The Brazilian Workers in Amazon Mechanical Turk: Dreams and realities of ghost workers

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Abstract[1]

Contributing to research on digital platform labor in the Global South, this research surveyed 149 Brazilian workers in the Amazon Mechanical Turk (AMT) platform. We begin by offering a demographic overview of the Brazilian turkers and their relation with work in general. In line with previous studies of turkers in the USA and India, AMT offers poor working conditions for Brazilian turkers. Other findings we discuss include: how a large amount of the respondents affirmed they have been formally unemployed for a long period of time; the relative importance of the pay they receive to their financial subsistence; and how Brazilian turkers cannot receive their pay directly into their bank accounts due to Amazon restrictions, making them resort to creative circumventions of the system. Importantly, these "ghost workers" (Gray & Suri, 2019) find ways to support each other and self-organize through the WhatsApp group, where they also mobilize to fight for changes on the platform. As this type of work is still in formation in Brazil, and potentially will grow in the coming years, we argue this is a matter of concern.

Keywords
Digital platform labor; Amazon Mechanical Turk; Global South; Brazil; digital capitalism.

Introduction: the ghost workers

In her presentation *The Labor that Makes AI Magic* at the AI Now seminar in the White House, Lilly Irani (2016) wrote on her first slide, in capital letters: "ARTIFICIAL INTELLIGENCE. IT'S MADE OF PEOPLE." Irani's intention in highlighting this sentence was to emphasize a concern rarely raised by the technology industry: the operation of automated technological systems, such as artificial intelligence, depends on a vast human workforce (El Maarry et al., 2018; Gray & Suri, 2019). Besides the highly-visible human labor that legitimates AI (specialized and well-paid workers such as engineers, designers, programmers, computer scientists, statisticians), there is – several "floors" down – a more precariously organized labor force. This army of people are defined by Mary L. Gray and Siddharth Suri (2019) as ghost workers: responsible for "the human labor powering many mobile phone apps, websites, and artificial intelligence systems [which] can be hard to see. In fact, it's often intentionally hidden" (p. 7). Ghost work marks the irony of doing a form of labor that is at the same time increasingly prevalent, but hidden away from view. In today's growing gig economy ghost workers sell their labor as tasks or services in platform-based marketplaces.

In this article, we are interested in a specific type of ghost workers, those who perform microtasks in the Amazon Mechanical Turk marketplace (hereinafter referred to as AMT). The AMT worker, a prototypical form of *crowdworker*, is often simply referred to as a turker. The word "turker" is due to a machine created by Hungarian inventor Wolfgang von Kempelen called The Turk, and supposedly able to play chess. In fact the apparent automated behavior was controlled by a person hidden inside the box. Kempelen traveled across Europe with his machine in the XVIII century – an ode to intelligent machines, but in fact enabled by human exploitation performed as an entertaining game (see Aytes, 2012). Today, the logic of the invisible worker remains the same, but no longer in the form of a public show and on a scale of another magnitude.

The turkers in AMT are responsible for performing microtasks that computers cannot do efficiently, which are known as *Human Intelligence Tasks* (HITs)[2]. These are varied, and can be things such as transcribing texts, searching for information on the web, responding to surveys, and describing images for projects such as ImageNet (Gershgorn, 2017). Microwork, the labour of performing microtasks, is not a unique feature of AMT, as there are many other platforms that compete for this digital piecework market.

As can be seen in Fig. 1, from Anatomy of an AI System (Crawford & Joler, 2018), ghost work is used in developing the Amazon Alexa AI. These workers are represented in the "Unpaid or Low paid labour" section, and may include crowdworkers (such as Turkers) and other forms of outsourced labor. They are not the only workforce involved in training the datasets, but their level of payment and involvement sets them on a social scale totally separate from "Professionals," such as engineers and developers. In essence, turkers are one of the human intelligence layers that turn "unintelligent computing machines" (Broussard, 2019) into "intelligent machines". As described by Irani (2016), "automation doesn't replace labor. It displaces it."

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[2] Turkers are somewhat different from other gig workers such as Uber drivers (Woodcock and Graham, 2019), as they work completely through the internet and without any face-to-face contact with service requesters. There are, though, also similarities with these other gig workers as both operate in undefined work hours, effectively enabling a "sleepless work 24/7" in late capitalism (Crary 2014).
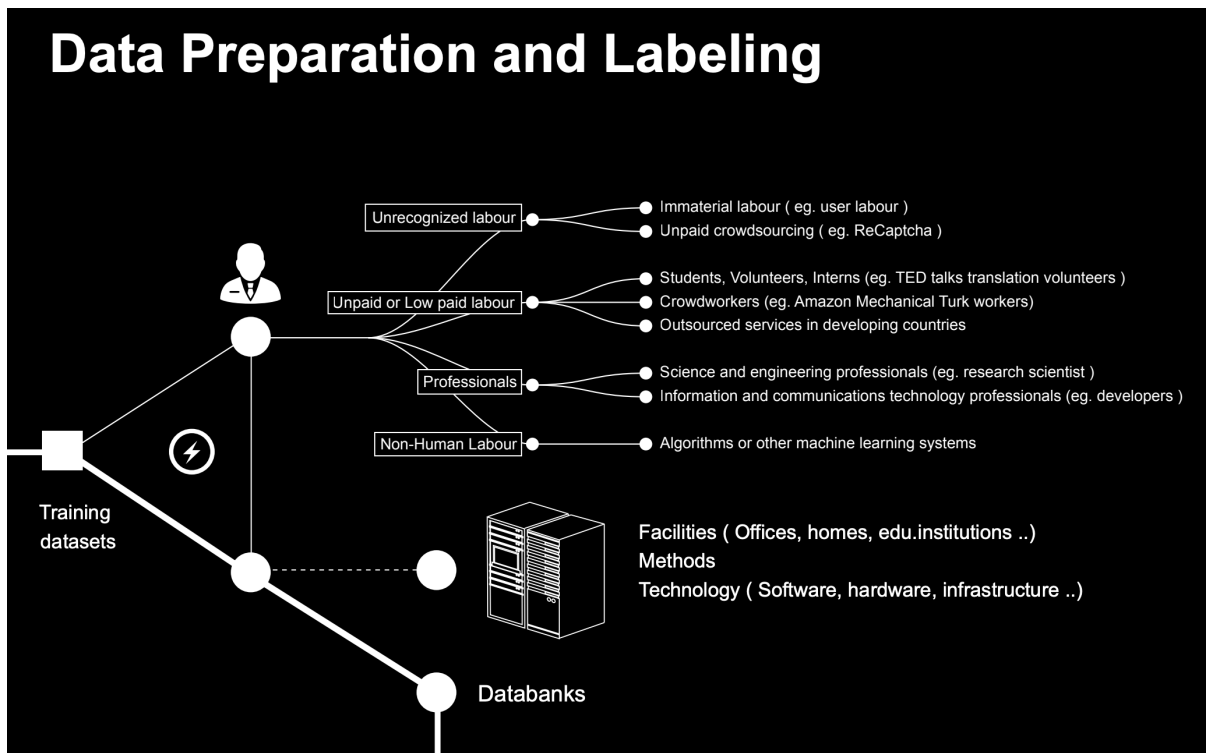
Data Preparation and Labeling

Figure 1 - Detail of the anatomy of the Amazon Echo and its AI systems, where turkers are mentioned as crowdworkers, under "Unpaid or Low paid labour". From: Crawford & Joler (2018).

