while viewing hierarchy as a technological destiny.

In other words, artificial intelligence, rather than being a tool for constructing social justice, functions as a mechanism that makes the reproduction of inequality more refined, more invisible, and more "legitimate."

### **3.3. Data exploitation and the risk of a digital caste system**

The interventions of the algorithmic order in the fields of education, labor, and finance should be read not as a series of singular technical errors, but as part of a macro-level social transformation. In this section, the class freeze caused by algorithmic biases will be examined within the context of data colonialism, technological epistemology, and the digital caste system.

#### **3.3.1. Data colonialism as a new form of domination**

The class-based reproduction of algorithms is intertwined with a new regime of capital accumulation known today as "Data Colonialism" (Couldry and Mejias, 2019). While historical colonialism seized land and natural resources, data colonialism appropriates individuals' life practices, habitus, and social interactions as raw materials. At this stage, lower classes are subjected to a twofold exploitation: on the one hand, their digital labor and data are exploited without compensation, and on the other hand, they face a more severe system of control and exclusion through algorithmic models derived from this data. The rules of the field, as described by Bourdieu (2006), are determined by a technocratic elite group centered in Silicon Valley within a global hierarchy of data colonialism. This means that the colonial logic transcends physical boundaries and moves into the digital subjectivity of the individual.

#### **3.3.2. Technological epistemology: the class construction of "truth"**

Algorithms are constructing a new technological epistemology by defining what is valuable, successful, and risky. In these knowledge production phases, the life experiences and types of knowledge of lower classes are considered outliers or noise. If an artificial intelligence model accepts the language preferences and consumption habits of the upper classes as acceptable data, any habitus outside this framework is coded by the system as an ontological inadequacy. The real danger here is the presentation of this epistemological violence as an objective mathematical reality. When the algorithm presents class bias as a statistical correlation, this information becomes unquestionable, and social reality itself is digitally re-established with the mindset of the dominant classes (Noble, 2018).

#### **3.3.3. The digital caste system and the end of social mobilization**

Algorithmic governance models design a future model that condemns individuals to the data of the past. If an algorithm calculates a high probability of failure for an individual based on their socio-economic history, the opportunities available to that person (education, credit, job offers) are systematically narrowed. This situation carries the risk of replacing social mobility (social mobilization) with a data-driven and impenetrable digital caste system. In this new caste system, the upper classes are coded as high-potential by algorithms and constantly rewarded with new opportunities (positive feedback loop), while the lower classes are subjected to digital isolation with labels of risk and inadequacy. What is dangerous here is that this caste system is no longer defended with traditional justifications, but with the logic of mathematical rationality. As O'Neil (2017) states, these systems are mathematical models of destruction that punish the poor, reward the rich, and mask this process under the name of "productivity."

## **4. CONCLUSION**

This study demonstrates that the technological determinist optimism regarding artificial intelligence and algorithmic systems as neutral tools operating in sterile areas outside of social hierarchies lacks sociological validity within the framework of Pierre Bourdieu's theory of "reproduction." The findings show that algorithmic phases not only accept existing social inequalities as mere technical raw data inputs, but also perpetuate these inequalities by re-establishing them under a rational, mathematical, and objective form of truth. In this context, a person's socio-economic history and past life practices are encoded as a kind of "digital habitus" through algorithms; this transforms the past into a statistical destiny and digital sets that are difficult to overcome in terms of future opportunities.

In this modern era of class reproduction, artificial intelligence rewards the cultural capital of the dominant classes as the "ideal profile" across a wide range of areas, from education to access to economic resources, while categorizing the life experiences of the lower classes as a systemic "risk" factor and punishing them to a certain extent. This exclusionary mechanism, as long as it remains hidden behind the myth of "mathematical neutrality," becomes one of the purest and most veiled models of symbolic violence in Bourdieuan literature. The algorithmic freezing of social mobilization carries the risk of evolving from the merit-based promises of modern society into a data-driven, impenetrable, and rigid digital caste system. To mitigate this class-based destruction and protect the democratic public sphere, algorithmic governance needs to redefine technological design phases not merely as a matter of technical optimization, but as a social justice issue. At this point, the concept of "data justice," prioritizing the construction of fairness-aware models that balance historical inequalities in datasets, should be prioritized.

The "black box" nature of decision-making mechanisms should be addressed through an interdisciplinary approach by independent auditors and social scientists, and social class impact assessments of algorithms should be implemented as a theoretical necessity. The shift in societal awareness from a level of technical literacy to "critical data literacy" will increase individuals' self-confidence in questioning the stages of algorithmic regulation. However, the acceptance of the "algorithmic reflexivity" process by technology developers, where they become aware of their own class habitus, is critical for breaking down the bias of technological epistemology by blending coding practice with a sociological principle.

Ultimately, artificial intelligence risks becoming a control mechanism that traps society in the socio-economic constraints of the past. For this system to function as a lever that makes inequalities visible and reduces them, it is only possible by accepting the fact that technology is a political and class construct.

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**Ethical Approval:** The study adheres to the ethical guidelines for conducting research.

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