ARTICLE

Data Workers in AI development: challenges to labor sovereignty in digital labor platforms and global production networks

Trabalhadores de dados no desenvolvimento da inteligência artificial: desafios à soberania de trabalhadores em plataformas digitais de trabalho nas redes globais de produção da IA

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ABSTRACT: The theme of sovereignty in relation to digital technologies has gained growing attention in recent years, as demonstrated by concepts such as data sovereignty (Hummel et al., 2021) and digital sovereignty (Pinto, 2018). The literature on digital sovereignty comprises a diverse theoretical-methodological universe (Couture, Toupin, 2019), with authors addressing different dimensions of the theme, from the sovereignty of the data generated by groups, such as Indigenous people (Kukutai et al., 2016) to geopolitics of AI (Larssen, 2022). This paper aims to address an underappreciated dimension: the challenges to digital sovereignty in labor relations. Focusing specifically on workers in Artificial Intelligence development. *The paper is guided by the following research question: what are the challenges to the sovereignty of AI data workers from the Global South on cloudwork platforms?* Discussing the organization of the labor process on cloudwork platforms through a lense of historical-dialectic materialism, it highlights challenges posed by workers' structurally weak bargaining power and lack of access to labor rights and social protections, arguing that such factors limit the individual and collective sovereignty of workers. Such challenges are illustrated by discussing two major cloudwork platforms: Amazon Mechanical Turk and Microworkers.

Keywords: Digital sovereignty; AI; Data Work; Digital Labor Platforms; Cloudwork Platforms.

RESUMO: O tema da soberania em relação às tecnologias digitais tem ganhado crescente atenção nos últimos anos, como demonstram conceitos como soberania de dados (Hummel et al., 2021) e soberania digital (Pinto, 2018). A literatura sobre soberania digital compreende um universo teórico-metodológico diversificado (Couture, Toupin, 2019), com autores abordando diferentes dimensões do tema, desde a soberania dos dados gerados por grupos, como os povos indígenas (Kukutai et al., 2016) até a geopolítica da IA (Larssen, 2022). Este artigo tem como objetivo abordar uma dimensão ainda subestimada: os desafios à soberania digital nas relações de trabalho. Focando especificamente em trabalhadores no desenvolvimento de Inteligência Artificial, o artigo é guiado *pela seguinte questão de pesquisa: quais são os desafios para a soberania dos trabalhadores de dados de IA do Sul Global em plataformas de cloudwork?* Discutindo a organização do processo de trabalho em plataformas de cloudwork através de uma lente do materialismo histórico-dialético, o artigo destaca os desafios colocados pelo poder de barganha estruturalmente fraco dos trabalhadores e pela falta de acesso aos direitos trabalhistas e proteções sociais, argumentando que tais fatores limitam a soberania individual e coletiva dos trabalhadores. Esses desafios são ilustrados pela discussão de duas grandes plataformas de cloudwork: Amazon Mechanical Turk e Microworkers.

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Palavras-chave: Soberania Digital; IA; Trabalho de Dados; Plataformas Digitais de Trabalho; Plataformas de Trabalho Online.

INTRODUCTION

The challenges posed to sovereignty by digital technologies have gained attention in recent years via concepts such as digital, data or technological sovereignty (Hellmeir and Von Shereberg, 2023). Historically, the concept of sovereignty has been linked to the ability of States to exercise their authority within a specific territory (Grimm, 2015). Drawing on Marx, historical materialism takes a critical perspective on sovereignty and the role of the State, linking them to class struggles within capitalism and the agenda to build popular power and sovereignty towards new class-less societies without oppression (Lenin, 2016). These social struggles for popular sovereignty conducted by workers and social movements aim to deconstruct unequal power dynamics via several strategies, such as workplace bargaining and disputes, human and social rights campaigns, and representation in parliaments and other State bodies (Mauro, 2007). More recently, sovereignty has also been discussed in relation to the ability to govern (internal dimension), the independence of States concerning other States (external), and the democratic ways of how people make collective decisions affecting them and their rights (Pohle and Thiel, 2022).