To contribute to critical studies of digital platform labor and those who show that platforms are not neutral, but opaque (Silva, 2019), we focus on a particular context: that of Brazilian turkers. This specific Global South context is underdiscussed, as turkers from the USA and India are more discussed due to being particularly numerous and representative in the platform.

As Brazil goes through an economic crisis with substantial unemployment (12.8 million unemployed citizens; IBGE, 2019), a significant part of the Brazilian population looks for income through the gig economy, as seen in the boom of delivery and ridesharing workers.[3] In this context of unemployment/informal work, and following the logic that a crisis situation makes workers accept work under "early industrial conditions" (Fuchs, 2014), we suppose that the number of Brazilian ghost workers is bound to increase. It is thus quite important to understand who they are, how they see the digital labor they perform in the AMT platform, and how they are organizing to fight for their rights. Likewise, as a critical study, we consider it essential to give visibility to how these Brazilian turkers face the challenges posed by an unregulated digital platform labor. As stated by one of our respondents:

> We definitely need to be heard. I think a lot is said about AI, but little about us [turkers], which made this area and its applications feasible. I exist and I want you and others to know that.

The main research questions that guided our survey study were directly related to the turkers' plea for recognition: Who are the Brazilian Amazon Mechanical Turkers? What is their work like, and what conditions do they face that may make their work more difficult? How do they see AMT, and what role does it take in their life? What is specific to Brazilian turkers, if they are compared to those from other nationalities?

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[3] An example of this is the fact that Brazil now has the second largest market for Uber, counting over 600 thousand registered Uber drivers (Oliveira & Salomão, 2019).

We begin this article with an overview of AMT and its operation, including the challenges that workers in the platform face globally. We then go on to explain the methodology for the study, which has consisted primarily of a survey of Brazilian turkers that self-organize through a WhatsApp group. Next, we present the findings of the survey, which focuses on the Brazilian turkers, their labor culture, and their self-organization outside of AMT. As we further argue in the conclusion, the position Brazilian turkers assume involves an overlaying of challenges that makes them into an "under-underclass" – since, as we will show, the difficulties they have to receive money for their work makes them even more exploited than most other turkers.

Amazon Mechanical Turk (AMT): global digital platform labor

Before looking into Brazilian turkers in AMT, it is necessary to overview the challenges it poses for turkers and researchers globally. Even though it's not just Amazon that mediates the relationship between ghost workers and requesters (those businesses and individuals who pay for tasks), AMT is considered to be the largest digital labor platform for micro-tasks – Clickworker, Figure Eight, Fiverr and JobBoy are some of its competitors. As discussed by previous studies of turkers (e.g. Hara et al., 2019; Ipeirotis, 2010; Ross et al., 2010; Gray & Suri, 2019), work in the AMT marketplace is marked by a global and dispersed workforce that is anonymous, receives no context for the tasks they perform, and receives low payments for their labor.

A survey by Difallah et al. (2018) shows that 75% of turkers are from the United States, 16% from India, and the remaining 9% from all other countries. According to Amazon, there are 500,000 AMT registered workers (AMT, 2019b), and Ipeirotis estimates that 2,000 to 5,000 workers can be found on the platform at any time (apud Gray & Suri, 2019, ebook). It should be noted that none of these numbers are completely reliable, due to the opacity of the platform and the difficulty for researchers to survey it – results vary significantly across studies and the years that they were published.

Besides being a global workforce, turkers are also dispersed, as they are not offered any formal way of communicating and organizing through the platform, and do not need to communicate or cooperate to complete the tasks. This makes it difficult to have any form of social support from other turkers, and for mobilization to happen (e.g. to improve working conditions). Turkers, activists and academics have formed independent organizations and initiatives that have sought to change this situation, such as Turkopticon (Irani & Silberman, 2013), TurkerNation (Zyskowski & Milland, 2018), MTurkForum and ExperimentalTurk. These forums, alongside other communication platforms used by turkers, have been shown to enable a "substantial communication network within the crowd" (Yin et al., 2016). This shows that, although AMT doesn't support workers' organizational endeavors, they still operate and support each other as a network.

The tasks turkers perform in AMT are given without any specific context or specification of what this labor makes possible. A task such as, for example, "Trace Object Boundaries," is given just a brief and direct set of instructions. Almost none of the tasks have indications as to which digital infrastructures it serves, or the studies it makes possible. This situation seems to be a practical case of what Marx (2010) calls the externalization (*entausserung*) of labor that makes not only work become something with external existence (*aussern*), but also that it exists outside the creator (*ausser ihm*) – creating a new working class Antunes (2019) calls "infoproletariat" or "cyberproletariat" (see also Grohmann, 2018).

The human computation of AMT relies on the invisibility of the workers to make it possible (Irani & Silberman, 2013). Programmers access turkers through the use of impersonal Application Programming Interfaces (APIs), in which workers are represented as an impersonal string of characters, instead of a name (Silberman et al., 2010). This dehumanized zone (Gray and Suri, 2019) makes the turkers appear in the context of "a new general industrial base in the cloud" (Finn, 2017, p. 327), thus "abstract[ing] physical and cultural infrastructure away altogether" (ibid). The effect such anonymity provides has been likened to a gamification process (Finn, 2017).

The most pressing issue of AMT, as defined both by turkers and researchers, is the value of compensation for the tasks performed. Requesters are given complete freedom when setting the value paid per task, and Amazon does not regulate the market in any way – in fact, there often are tasks that pay just 0.01 cents for minutes of work. Although some research shows that turkers often have motivations that may not be direct financial gain or subsistence pay (Ross et al., 2010), workers from the Global South may be more dependent in using AMT as a primary income source, leading to a form of inequality (ibid; Hara et al., 2019; see also Aytes, 2012).

Although all of these challenges are frequently raised by turkers, researchers and activists, AMT is intentionally positioned as a "lean platform", enabling the outsourcing of workers as "independent contractors" while having no liability for the work they do (Srnicek, 2017, ebook; see also Gillespie, 2010). An example of this is that, according to its FAQ, it's important for turkers to be careful of scams and phishing attempts, "because AMT isn't directly involved in the creation of HITs posted by Requesters" (AMT, 2019a). This position as an unaccountable platform is directly tied to a "neoliberal system of exception facilitated by digital networks, taking advantage of legal gray zones in the international labor regulations in order to maximize profits for multinational corporations" (Aytes, 2012; see also Ong, 2006).

Methodology: finding and surveying a community of Brazilian turkers

Our main method of data collection was a 72-question survey answered by Brazilian turkers, published in early June 2019 as a task on AMT. The survey took inspiration from previous research on turkers in different countries, focusing on demographic profile (e.g. Ipeirotis, 2010; Berinsky, Huber and Lenz, 2012; Ross, Irani, Silberman, et. al., 2010; Milland, Hara, Adams, et. al., 2019). It also asked other open-ended questions to more broadly understand their labor and culture. We paid 4.50 US dollars for each turker to answer a survey that took about 15 minutes to complete –a value proportionally higher than the minimum wage in the USA and Brazil. This process was developed in accordance with the guidelines of TurkerNation, a Turker-led community on Reddit. The survey was completely in Portuguese, and the responses have been translated to English in this article.

