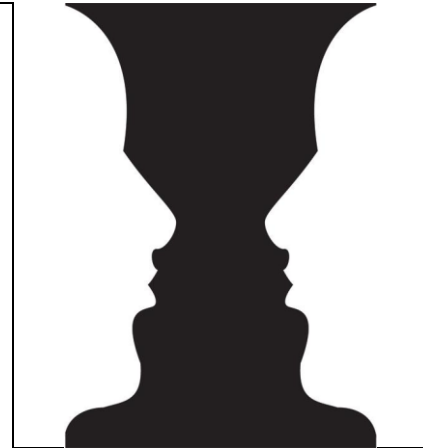

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The implications of artificial intelligence on skilled labor. A thematic analysis of the social imaginary on Wired magazine

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Abstract

Contemporary societies are changing due to dynamic technological processes that shape new professional trajectories. My research aims to identify the main themes found in the social imaginary of Wired magazine regarding the future of professions in the context of the implementation of artificial intelligence. The study is based on a thematic content analysis, selecting 35 specialized articles from Wired magazine from May 1, 2021 to May 1, 2022. The main selection criteria consisted of a focus on skilled jobs involving daily cognitive and emotional tasks. Thus, I have identified two bifurcated discourses of reality - one optimistic and one pessimistic - regarding the projected impact of artificial intelligence on the workforce. The optimistic discourse created around the automation of work prevails in these articles. The main topics pertaining to the optimistic discourse include saving time, openness to innovation and partial substitution of people. On the other hand, the pessimistic discourse expresses concerns and fears about the risks posed by the new technological implications, highlighting issues related to the perpetuation of discrimination and inequality, data confidentiality and misinformation of the population. Both realities, built around the impact of artificial intelligence on the future of work, have a common emphasis on the importance of human and social capacity to make decisions and influence the future. It is likely that the divergent realities created around the implications of artificial intelligence will take a stronger shape over time, as AI advances and permeates even more spheres of life.

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Keywords

Artificial intelligence; Future of work; Automation; Improvement;

Introduction

Contemporary societies change from day to day due to dynamic technological processes that create an evolutionary narrative thread focused on simplifying life and increasing financial capital. People are forced to quickly adapt to the positive and negative influences of technology in order not to dissipate into the predicted futuristic reality. Thus, a readily visible general fear about the predicted impact of automation is captured among individuals, especially that centered on the labor market. The vulnerability of the future workforce seems to lie in the hands of artificial intelligence, a concept that is beginning to take on a ubiquitous character, existing everywhere and influencing all social spheres.

The implications of artificial intelligence create different emotions among the population, shaping, through the mass media, certain general themes that spread to promote or deny particular predictions regarding the metamorphoses of skilled trades, focusing on the intellectual and emotional abilities of individuals. In this regard, the current analysis is centered on the following research question: What are the main themes identified in the online environment regarding the future of jobs in the context of the implementation of artificial intelligence?

Thus, from a methodological point of view, I have carried out a thematic analysis aimed at providing clarifying answers about the themes invoked in the discourses in the online environment regarding the expectations that we must project in relation to the future of current jobs. I consider such an analysis important in terms of the perspectives it highlights at the macro level, bringing together the reasons for an optimistic scenario and a pessimistic one. The themes identified can open up new horizons of reflection on how people must maintain a balanced professional atmosphere in relation to technology, the latter only being a secondary actor with a supporting role. General automation is far from being fulfilled in the near future, so cultivating and fostering interactions based on human thought and emotional intelligence become the key principles to developing a balanced relationship with artificial intelligence.

Literature review

Contemporary society is in a full technological transition that potentiates the gap between the usual social order, which is strongly rooted in the self of individuals, and the direction of meaning towards which the predictable trends, associated with the automation and digitalization of everyday life, seem to be heading, both at the micro-individual level and at the macro level of society. All these changes, occurring with the increasingly rapid implementation of artificial intelligence in all spheres of daily interest, are aimed at streamlining the development process of societal mechanisms, at the same time as they manage, reorganize and facilitate, but also complicate the lives of individuals.

Any such process presents several perspectives on the role it assumes, and in the case of this rapid general automation, it is the same. In addition to the proposed beneficial objectives of this major change, numerous negative consequences tend to appear in both the public and scientific discourses regarding the mass loss of jobs due to their replacement by robots designed to facilitate the economic process, but also related to other aspects.