The application of sovereignty to digital technologies is rooted in criticisms of power inequalities between the Global North and the Global South, and domination processes of large conglomerates based in the former. Named large digital platforms, "big tech" companies or similar terms, Internet-based conglomerates have expanded in scope and size in the past decade to the extent that they exert decisive influence over economic, political and cultural processes (Da Silveira et al., 2022). Large digital platforms (e.g., Meta, Alphabet, and Amazon) have become the leading players in this phenomenon in this century (Van Dijck et al., 2018). In addition to these, there are tech companies that are engaged in software and hardware production, such as Nvidia and IBM. Common to all these companies is the location of their headquarters in the United States, the use of datafication to boost their business, their leadership and prominent positions in the global Information and Communication Technologies sector, their intense financialization, and their operations on a global scale (Dantas, 2019). This sector concentrates and centralizes capital (Marx, 2018) with large conglomerates operating on a global scale. The new frontier in the 2020s for such conglomerates is the development of artificial intelligence systems (Webb, 2019).

These conglomerates - which we will call "digital monopolies" expanding the definition and scope adopted in Valente (2021)[1] - has given rise to a set of criticisms concerning the concentration of social, economic, and political power, particularly with regard to

[1] Digital monopolies are platforms that explore their market dominance, technological power and the ability to collect and process data to act as active mediators and expand their operations to multiple sectors in the digital economy.

the reproduction of asymmetries between the Global North and the Global South (Milan and Treré, 2019). This issue has been analyzed through several theoretical frameworks, such as data colonialism (Da Silveira, 2021), digital colonialism (Lippold and Faustino, 2022) and digital imperialism (Pascual, 2014), among others. Furthermore, the notion of sovereignty re-emerged as a key topic of debate, and materialized in concepts such as data sovereignty (Hummel et al., 2021), digital sovereignty (Pinto, 2018) and AI sovereignty (Mugge, 2024).

This paper aims to contribute to a less studied aspect of this literature: the challenges to sovereignty in labor relations in developing or adopting digital technologies. It examines AI development as the most dynamic area in the contemporary digital economy, structured on global production networks outsourcing data services such as data annotation primarily to workers in the Global South via cloudwork platforms and Business Process Outsourcing (BPOs) companies. The paper focuses on the first group, the most precarious in this sector: data workers (Micel and Posada, 2022) globally dispersed on online remote work platforms, usually without access to social protection due to the self-employment status imposed by these companies.

Driven by these goals, the paper is guided by the following research question: what are the challenges to sovereignty from the point of view of data workers in AI global production networks through companies such as cloudwork platforms? Anchored in historical-dialectical materialism, the paper analyzes the social relations of production in these global production networks with data workers in large cloudwork platforms. It illustrates the challenges with the cases of the platforms Amazon Mechanical Turk and Microworkers.

The methods adopted include a literature review and secondary data from academic and technical studies on cloudwork platforms and the challenges of workers. The examples of the abovementioned platforms will be incorporated by analysing their labor process models and how they organise them by their internal rules and practices, such as terms of service and other policies[2].

The paper is structured as follows: the first section discusses the rise of AI development, especially among digital monopolies, focusing on the role of data work. The second section proceeds with an analysis of a specific AI data work institution: cloudwork platforms. Here, a discussion of the social relations of production is elucidated illustrating with examples from Amazon Mechanical Turk and Microworkers. The third section then integrates insights about labor on platforms and digital sovereignty to examine the challenges that workers face on cloudwork platforms. In the fourth and final section, the identified challenges are discussed in relation to the two examples: Amazon Mechanical Turk and Microworkers.

[2] Although companies' rules are a partial picture of the labor process, they can be useful to illustrate the argument in place by revealing how these platforms structure their work relations and the buying and selling of labor power.

Data work in AI development

Despite the recent boom in public debates on AI, the topic has been researched for at least 60 years. Nevertheless, there remains no common definition. One of the many definitions is from Annoni et al. (2018, 19), who describe AI systems as "machines or agents that are able to observe their environment, learn and, based on the knowledge and experience acquired, take intelligent actions or propose decisions". Both for a definition and a normative approach of what Artificial Intelligence "should be", it is necessary to position the phenomenon in the society in which it is found and from its social determinants.