The main difficulty of this research process was finding the Brazilian turkers. Although it is possible to filter the location of the turkers who are allowed to do a task in AMT, we chose not to do this in order to also include Brazilians who eventually live outside of Brazil or that may be somehow faking their location. In our test survey, which used a different method for restricting access, a Brazilian turker offered to include us in the "MTurk" group on the messaging app WhatsApp. As this group was composed only of Brazilian participants, we used the group to share the task, and thereby were able to receive the responses of 149 Brazilian turkers. All of the respondents were verified as participants in the WhatsApp group[4]. Our sample, although of limited size and not created through probability sampling, is particularly unique (there has been no previous study that focused specifically on the Brazilian turkers). The WhatsApp group (which was one of the largest and most influential used by Brazilian turkers) also allowed us to observe the Brazilian turkers communicate over a six month period in 2019. This permitted better understanding their work routines, self-organization, and challenges in more granular detail. We used WhatsApp and email to ask further questions to 21 out of the 149 turkers, aiming to better understand some of their responses.

We received informed consent from all participants, and always identified ourselves as the authors of an academic research on the Brazilian workers in AMT when observing and interacting on the WhatsApp message group. We also preserved the Worker IDs and real names of participants, ensuring

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[4] As the number of Brazilian turkers is not known, it is not possible to say whether or not this is a representative sample.

their anonymity. This research aims to address the concerns brought up by the Brazilian Turkers, thus adopting an activist stance of shedding light into the problems and questions posed by these participants. For those reasons, although we find the use of the AMT platform and the sharing of information on these workers potentially problematic, we understand that sharing their dreams and realities is ethical as it supports the workers' pleas for recognition, and increases accountability of the platform and requesters.

Understanding the Brazilian turkers: Between the promise of easy money and the real difficulties of getting paid

In order to understand the Brazilian turkers and their relation with the AMT digital labor marketplace, we begin by analyzing their demographic composition, and what is their relation with work in general.

Most of the Brazilian turkers respondents to the survey are white (64%) and male (66.4%), with an average age of 29 years old. The number of mixed race ("parda") and black ("preta") are respectively 21.5% and 12.7%. The racial composition of the turkers is quite different from that of the general population of Brazil, which is 45.2% white, 45% mixed and 8.8% black, according to IBGE (2015). Regarding religion, 43% of respondents Turkers are Catholic, while 29% declare themselves as non-religious and 18% as evangelicals. The number of non-religious is particularly high, as across the Brazilian population that number is around only 8% (IBGE, 2010). As shown in Map 1, almost all Brazilian turkers surveyed reside in Brazil, especially in the southeast region.
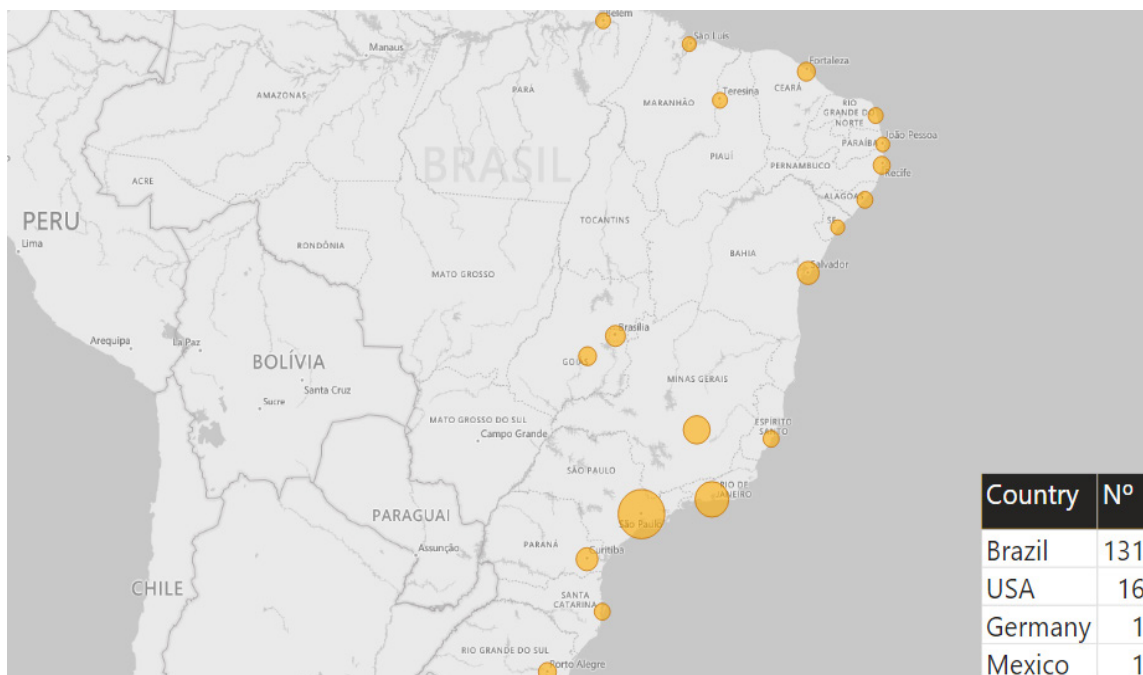
Map 1 - Answers to the question "In which country, city, and state do you live in?".