The diversity of the influence of artificial intelligence on the labor market

Today we face what the authors have called “the second machine age” (Brynjolfsson and McAfee, 2014) or the “fourth industrial revolution” (Hirschi, 2018), this time involving a stronger fear of the total disappearance of the service sector and manual work. However, history shows us that technology has an uneven influence on labor markets: it automates whole waves of manual jobs performed by employees, while fostering the creation of entirely new economic sectors capable of expanding employment opportunities (Brynjolfsson and McAfee, 2014 apud Cukier, 2019). In this sense, The World Economic Forum has studied the situation, estimating that “AI and associated digital technologies will eradicate roughly 75 million jobs, while creating another 133 million jobs worldwide” (Schwab, 2018 apud Cukier, 2019).

Artificial intelligence is also invoked in the hope of solving the mismatch between demand and supply: there are many qualified people without jobs and many employers who do not identify the right people who have the necessary skills in their field of interest (Cukier, 2019, p. 213). Wendy Cukier (2019) talks about the predicted impact of technology on the labor market and the demand for specific skills in the short term, while also highlighting how social innovations and inclusion could be leveraged as strategies to mitigate this disruptive impact. The author emphasizes what people can actually do to reduce the harmful implications of automation, emphasizing the importance of training them properly to be included in the labor market (Cukier, 2019, pp. 219-220).

An interesting study, led by Peter Fleming (2019), starts from a very important idea that is gaining momentum in this “second machine age”, referring to the changing vulnerability of the types of jobs “affected” by the implementation of artificial intelligence. The author differentiates between three categories of occupations, regarding their potential current digital metamorphoses. The first refers to the highly qualified and well-paid elite who will always possess the necessary technological expertise, their work becoming difficult to fully automate - for example entrepreneurs and medical experts (Fleming, 2019, p. 30). The second category concerns semi-automated jobs, where occupations will never be destroyed by digitalization, but only significantly modified and restructured, if necessary, because they could not function without human involvement. Here we can talk about two categories at the opposite poles of qualification: the very rare and highly qualified, such as pilots and doctors, and the unqualified and poorly paid, such as call center operators. The area between the two poles includes a wide range of other professions, such as university lecturers, Uber drivers, etc. (Fleming, 2019, pp. 30-31).

Last but not least, the author discusses the jobs that do not deserve to be automated (such as waiters, bus drivers, etc.), a category that facilitates the determination

of the price of available labor and prevents various industrial disturbances that could occur as a result of such unnecessary automation (Fleming, 2019, pp. 30-31). Thus, jobs based on manual and repetitive work were the most vulnerable in the past to this automation, but now jobs focused on the cognitive part are also becoming more and more affected. Also, current findings in the field of artificial intelligence indicate that jobs that focus on a high degree of human involvement, empathy and emotions, considered difficult to robotize, could become another weak link in danger in the labor market.

The extent of the influence of artificial intelligence on the labor market

Systematic diagnoses made by different types of consulting firms in the United States of America mainly support the trends highlighted above. In a 2016 study, those from the Oxford Martin School highlighted data taken from the World Bank according to which 57% of jobs in the OECD (Organization for Economic Cooperation and Development) are susceptible to being automated in the next 20 years, and in India and China the percentages are 69% and 77% respectively (Oxford Martin School, 2016, p.7).

A year later, the McKinsey Global Institute (2017) suggested that society will be completely restructured, with routine and semi-routine jobs focused on manual work, but also on cognitive work, soon to be performed by robots, representing 51% of the US economy or \$2.7 trillion measured in wages. However, the full adoption of this expected general automation will still take a significant amount of time. One of the factors that will be affected is the technical feasibility because the technology must be adopted within solutions designed to automate specific activities, the cost and implementation of these solutions, and the dynamics of the labor market, but also the economic benefits (McKinsey Global Institute, 2017). I consider it necessary to mention the fact that these two previously exemplified reports are made by certain consulting firms, so there is a possibility that their results may be influenced by the commercial strategies specific to the authors' organizations.

Redefining human-technology relationships: Does automation have limits?