Explaining the social relations involved in the production of AI, in line with Marx's theory of historical-dialectical materialism, requires recognizing their role in capitalism and the power relations and asymmetries involved in their development, adoption and appropriation. This paper focuses on the first dimension: development. Verdegen (2021) highlights the importance of considering capitalism and its power asymmetries when analysing AI, underlining two key concerns. First, he emphasizes the need to include capitalism and power asymmetries and indicates two central analyses for this effort. The first is the recognition of AI as an ideology within capitalism. A second concern regards the growth of the literature on AI Ethics. The debate involves identifying risks brought by AI and objectives and approaches to what this technology should be.

Regarding the AI risks literature, those related to work have not been among the main concerns. However, this is still been a growing debate, focusing mainly on the consequences of adopting AI systems in workplaces, looking both at quantitative impacts (Benanav, 2020) and qualitative effects (Rafner et al., 2022). However, analysis from the perspective of historical-dialectical materialism demands more than a consideration of labor replacement and alterations to human labor. To explain the social relations of production, it is necessary to recognize the form and function of technology in the capitalist labor process (Feenberg, 2012). The key point here is to examine the social relations of production in the development of AI systems. For that, it is essential to locate this sector within the software industry, in which the primary subsumption is of intellectual labor (Bolaño, 2002).

AI systems draw on human intellectual labor at several points in their lifecycle, such as data collection, data cleaning, database preparation, model training, model review, and model monitoring. These activities are crucial to ensure quality data that makes AI systems fulfil their purposes. In his examination of the AI labor process, Steinhoff (2021) identifies three stages: 1) data processing, 2) model building, and 3) deployment. These data tasks were historically named by the literature as microwork, a concept adopted from the short duration of tasks such as image labelling, transcription or review of translations performed by AI systems (Irani, 20215). Although this category is widely used in the literature, the most appropriate concept for such tasks is "data

work", defined by Miceli and Posada (2022, p. 460) as "the labor involved in the collection, curation, classification, labelling, and verification of data". Muldoon et al. (2024) call "AI data work" those services within AI development activities.

These services are provided in a variety of arrangements: by AI development companies (in-house), by Business Process Outsourcing (BPOs) companies or through digital labor platforms (Muldoon et al., 2023). The focus here is the last, which will be discussed in more detail in the next section. Digital labor platforms are mobilized in the Global Production Networks of AI, outsourcing services to providers across the world, especially in the Global South, for clients in search for cheaper labor. The Global Production Networks (GPN) framework is utilised for this paper as opposed to frameworks such as Global Supply Chains, which emphasize the social relations of production and the production and extraction of value. In other words, as put by Foster and Graham (2017), the GPN framework "explores the economic relations of actors directly involved in economic production, as well as a wider gamut of networked relationships, institutions and policy that orientate the forms and practices of production" (Foster and Graham, 2017, p. 68).

The data work for AI development on cloudwork platforms

The focus here is on digital cloudwork platforms (Howson et al., 2023). A distinct category of digital labor platforms, cloudwork platforms coordinate the buying and selling of labor power in cases where the worker performs their tasks remotely. They differ from location-based digital labor platforms operating in sectors such as private transportation, delivery, and domestic services, where the worker must be in close geographical proximity to the buyer of the services (Woodcock and Graham, 2020). Data on the number of people laboring via cloudwork platforms varies, with a recent study estimating that between 150 and 435 million workers are registered (Datta et al., 2023). Even more difficult to ascertain is an estimate of the number of people working specifically in the AI production networks via cloudwork platforms. However, indications have been offered. Drawing on data presented in the Online Labor Index, the World Bank (Datta et al. 2023) noted that data-related tasks accounted for 23% of demand on cloudwork platforms in 2022, rising from 17% in 2017.