The Brazilian turkers work on the platform, per week, an average of around 17 hours and a median of 10 hours. The majority of the workers (around 63% of them) work below 18 hours a week. This is particularly meaningful considering a total of 57% of the Brazilian turkers have some kind of work outside of the AMT platform. Of this total, 28.9% claim to have a formal contract and 23.5% identify themselves as self-employed (Graphic 1). When asked about how much experience they have with AMT, 52.3% have been working on the platform for less than two months – indicating that this type of work is a recent reality in Brazil (Graphic X).
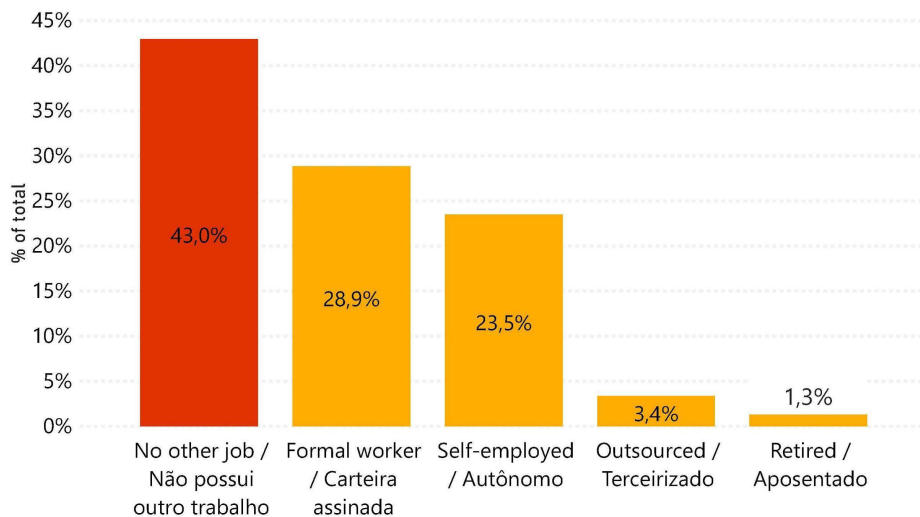
Graphic 1 - Answers to the questions "Do you have another type of work?" and "What's your work condition?".
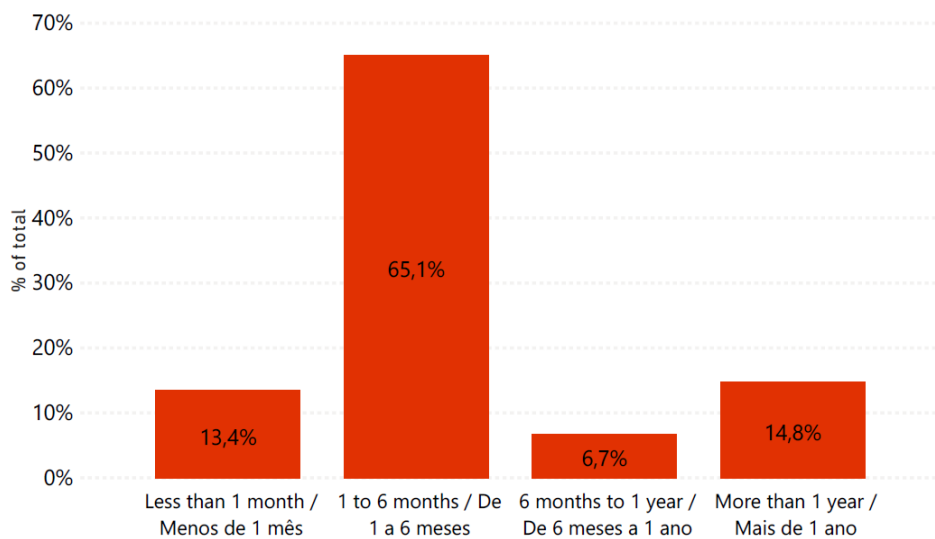
Graphic 2 - Answers to the question "How long have you worked on AMT?".

A total of 44% of participants said they work for some other microwork and/or crowdwork service, indicating that Amazon's platform is just one of many other possible platforms of digital labor Brazilian turkers use. Clickworker and Appen were the two most cited companies, followed by Figure Eight and Uber.

About 43% of the surveyed turkers have no other job than crowdwork services. From those, 66,1% have not had a formal job for over a year (Graphic 3). This high number of turkers who have been unemployed for a long amount of time shows how AMT is an option for the so-called "desalentados," a growing mass of Brazilians who, discouraged from the continuous frustration of searching for jobs, gives up on looking for a formal occupation. In May 2019, according to the IBGE, the "desalentados" correspond to 4.9 million people in Brazil, the highest amount since they started to be tracked in 2016.
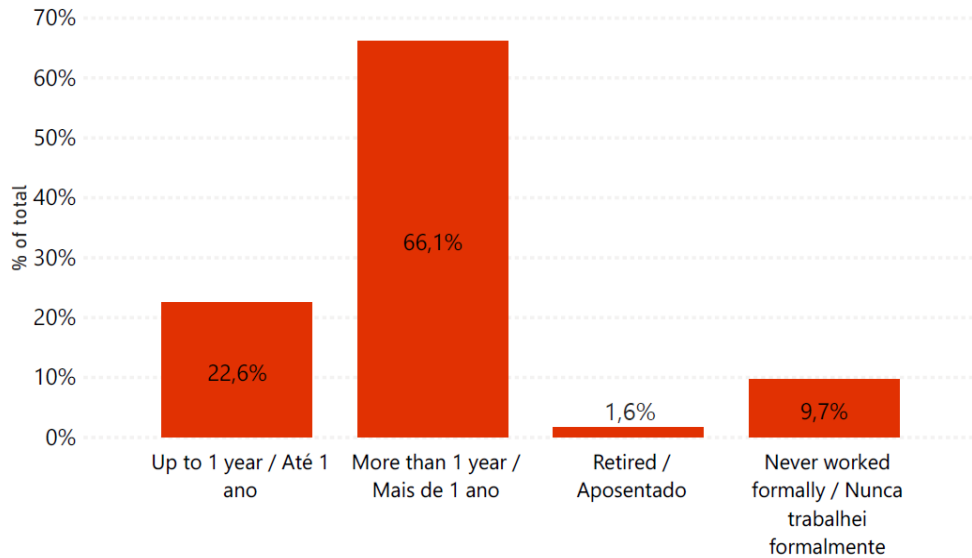
Graphic 3 - Time unemployed – Answers to the questions "Do you have another type of work?", and "Since when have you been unemployed?" (Total answers: 62 out of 149 total)

In line with this high number of turkers who find themselves outside of the formal job market, around a third (31%) of them are either completely or partially reliable on AMT "to make ends meet" (Graphic 4). This number is similar to the results found by Ross et al. (2010) with Indian workers, and is much higher than those found among U.S. turkers (14%). Further complicating this dependency on AMT is the fact that, when given just two options, 54.4% of Brazilian respondents feel that they do not receive a fair pay for the work done in AMT, while the rest (45.6%) believe that the compensation is satisfactory. This leads to the conclusion that workers from Brazil (and potentially other Global South countries) are unequally dependent on these platforms for their living, while still receiving a very low pay.

Also it's important to highlight that Brazilian turkers receive payment in dollars, which means a currency exchange from a strong currency (US Dollar) to a more devalued one (Brazilian Real). For this reason, it is very common to read celebrations in the WhatsApp group when the dollar is most valued in Brazil, due to political or economic events, which means that turkers can receive more for their work. This currency fluctuation may cause differences in over 10% from one day to the other, and even more from week to week. This reliance on a separate infrastructure of currency fluctuation adds further risk to the turker's labor.

The money I earn on Amazon Mechanical Turk is … / O dinheiro que ganho no AMT é...
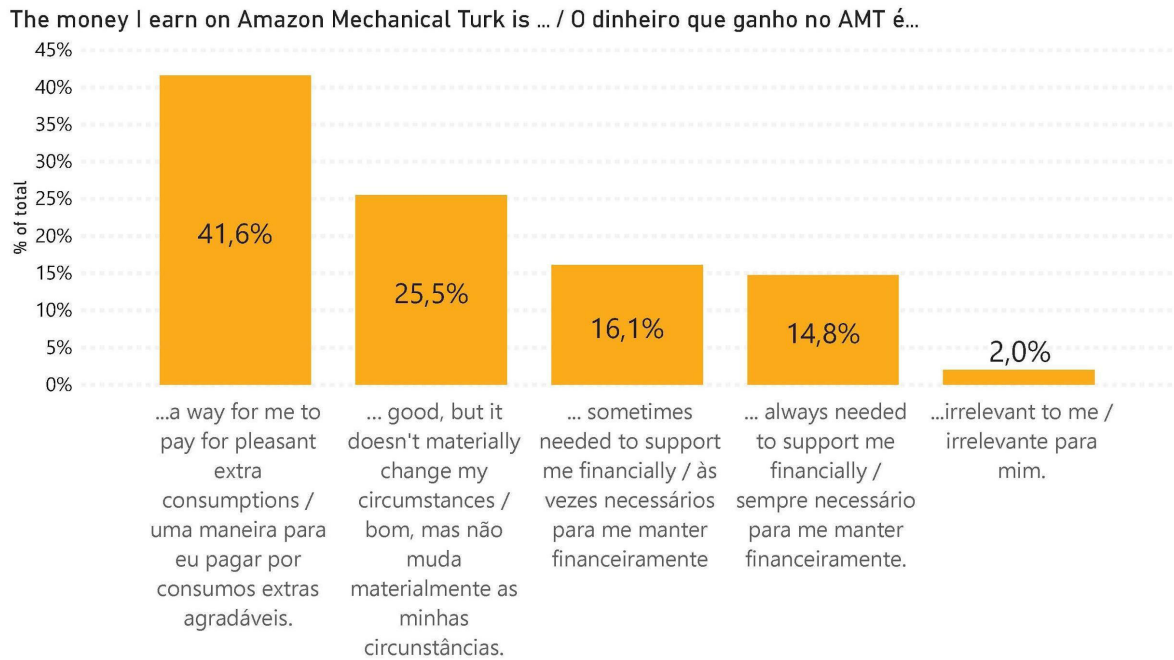
Graphic 4 - Answers to the question "The money I earn on AMT is…?"

Searching for opportunities, and the rhetoric of "hard work never fails"

The context of increasing unemployment in Brazil is one of the reasons that makes the complicated labor conditions of AMT alluring to the turkers. 42% of respondents said that they frequently search the web for "online jobs," "extra income," "how to make money without working away from home," and other queries related to digitally-mediated financial gain. As part of this context of avid search for opportunities, they encounter AMT as a flexible platform to work from their own homes.

Once given this opportunity, the Brazilian turkers try to make their best to make AMT a sustainable workplace, including by supporting each other as a community. During the observation of the WhatsApp group, a welcoming ritual became visible when new participants join the group and introduce themselves as newcomers. Most often, a veteran immediately replies with a message such as: "Welcome!! Focus and believe in yourself. With that, you will make money here. God bless you!!"

This rhetoric that blends entrepreneurship with elements of religiosity and self-help appears often in how turkers describe their work in the platform[5]. In one of our survey questions, we presented the figure of god Atlas carrying a globe (Image 1). We asked participants to explain if the image (presented without any caption) had anything to do with what they do in AMT, and how – an intentionally open question. About 45% of the turkers directly associated this figure's effort to carry the world on their backs with the work they do there. Most, however, distanced themselves from

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[5] Discourse related to entrepreneurship was also observed in another project, *Exch w / Turkers*, carried out by two of the authors (Moreschi and Pereira) in partnership with programmer Bernardo Fontes, designer Guilherme Falcão, and the aarea online art plataform. On an interactive website, for 20 days of March 2020, the public could chat with five turkers (2 Americans, 2 Brazilians, and 1 Indian). The content of these conversations can be accessed at https://exchanges.withturkers.net/

such association, employing ideas of overcoming adversity, and a logic of entrepreneurship and pride of one's own effort:

> "Hard work never fails";
> "Slavery? Well, I'm not forced, so no, I do it on my own";
> "No, because I'm doing it willingly, so I can't complain about the weight or the difficulty";
> "I think HITs are a test of resistance, because most give up in the first week as they think the pennies are worthless";
> "I want more jobs so I can live my life in style";
> "I hope to continue to prosper... always moving on forward...".
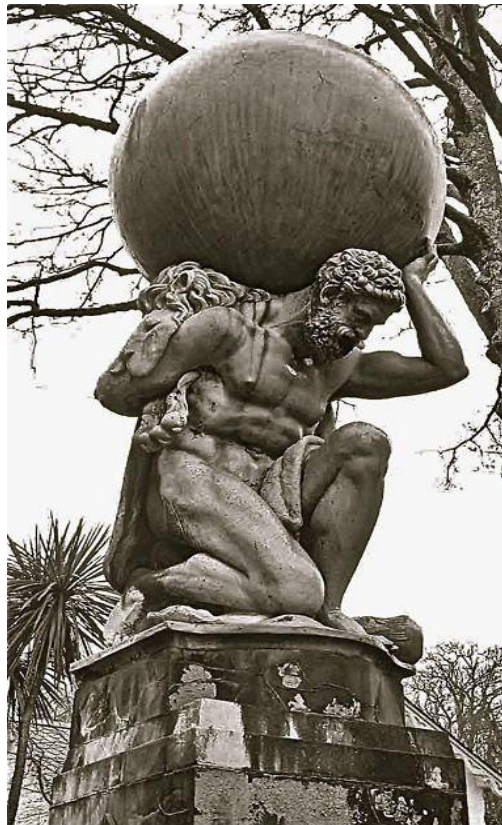
Image 1 - After an insurgency, Atlas was punished by Zeus for carrying the world and his knowledge. Its history is associated with the excess of obligations and tasks that we are constantly submitted to.

These and other responses often mention the idea that the turkers are part of the future of work, which they identify as a source of pride and satisfaction. Such belonging to a community of workers of the future is presented as a benefit, even if clearly conforms and accepts the harsh reality imposed by AMT and its rules:

> "Flexibility is the future";
> "Technology is a part of our human life. We must accept this";
> "The world is changing, like a new industrial revolution, we are making it happen here on amazon [AMT]";
> "You have access to new technologies that will be increasingly present in people's lives";
> "I strongly believe in artificial intelligence and it is an honor to be able to help in a certain way";
>
> "I have adhered to a working model that will be common in the coming years".

We contacted this last turker to better understand if this feeling of being in a job that might be common in the future is a reason to be proud:

> I will not write here that it is easy work. But as I am a big fan of sci-fi, I also often think that it is at least very cool to know that machines are getting smarter because of me. Of course a minimal part, but still haha [*laugh*].
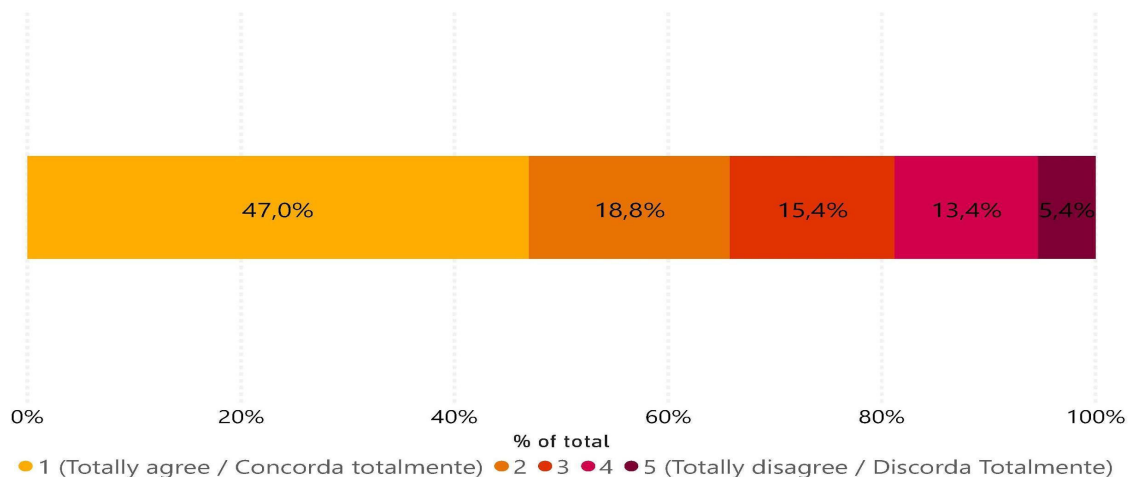
We then asked this turker if such a feeling of pride in being partly responsible for an intelligent machine would be greater if their work was more valued and well paid:

> This is an interesting point. One day I wondered how interesting it would be if I could receive not only cash payments but courses, to make me smarter and thus contribute to an even better technology. It would be nice if I were seen as a teacher – not that a teacher is highly valued in Brazil, but it should. A teacher of machines...