Cloudwork platforms have given rise to distinct modalities, classified in the literature as microwork platforms and online freelancing platforms (Margaryan, 2019). Originally seen as a speciality of microwork platforms, data services are now offered by a multitude of platforms, including those usually referred to as "online freelancing" platforms (e.g., Freelancer.com, Fiverr, Upwork). Cloudwork platforms are mobilized in the Global Production Networks of AI as well as other types of firms. They exploit territorial inequalities by managing pools of workers at international and, in some cases, global scales. Unlike the BPO model, in which companies install physical units in specific geographical locations, primarily in the Global South and maintain stricter control, including employment relationships, in cloudwork platforms, companies can access workers from all over the world, exploiting the low purchasing power of

workers based in lower-income nations. This is beneficial for clients because it lowers labor costs.

The cloudwork platforms differ from the "standard employment relationship" as they do not constitute a pre-established job contract which outlines working hours and remuneration. Nor do they rely on a typical managerial model characterised by a clear chain of command with managers who define tasks and monitor their execution, as outlined in the classic analysis of Braverman (1998). These platforms organise the buying and selling of labor power, managing vast pools of workers dispersed internationally (Vallas and Schor, 2020). Workers are governed by rules set unilaterally by platforms, which are laid out in their terms of service and cover subjects such as permitted and prohibited conduct, work allocation, and conditions for purchasing labor power. The central element of the social relationship of production is the architecture of how contractors select and hire workers for specific tasks.

This paper will illustrate data workers' sovereignty challenges with examples from two cloudwork platforms: Amazon Mechanical Turk and Microworkers. Amazon Mechanical Turk (MTurk) has received significant attention in academic literature (Aguinis et al., 2021). A subsidiary of Amazon, Mturk is a self-service platform. Through SageMarker Ground Truth, another product offered by Amazon, clients can also purchase managed services. Microworkers is a digital labor platform also based in the United States. The firm claims to have 3.9 million registered workers[3]. Both MTurk and Microworks offer a wide range of tasks, mostly within the category of data work, such as data annotation, audio and image transcription, image tagging, data extraction, and content moderation.

Considering the general cloudwork models and labor processes outlined above, the examples discussed are analyzed taking into account the following aspects: 1) the job assignment and allocation model, 2) the management process, and 3) the payment model.

On Amazon Mechanical Turk (AMT) and Microworkers, requesters must register to publish their work. There are no visible worker profiles and it is not possible to contact registered workers directly. The platforms facilitate the design of the job, called the Human Intelligence Task (HIT), with the requester setting the parameters and objectives of the work, as well as the rate of the work, creating parameters of the workforce they want to achieve, and setting the remuneration. On AMT, contractors have a menu with task categories such as survey, vision (e.g., bounding box, semantic segmentation), and language (e.g., sentiment analysis, emotion detection). A key consideration on microwork platforms is the number of workers that will be contracted, as tasks are distributed to a crowd. The requester sets up all the job commands and then submits them. Among AMT's selection categories are geographic location, demographics (age, gender), political preferences and qualifications (tests carried out to assess skills).

[3] Information available at: https://www.microworkers.com/. Accessed on September 14, 2024.

Microworkers employs a similar model. The contractor is provided templates for "campaigns" (tasks) relating to different services, and is able to specify workforce requirements according to several dimensions, such as location (by continent and country), the type of service offered (e.g., there is a group of data services), and profession (e.g., writers, programmers). The platform also segments "top workers" by country and service type (e.g., "top US workers", "top India workers"), providing visibility to workers that are deemed "top performers" (those with the best rates of correct tasks) or "top earners" (those with the best overall remuneration obtained on the platform).

The management of these social relations of production is reliant, to a significant degree, on automated systems (Van Zoonen et al., 2023). Unlike a standard employment relationship, in cloudwork platforms, management involves specific procedures for offering the workforce to contractors in a generally on-demand and piece-rate model. This includes the administration of the international pool of workers, the allocate work, govern the acceptance and rejection process, structure ratings and reviews, and effectuate piece-rate payments (Howcroft and Bergvall-Kareborn, 2019). With this, cloudwork platforms expand capitalist accumulation by institutionalizing previously informal labor as self-employment arrangements and transforming the organization of the labor process via algorithmic management.