Although these workers often endure long work hours and low pay, they adopt a view that they are part of a growing, future-oriented, entrepreneurial type of digital labor. Ghost work is defined as a highly alienated type of work (in Marx's sense), but workers still find and construct for themselves notions, however small, of belonging in a community, purpose, and a certain hope and optimism for a technological future.

Contradictions of a semi conscious work and its domestic scenario

There is a certain paradox about whether or not turkers see themselves as workers. When asked directly about this, the vast majority tend to agree that what they do is work. In one section of the questionnaire, we asked them to respond to the statement "What I do in Amazon Mechanical Turk is a type of work" (Graphic 5). The average degree of agreement was 2.1, a significant proportion (47%) totally agree, followed by 18.8% who mostly agree. Only 5.4% totally disagreed with the idea that their actions on the platform can be considered a type of work, indicating that there is a strong agreement with the phrase.

| 47,0% | 18,8% | 15,4% | 13,4% | 5,4% |

% of total

● 1 (Totally agree / Concorda totalmente) ● 2 ● 3 ● 4 ● 5 (Totally disagree / Discorda Totalmente)

Graphic 5 - Responses to the phrase "What I do in Amazon Mechanical Turk is a type of work". From a scale of 1 to 5, where 1 is "Totally agree", and 5 "Totally disagree."

This level of agreement with AMT being a form of work, however, is not as strongly found when we analyze answers to other questions that associate the platform with labor issues and rights. When asked whether the absence of regulatory laws on AMT (besides the Amazon Terms of Service) is fair, 54.4% of Brazilian turkers responded "yes". This majority seems to accept current regulatory conditions which

privilege the AMT requesters in expense of workers such as themselves. Although this is an interesting finding, it makes sense in light of the larger cultural scenario in Brazil: 41.4% of the employed population is working informally (PNDA Contínua, 2019), and a part of the population supports a government that promises the reduction of labor rights to generate more jobs.

Another aspect that complicates the understanding of AMT as a type of work is its domestic scenario and the flexibility it offers. When asked to "Look at an object near you and answer: what do you see?" all the answers obtained indicate that they work in their own homes, surrounded by many types of personal objects:

> "A sofa";
> "I see a cerial [cereal] bowl my cigar box my phone and some family photos next to my computer tower";
> "Pillow";
> "The television controller";
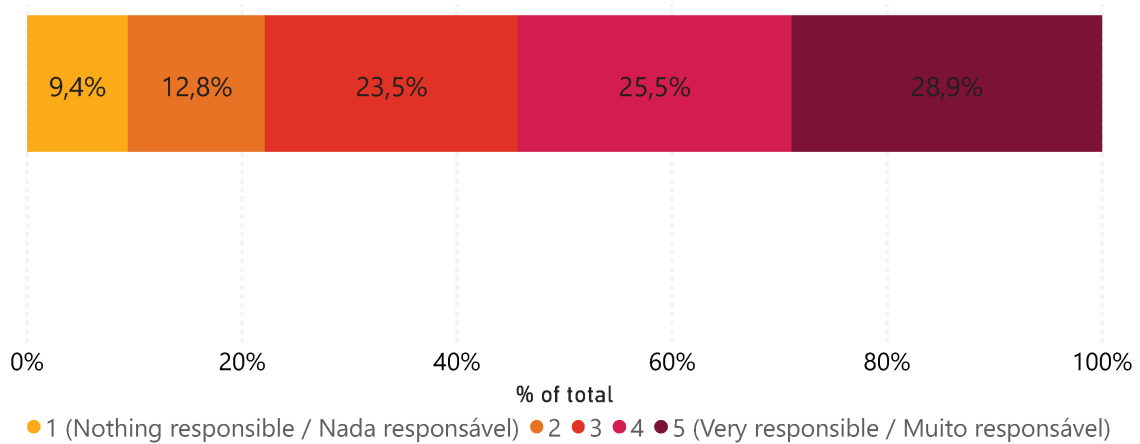> "The image of an Orixá, Oxumare";
> "A picture of Jesus".

Reinforcing this casual and flexible work environment, Brazilian turkers responded that they also do other things while working in AMT. 38.3% claim to watch TV, Netflix or YouTube content while performing HITs. As one Brazilian turker replied: "This is a typical job for an increasingly multitasking world. Work and play are now more mixed than ever." As many other studies of turkers show (Gray & Suri, 2019; Hara et al., 2019), some Brazilians also seem to like what they do because they can stay at home performing HITs, thus avoiding traffic, taking care of family members, or enjoying time flexibility. An example of this is a Brazilian turker who pointed out that AMT is "a way to earn money because I have a small child and prefer to stay with him to provide better care."

Levels of understanding of support to technological systems

In the survey, we asked questions to understand how much these Brazilian workers felt part of building and maintaining technological systems, including those of AIs. About 10% categorically said they could not explain how their role in Amazon Mechanical Turk is associated with technology. The rest (90%) responded quite differently, suggesting different levels of understanding their support to technological systems. Some of these answers were succinct, such as one of the Brazilian turkers who defined themselves as a "pawn of technology". Other more detailed accounts include:

> "I label and help AI machines examine data from my work, so I'm helping the world to be more digital";
> "Ah, purely data analysis right. Sometimes it takes a helping hand for technology to be able to analyze everything, because bots confuse a lot. These days I did one [task] to analyze some computer-made 3D humans and my God, if there was no one [human] to judge, it would generate a very ridiculous thing";
> "I believe this is a way of studying our behaviors and abilities as a human".

Our survey asked the turkers, on a scale of 1 ("Not at all responsible") to 5 ("Very responsible"), how much they feel responsible for the operation and implementation of AI in the current world. 28.9% understand they are very responsible, followed by 25.5% of them who said they're partially responsible, which demonstrates a considerable level of agreement (Graphic 6).

9,4%	12,8%	23,5%	25,5%	28,9%

| 0% | 20% | 40% | 60% | 80% | 100% |

% of total

● 1 (Nothing responsible / Nada responsável) ● 2 ● 3 ● 4 ● 5 (Very responsible / Muito responsável)

Graphic 6 - Responses to the question "Do you feel part of the functioning and implementation of Artificial Intelligences in the current world?"

We also asked the turkers to justify their choice in a written answer. These responses show how often these turkers actually recognize their labor as part of something larger:

> "uehuehuehuehuehuehueheuhe [long laugh], it's a silly little pride I feel, but it's true. I find it a good motivation to keep doing this here";
> "Without our work much would not advance in the creation and improvement of technology";
> "It is the humans behind the data that make the data generate the automations used in AI";
> "We are somehow contributing to patterns of behavior and psyche. Artificial intelligences will be based on the common sense of these behaviors";
> "Because I explain everything to the machines".