The arrangement described above manifests itself in both AMT and Microworkers. After publishing the "HIT" (AMT) or the "campaign" (Microworkers), the platform selects which workers will receive the offer, with those workers then able to choose whether to accept or reject it. The platform charges a fee on the scheduled total, with several additional functionalities for revenue raising, such as taxation on the amount paid to the worker. Payment for workers is not, however, guaranteed, as contractors can reject tasks. The potential for task rejection, and thus the potential for wage theft from workers (Howson et al., 2023), is heightened by the architecture of cloudwork platforms, with regards to the prevention of communication between the contractor and the worker, through which the contractor could request corrections. Rather, platforms generally erect a system in which contractors can assign a grade and leave a review, after the work has been completed. These reviews feed into the algorithmic management utilised by the platforms to determine the visibility of offers to workers. For cloudwork platforms specializing in microwork, such as AMT and Microworkers, a similar manifestation of such reviews and success rates (called "successes score" in Microworkers).

Furthermore, the organisation of the labor process on cloudwork platforms poses challenges to workers' individual and collective sovereignty. This will be elaborated upon in the next section.

Data workers' digital sovereignty in AI production networks

This section will discuss how the social relations of production, on cloudwork platforms offering AI data services, compromise workers' sovereignty beyond what can be

expected under more traditional capitalist arrangements. As emphasised from the perspective of historical-dialectical materialism, capitalism mandates that workers sell their labor power to secure their reproduction and fund their material needs. However, this process is fraught with conflict, which takes the form of class struggle, in which workers fight to: 1) improve conditions within the workplace through individual and collective bargaining, 2) institutionalize conditions and rights and strengthen them through regulation at the State level, and 3) constitute organisations (social movements and parties) that will advocate for their interests via established channels within capitalist States, and through attempts to secure structural changes, orientated towards new modes of production.

The aim here is to connect these forms of struggle, especially the first two, with the notion of digital sovereignty. To do so, it is necessary to first outline the development of digital sovereignty as a concept. The literature related to sovereignty, data and digital technologies' comprises a diverse theoretical-methodological universe (Couture and Toupin, 2019). Authors address different dimensions of the theme, from the sovereignty of data produced by certain groups, such as indigenous people (Kukutai et al., 2016) to the Internet governance by States (Zeng, Stevens, Chen, 2017), to more explicit claims about the need for sovereign reactions from Global South nations in response to algorithmic governmentality (Ricaurte et al., 2023). Recently, attention has been directed towards the challenges that Artificial Intelligence poses to sovereignty (Penteado, Pelegrini, Da Silveira, 2023), with regard to the geopolitics of AI (Larssen, 2022) and the AI governance of countries and regions, such as the European Union (Mugge, 2024). Building on existing work, this paper applies the digital sovereignty lens to labor disputes in the context of AI development.

Digital sovereignty can be understood as the ability to control digital technologies (especially their development) and their societal effects (Shapiro, 2020). Couture and Toupin (2019) discuss five proposals for digital sovereignty. The first, "cyberspace sovereignty", advocates for Internet governance as a specific space, beyond state regulation. The second, "digital sovereignty, government and states", centres on governmental initiatives to enact control over digital services and data flows, within their jurisdiction. The third, "Indigenous sovereignty", focuses on the struggles of Indigenous people to assert control over the collection, ownership and use of their data. The fourth, "social movements and sovereignty", rejects the idea of sovereignty as something exercised by States, foregrounding social movements as entities that should assert claim control over the use of data and digital technologies. The fifth, "personal digital sovereignty", centres on the control exerted by individuals over their data, and the software and technologies they use. Throughout each perspective, the authors centre on independence, autonomy and control.

The intention of this paper is to bring capitalism and the power relations it constructs, to the center of the debate about AI and sovereignty. Contemporary critical analysis of capitalism have increasingly drawn on intersectionality to analyze exploitation and oppression within the current neoliberal phase. It is not possible to apply this approach in its totality in this paper. Rather, it focuses on the central element of capitalist

reproduction in the capital-labor contradiction and, more specifically, on the sovereignty of workers engaged in the development of such systems.

This approach builds on existing academic and practical applications of digital sovereignty. Delgado and Schneider (2023) advocate for "popular sovereignty in a digital age", centring the working class within capital-labor antagonisms, in the context of increasingly blurred lines between work and free time. The Brazilian Homeless Movement (MTST, in Portuguese) takes a similar approach. Conceptualising digital sovereignty as a notion based on social movements and popular power, they foreground the collective agency of social movements, and their agenda of developing their own digital technologies and regaining control over the technological dependence on big tech, and shaping the future of digital technologies in society (MOVIMENTO DOS TRABALHADORES SEM TETO, 2023).

From the perspective of historical materialism, labor relations must be at the center of popular digital sovereignty. This is emphasised by Hartmann and Shajek (2023), who explore digital sovereignty in digitally mediated workplaces. Drawing on action regulation theory, they highlight three dimensions of digital sovereignty that manifest among people, organizations and technologies. They are: 1) Transparency and explainability, 2) Confidence of action, and 3) Freedom of action (Hartmann and Shajek, 2023, 4, Fig 1). This typology recognizes the importance of labor relations, but does not centre class struggle, thus permitting a critical analysis of labor relations as social relations of production. In addition, although Hartmann and Shajek (2023) recognize the relevance of digital labor platforms, they do not elaborate upon their dimensions of digital sovereignty in the context of the way such platforms organize social relations.

So far, we made two conceptual movements. First, we aligned with authors who highlighted how the notion of digital sovereignty should be understood from a popular perspective, considering the claims of the population and marginalized groups. Second, drawing on historical materialism, we put the capital-labor contradiction in the center of the debate, pointing out to the need to link digital sovereignty and aspects found in social relations of production. Now, narrow the analysis to examine how these challenges occur on data work offered by cloudwork platforms, taking these companies as the most precarious examples of outsourcing services for AI development. Arrangements on cloudwork platforms pose additional challenges to sovereignty. In addition to the intentional masking of subordination and the obfuscation of employment relations, cloudwork platforms pose challenges to sovereignty with regard to two main aspects: 1) workers' ability to bargain individually and collectively and 2) how the social relations of production regulation conquered by workers and institutionalized in labor law frameworks.

Although, as noted above, historical materialist notions of sovereignty are not limited to capitalism, we will focus on these two abovementioned aspects. In both, workers' bargaining power is affected by representation capacities and by their institutionalized rights, or the lack of them, on cloudwork platforms. Regarding the first aspect,

academic literature emphasises that cloudwork platforms present additional challenges for worker self-organization (Moore et al., 2017) and generally fail to acknowledge the right to freedom of association (Fairwork, 2023). A recent survey identified a unionisation rate of 3.4% among cloudworkers (Valente and Spilda, 2024). However, there are notable exceptions that demonstrate the ability of cloudworkers to organize, such as Turkopticon (Irani and Silberman, 2013)[4]. On the second aspect, cloudwork platforms evade obligations to provide workers with rights and social protections by classifying workers as self-employed, and by exploring geographical differentiations in which dispute resolutions are limited to companies' jurisdictions.

Labor law is fertile with formulations about the sovereignty of States to regulate labor relations in their jurisdictions. As such, it is beneficial when considering digital sovereignty to cast an eye on labor law. When legal conflicts across different geographic jurisdictions arise, agreed upon criteria for evaluations are key. Dallegrave Neto (2000) lists the nationality of the agent, the place where the work is done, the place where the service is performed and the "autonomy of the parties" to choose the forum. An additional criteria highlighted by Delgado (2010) and present in both the Brazilian legal system and in the Constitution of the International Labor Organization (ILO), is the principle of giving preference to the norm most favorable to them. This is a key parameter in the present debate.

Discussing transnational telework (similar to the debate in question), Junior (2020) argues that it is essential to ensure the protection of workers where their employers or service takers are based in other jurisdictions. The author analyzes the efforts of States in such situations, highlighting strategies encompassed in the negotiations of transnational contracts and a "unitary plurilateral norm on transnational work". Carelli et al. (2021) emphasise that despite the terminology, online work would not exist without a worker located in a particular place. Still, they note that cloudwork platforms pose challenges due to the flexibility with which the product of the labor is processed, stored, exhibited and shared across territories, even though the case of jurisdictional conflicts is not new (as in the example of ships).