Other responses reveal that some Brazilian turkers feel responsible, but much more moderately, feeling like what they do is a very tiny part of the overall AI development:

> "We just give a little help";
> "In some ways I have some importance, although it's only one of thousands (or millions)".

Finally, some respondents do not feel at all responsible for the operation and implementation of AIs, because they do not feel fully trained for such activity:

> "I am not a scientist";
> "I contribute in some way because I use the systems, so it keeps learning from what I research and etc., but I do not participate effectively, because I do not develop such software";
> "Actually I do not understand artificial intelligence";
> "It would be implemented without my help".

Responses like these are directly associated with the fact that the vast majority of tasks in AMT do not explain what they are used for, be it AI applications or any other services and studies – as discussed previously in this article.

Various jobs, whatever the cost may be

In the survey, we asked what was the strangest and most interesting task these Brazilian turkers had completed in the platform. This helps to understand more accurately the daily work of turkers: a day composed of many different and diverse tasks. The HITs they described are an immense set of peculiar actions:

> "Analyze images of zebras; play video games for 1 hour"; "repeat what the voice of google and alexa say"; "watch movies and rate them"; "identify flowers and fruits in Brazilian plants"; "draw boxes on lab rats in different pictures"; "mark body parts of people fighting"; "answer true or false on a questionnaire about marijuana"; "mark which employees in photos were wearing helmets"; "locate hard-to-find business addresses on their original websites"; "make facial expressions on the computer camera"; "map furniture and floors in a kitchen"; "modify phrases in the imperative such as "play pagode [Brazilian genre] music" to "press play to pagode music in the living room""; "rate tweets on twitter"; "transcribe commercial receipts"; "describe what you see in a photo of Tom Hanks"; "take pictures of one's eyes"; "film 40 hand gestures"; "dance in front of the camera"; "count how many grains of corn were in a corn cob"; etc.

In addition to this diversity, some of the responses about the work done at AMT indicates a work environment replete with tasks that can, in the long run, have negative health consequences for these workers. These can include problems such as invasions of privacy and exposure to pornographic and/or violent images – as discussed in other contexts by Roberts (2019) and Riesewieck & Block ("The Cleaners," 2018). It is common to find in the HIT titles an indication that they may involve offensive content.[6] Among these tasks, we highlight here some that Brazilian turkers mentioned in the survey:

> "Push a button to send sms to other people"; "sexual image analysis"; "moderate photos from adult dating sites"; "produce videos getting inside and leaving one's house"; "take pictures of pants, often with views that include intimate regions"; "watch pornographic movies up to 30 minutes long"; "play a game on the mobile phone while one's face is being filmed"; "categorize images from pornographic sites"; "write an erotic history"; "upload personal photos"; "describe images of dead people, full of blood"; etc.

Even if it is a more demanding type of work, the respondents pointed out that content moderation tasks have similar remuneration to others that are less taxing: "Surely you should earn more for this, it is not easy. This is a lawless land… " There are, thus, strong consequences of Amazon's refusal to moderate the tasks posted on its platform. As explained by a turker who detailed this process to us:

> "Look, there's a bit of everything. There was one that asked to draw squares on the heads of pigs. I could tell it was to count the pigs on the trucks, but I still found it very suspicious, a lot of young piggies piled up. Also, there was one to analyze the videos of people performing actions in front of houses' doors, but wow, it was very strange, they say that these videos are super confidential, and I suddenly felt like invading people's privacy. You also have to moderate the photos of flirting apps, to say if there's an explicit penis and such. I once had one that involved seeing a lot of Russians and Japanese carrying guns, clearly underage. The latter made me pretty bad emotionally, like, for weeks and weeks".

With so many troublesome services, such as the ones listed above and the lack of support or responsibility by Amazon, it seems understandable that some turkers responded indicating that they feel highly dissatisfied and anxious:

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[6] Turkers who choose to perform these services need to go through a ridiculous and inefficient control that basically consists of clicking an agreement button, claiming to be someone of age and aware that they may come across something graphic – a way for Amazon and requesters to protect themselves from legal action.

"I hate this platform. Everything wrong with the world can be summarized to this here. Exploitative bosses, and workers who struggle to work like slaves";
"It's frustrating most of the time, I can't seem to turn it off anymore, because I don't make enough money and if I go to sleep a good task will pop up and I'll be sleeping. I even used some medicines to get some rest, meditation didn't help. when I was doing the same job for another company, but with a contract for a workload of hours, I didn't get to this";
"I don't like being on the computer so much".

These complaints, among others, seem to come from the context of invisibility and informality turkers are subject to, alongside AMT's role as an unaccountable platform. In response to this, there is little to do other than for the workers to self-organize. As well spoken by Angela Davis (2018, p. 56), we cannot feel it's enough to just have individual actions, because it is "in the collectivities that we find possibilities of hope and optimism."

Organization and a common point of struggle

In an email exchange, a Brazilian turker pointed out an interdependent relationship between the inability of turkers to talk to each other and the low payment offered by the HITs:

> In my first week of work, I did a very exhausting HIT that paid 0.01 cents. That's when I realized that isolating who works there [in AMT] is a strategy used by Amazon: by myself, I don't have enough power to complain about the poor quality of the descriptions, nor the payment.

In response to these feelings of alienation from each other, Brazilian turkers self-organize through MTurker, a very busy WhatsApp group. In it, around 1500 messages are exchanged daily, including not only text, but audio messages and various images such as memes and stickers. Discovering this community of Brazilians turkers, and that they gathered and exchanged messages daily, also offered us a glimpse into a specificity of the Brazilian context: around 120 million out of the 210 million Brazilians use WhatsApp, and 92% of them use the tool at least once a day.

The Brazilian turkers exchange information such as the best tasks of the day, tips on how to deal when their work is rejected by requesters, and dealing with the bureaucracies of the system. The MTurk community is also used for the exchange of affectionate and stimulating messages, which may involve criticism or jokes about some of the tasks offered in the platform – this functions as a form of digital labor workplace informal interaction not very different than workers commenting on their superiors in a traditional company (Roy, 1959). About 22% of the stickers (emoticon-style figures that are successful among Brazilians on WhatsApp) sent by group members are associated with feelings of stress or indignation at the types of jobs found on the Amazon platform, as shown in Image 2. This formation of a local Brazilian community confirms previous studies that, in general terms, turkers often connect to those of a similar geographic location (Yin et al., 2016, p.1302) in order to, e.g., help each other with sign-up and payment bureaucracies, and share information on lucrative tasks (p.1293).
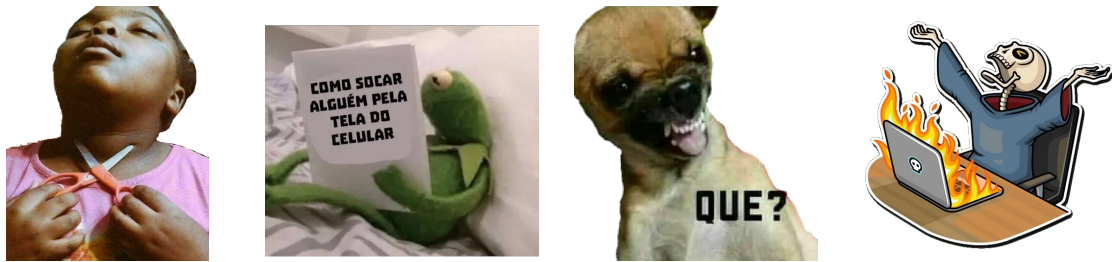
Image 2 - A collage of some of the shared stickers on the MTurker WhatsApp group. These stickers were shared as a reaction to some of the tasks offered at AMT. In the second sticker, the cover of a book read by Kermit the Frog is a phrase saying "How to punch someone through a computer screen"; in the third, an expressively angry dog is accompanied by the caption "What?".