Challenges to labor digital sovereignty on cloudwork platforms: AMT and Microworkers

As case studies, AMT and Microworkers are demonstrative of the way that cloudwork platforms limit the individual and collective sovereignty of workers. The imposition of limits by such platforms is henceforth considered across three dimensions: 1) The individual dimension with regards to the power of the worker to directly bargain over their conditions with their employer or contractor, 2) The collective dimension of class struggle at both a sectoral level and within individual workplaces, and 3) The collective-transnational dimension, with regards to the struggle to institutionalize rights and social protections, given obstacles to their enforcement in the context of the

[4] Turkopticon is an initiative created by AMT workers and scholars to support workers' information exchange about clients and enhance their bargaining power with those.

transnational production of remote work. Each dimension will be considered via an analysis of the rules and policies enacted by the platforms.

AMT's Participation Agreement[5] explicitly emphasises that the company is a "venue" for hiring, and that it does not guarantee "the quality, safety, or legality of Tasks" and "the ability of Requesters to pay for Tasks" (clause 2). The company also emphasises that it is not liable for requester actions, or for "resolving any disputes between Workers and Requesters related to any Tasks or any transaction". In order to perform tasks on the platform, workers are required to recognize that they may not be paid for their work (clause 3. c). Clause 3. e establishes the worker as an "independent contractor", stipulating that they are not entitled to benefits that the company or requester guarantees to its workers, and the company has obligations other than those explicitly listed in their policies. On the other hand, the Agreement establishes an extensive set of rules for workers regarding registration, task performance and payment. For example, clause 8 stipulates that workers must indemnify the company and its representatives "from and against any and all claims, costs, losses, damages, judgments, tax assessments, penalties, interest and expenses" not only in the violation of the contract and misuse of the site, but also in relation to "any Tasks you request or perform" or "a dispute between you and any other Site participant".

With regards to the transnational dimension, while AMT imposes its "sovereignty" to govern the social relations of production, removing the sovereignty of workers and their states, workers are obliged to comply with the laws of the jurisdictions within which they are located (clause 5). The sovereignty of the states within which the workers are located is, therefore, only recognized when levied in terms of obligations on the worker. Section 10 sets forth the Laws of the State of Washington, United States, to govern disputes (including those between workers and the platform or clients). However, the restriction goes beyond the jurisdiction, since this clause waives any legal action (except small claims when they qualify), allowing arbitration only in the Washington state system, as well as precluding class action. In addition, AMT's Acceptable Use Policy[6] makes clear that violations of the company's rules can lead to suspension or deactivation for workers. The policy lists prohibited uses but emphasises that the examples are not exhaustive, thus providing the company with extensive discretionary power to discipline workers. Furthermore, the terms can be changed at any time by the company, without notice to the worker, and it is up to the worker to monitor updates.

On Microworkers, the Terms and Conditions[7] make it clear that there is no negotiation: if a worker disagrees with the rules imposed, they cannot use the platform. The rules are not presented in a single document, but rather extend to "everything displayed in [the] website". It is thus up to the worker to survey the website (which includes an extensive set of blog posts); this amplifies the informational asymmetries shrouding the labor process. Another clause within the Terms stipulates that the company may

[5] Available at: https://www.mturk.com/participation-agreement. Retrieved on 29 Sep. 2024.
[6] Available at: https://www.mturk.com/acceptable-use-policy. Retrieved on 29 Sep. 2024.
[7] Available at: https://www.microworkers.com/terms.php. Retrieved on 29 Sep. 2024.

take any disciplinary action (including account deletion) "for any or no reason, at any time in our sole discretion, with or without notice". Considering the individual dimension, the worker is thus hostage to a model in which there is no due process, and the risk of punitive action is manifested as a disciplinary mechanism and an obstacle to the enactment of the workers' individual sovereignty.

Microworkers' Terms prohibit the workers from holding the company "responsible or liable for the User Content or actions of third parties (including your interactions with users) on or relating to the Microworkers Service". Furthermore, the Terms oblige the workers to report unfair, fraudulent or unlawful practices to the company before making any public claims. In addition to the restriction, there is a duty of indemnification that safeguards the company "against any claim or cause of action brought by a third party as well as any related damages, costs and expense" related to the use of the site or the violation of the contract. As with AMT, Microworkers does not recognize the right of workers to organize and collectively bargaining. This is a significant barrier to the collective sovereignty of workers (in the case of negotiations between workers' associations and companies).

Turning to the transnational dimension, and sovereignty of the labor protections of the states where the worker performs the task, according to Microworkers' Terms stipulate that workers agree to comply with all applicable federal and state laws in Texas, in connection with the use of the "the Site and Site-related services". As with AMT, the sovereignty of the worker's jurisdiction is recognized when it is functional to the operationalization of the hiring and to avoid costs or legal problems for the platform. It is the worker's responsibility, according to the terms, to ensure that the payment of fees occurs according to the legislation of the country where he or she is.

CONCLUSIONS

This paper has shed light on the challenges that cloudwork platforms pose to the sovereignty of data workers that contribute to the development of AI. It began with an overview of AI development and importance of data work, before centring on a specific institutional setting within which this work takes place: cloudwork platforms, via two specific case studies – Amazon Mechanical Turk and Microworkers.

There is a growing body of literature on working conditions related to AI. However, notwithstanding discussions about digital popular sovereignty, this has not sufficiently been brought into dialogue with debates about digital sovereignty. This paper has sought to contribute to a facilitation of that dialogue, via a discussion of the social relations of production of data work in AI development. The paper focused on two aspects of the social relations of production in which challenges to sovereignty are imposed: cloudwork platforms and removing labor protections through precarious contractual regimes imposed by companies based in the Global North.

These aspects were operationalized across three dimensions of labor digital sovereignty: 1) The individual dimension with regards to the power of the worker to

directly bargain over their conditions with their employer or contractor, 2) The collective dimension of class struggle at both a sectoral level and within individual workplaces, and 3) The collective-transnational dimension, with regards to the struggle to institutionalize rights and social protections, given obstacles to their enforcement in the context of the transnational production of remote work.

This analysis has demonstrated that cloudwork platforms pose additional barriers to the sovereignty of workers to guarantee, negotiate and enforce their rights, namely via the imposition of self-employment and the transnational organization of the purchase of labor. Furthermore, it has created a foundation for the development of the concept of Although there are no conditions to develop this debate in more depth, it is possible to sketch here for future development a picture of the dimensions of what can be labor digital sovereignty, as a materialization of class struggle within the global production networks AI. Though there is no space to thoroughly discuss this here, the following dimensions and sub-dimensions present a fruitful starting point:

1) Workers' control over working conditions in processes subordinated to owners of the means of production, including remuneration, working hours, health and safety measures, labor benefits, and governance of data and the use of digital technologies in the work process.
    a. Negotiation and dispute over conditions within the workplace.
    b. Negotiation and dispute over conditions within regional and national branches and sectors.
2) Control over the work process or aspects of it, including objectives, tasks, their distribution among the workforce, management modes, evaluation of results and adjustments resulting from it.
3) Control over the means of production on worker-owned services and platforms;
4) Control over the social relations of production at the structural level, in a social system different from the current one.

Legislation, as Cristodoulidis and Goldoni (2019) recall in their analysis of Marx, is a product of class struggle, even though the capital-labor contradiction is essentially marked by asymmetrical power relations. Thus, in a capitalist society, the class struggle seeks to ensure better conditions at the workplace and institutionalized as rules and regulations, or bar attempts at regression. Sovereignty, both in policymaking and in the workplace, must be seen as a confrontation with the limits imposed by the capitalist system through class struggle and in the contradiction of its formal and real dimensions in the distribution of power to those who must sell their labor power (observed in its intersectional dimensions).

Finally, while this paper has focused on sovereignty in relation to working conditions, future analyses could expand the nascent concept of labor digital sovereignty to examine other aspects. For example, the ability of workers to correct and contribute to the development of ethical standards for properties and functionalities of AI

systems developed today for the purposes of capitalist accumulation, expropriation of knowledge and expanded exploitation of human labor.

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