Beyond serving as a community of support and informal interaction, the MTurker WhatsApp group serves as a meeting space for mobilizing to advocate for changes to AMT. The struggle that unites Brazilian turkers like nothing else is their impossibility of receiving payment for their work in a straightforward way. According to Amazon Terms of Service, only workers resident in the United States, and a select few from India, and 24 other countries can receive their pay directly to a bank account via online money transfer. For all turkers located elsewhere, including the Brazilians, the payment is turned into credits that must be used on the US Amazon website. This adds another layer of exploitation to the Brazilian turkers: they offer their services to a company, and when they get paid they must exchange their payment for products made available by the company to which they work for, which further increases the company's profit. This turns them into an "under-underclass," being exploited not only through the work they are doing and its low pay, but also through the added layer of not being paid directly for their services.

For Brazilians, to buy something on Amazon US means paying expensive shipping charges and taxes, not to mention the many weeks of delivery to receive their products. Why, then, do Brazilians accept such troublesome working conditions and work to receive credits that they can hardly actually use? The MTurker group is a space for sharing the multiple ways to circumvent this reality. A website, for example, allows buying products from Amazon and receiving the value in bitcoins. This worked for a few weeks, but without further explanation, all the Brazilian turkers who did this were blocked and since then no one has ever been able to repeat this operation. Most Brazilian turkers opt for a similar strategy: trading Amazon credits for gift card codes for, among others, GooglePlay, Nintendo and PlayStation. They then go on to sell these codes on auction websites. This means besides using a part of the money to pay the auction fees, they depend on the auction website's volatile market to sell the gift cards.

It is not uncommon for Brazilians to be blocked at the gift card auctions. When this happens to one of the members of the group, tensions rise in an expectation that this strategy could be blocked by Amazon. By audio message, the creator of the MTurker group – also one of the most active and supportive turkers there – explained the process and its hurdles:

> We've been buying more PlayStation credit because it's the one with most demand, but it's still slow right now, everyone is complaining. We buy these credits from Amazon and sell them on GameFlip, a game-only platform [marketplace for gift cards]. There you can put the credits you got on Amazon, but you always have to offer discounts [to sell the gift cards]. This month [July] is horrible. The process always means losses: you buy a gift card for US$10 and have to sell there for about US$ 8.50, often even less than that. As if that were not enough, once sold, you finally receive the money via Paypal, discounting another 8% of the value. When the dollar value goes down, everything gets even harder.

To try to change this situation of work exploitation consisting of several layers and stages, Brazilian turkers are mobilized. Almost every day, they send emails to Amazon asking the company to allow Brazilians to receive their payments directly into their bank accounts, as happens in the USA, and sometimes in India and other countries. So far, they haven't received an answer from Amazon. Although their complaints haven't been fruitful, and the turkers haven't yet had enough power to change Amazon's position, we understand their creation of networks of support and organization as an important step in their mobilization as a labor force.

Conclusions

In this article, we focused on better understanding AMT workers (i.e. turkers) who are Brazilian. One of our main goals was to expose what are the conditions of this kind of digital labor in Brazil. Much as expected, and in line with previous studies of turkers in USA and India, the poor working conditions of Brazilian turkers lead to low incomes, a high workload, and different forms of stress and anxiety. The lack of any regulation makes it so that workers are sometimes exposed to violent or pornographic content without any form of support. Our findings differ from previous studies of turkers in other countries in three particular regards: the role of AMT in Brazilian turkers' economic lives, the consequences of the lack of direct payment, and the importance of WhatsApp for organizing.

Brazilian turkers (much like the Indian turkers) are more dependent on the money they make from AMT for their living expenses than turkers from the USA. A large amount of the respondents affirmed they have been unemployed for a long period of time. This type of work thus seems directly tied to the rise of unemployment in Brazil, and the subsequent expansion of the gig economy. Further confirmation of this is that in July 2019 the WhatsApp group for Brazilian turkers had 108 participants, while the number had increased to 165 in August 2019. Once given the opportunity of working at AMT, the Brazilian turkers find meaning and motivation through a rhetoric of "hard work never fails." The flexibility of this form of labor is understood as one of its main selling points, with workers embedded in a domestic and multitasking environment.

The most specific conclusion of this study is that workers in Brazil, differently from many other countries, including USA and some of the Indian workers, are doubly-exploited: not only is their work demanding and low-paid, but they have to use many different subterfuges to get their payment. As Amazon does not make a transfer to their bank account, like turkers in some other countries can, the turkers in Brazil find themselves at the bottom of an unregulated market. Even though Amazon accepts workers from Brazil, its procedures do not cover the most basic aspects of work, such as payment. In this process, the company is able to grow its services in the country, profiting without being accountable to the workers in its platform, which become an "under-underclass."

The difficulties Brazilian turkers face make them rely on self-organized groups, such as the MTurker WhatsApp group, which operate as spaces for these workers to congregate and support each other. There they share the difficulties of being a turker and ways to circumvent the impossibility of receiving payments to their bank account. This mobilization is still fragile, and doesn't necessarily change the labor conditions of AMT, but offers some hope that, although digital platform labor attempts to isolate workers from each other, forms of mobilization and self-organization can still exist. Although studies of turkers from other countries speak of forums and other forms of connection, we have not previously identified reports on turkers using WhatsApp as a crucial site of organizing.

As indicated by Antunes (2019), the current mode of digital work in contexts of the Global South has specificities in relation to the North. We understand there is a strong need for further studies on how ghost work operates in Brazil, especially as it happens through large scale platforms

from the Global North. These often operate irregularly in the country, so future studies can support these workers by better understanding their labor and its social consequences, while further enhancing public understanding and governmental regulation/oversight.

To conclude, we must emphasize that the interaction of humans and machines is obviously not a problem in itself: turkers are only one particular, somewhat troubling, example where humans are in the loop. If human-machine interaction is central to the future of labor, as some speculate, then it is fundamental that workers such as turkers be treated fairly and responsibly — more akin to the surgeon, a master of a complex domain, than to a pawn, a playing piece lost in a complex and unfair game. Likewise, it is important to question whether the job insecurity faced by turkers directly affects the quality of support they offer to technological and artificial intelligence systems that are developed and maintained through their labor. In other words, would better trained and informed workers offer results of a higher quality to these systems? This is a fundamental question for those who ask for fair and ethical digital infrastructures: their challenges do not necessarily reside in programming, but possibly also on the labor contexts that support these technologies.

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