Returning to Peter Fleming's research, he emphasizes the concept of "bounded automation" through which he wants to highlight the fact that technological innovations do not simply unfold according to their own endogenous potential, but are bound to socio-organizational forces that regulate why, in what way, and under what conditions a job or task is automated. Thus, a robot will not necessarily completely replace someone's job, it can also be about partial replacements. However, there will also be total replacements. The degrees and combinations of human and automated work will depend on the strategies and decisions of organizations, at the intersection of the culture of the respective society and the choices of the participants in the labor sector. This fact highlights a current problem: today's jobs affected by automation may end up being considerably poorer in terms of skill, responsibility and pay (Fleming, 2019, p. 24). It is not inevitable that automation will only take over the routine or repetitive aspects. On the contrary, it is possible that automation through machine learning and artificial intelligence algorithms

will take over areas of work previously considered creative or skilled, leaving aspects of data cleaning or managing errors and edge cases to humans.

The price of labor

In this sense, Peter Fleming (2019) tries to diminish the general fear spread in the public discourse that robots will permanently and fully replace humans in all their activities because this new era of machines is not about replacing workers entirely. In fact, the price of labor is very important: it is much cheaper to hire people. First of all, employers will be interested in whether a job is economically worth it or not, given the fact that mechanization involves high costs that should be invested in AI equipment (Fleming, 2019, p. 28). Second, “robotic and digital mechanization is delimited by the power relationships that define any given organizational situation” (Fleming, 2019, p. 28), so precarious jobs where wages are stagnant due to de-unionization do not deserve to be automated (Kalleberg, 2011; Desilver, 2016 apud Fleming, 2019). Given the existence of these power relations revolving around the socio-economic and organizational forces that constrain the large-scale development of professional artificial intelligence, it is unlikely that the mass unemployment often brought up in the public discourse will actually materialize.

The third reason the author states when talking about limited automation refers to the task itself, especially where the human component is indispensable, even if we are referring to the most digitalized jobs these days. And there are many such semi-automated jobs where the lack of people is currently impossible, even if they are poorly paid and at risk of being exploited, as in the case of call center operators. Also, this “protected” category includes highly qualified and well-paid elite employees who will not be totally replaced because they will always possess technological and managerial expertise that is difficult to computerize (Fleming, 2019, pp. 29-31).

Creativity

Creativity is considered a veritable obstacle standing in the way of the total replacement of professions focused on people's cognitive abilities. However, it seems that artificial intelligence is currently making significant progress in deepening human creativity, learning to imitate “the more tacit practices, until most recently considered to be the last bastions of capabilities reserved solely for humans” (Patokorpi, 2009; Bogost, 2012 apud Holford, 2019). However, Holford (2019) wishes, through the study of existing dominant imaginaries, to argue that both creativity and human knowledge are so rich and diverse that they are far from being matched or surpassed by the advent of machine automation and of artificial intelligence.

In this sense, creativity has been defined by Boden (2015) as “a fundamental feature of human intelligence, and an inescapable challenge for artificial intelligence”, based on “everyday capacities such as the association of ideas, reminding, perception, analogical thinking, searching a structured problem-space, and reflexive self-criticism” (pp. 347). Thus, Holford (2019, p. 150) highlights the fact that “artificial intelligence cannot be as creative as humans since machines cannot determine what is relevant to a human expert’s

eyes”. This statement centers on the fact that AI can only process signs, not symbols, and the latter for capturing different meanings thanks to human lenses capable of offering multiple and infinite perspectives of tacit understanding (Holford, 2019, p. 150).

Thus, the attempt of artificial intelligence to equal, at least, human creativity can be labeled as a pseudo-creativity, the alternative imaginary proposed by the author of the study consists of the creation of a legitimate partnership between technology and people, and the latter having the right to actively participate in the decision-making process and in the actual development of the technology. Although current organizational strategies lend significant credibility to the premise that machines, robots, and artificial intelligence will improve productivity and maximize profitability, the specificity of human creativity dominates fully digitalized imaginary horizons.

Moral competence

The emphasis to this point is that human skills are not purely accidental, because they are the basis of obtaining the necessary qualifications in certain fields of activity. But as Shannon Vallor (2015, p.107) points out, the emerging technologies of the 20th century profoundly reshaped global human practices and institutions, affecting the economy, politics, environment, culture and morality. Thus, specialists introduced the concept of *deskilling*, to capture the way in which advances in automation have economically devalued the practical knowledge and skill sets historically cultivated by machinists, artisans, and other highly skilled workers (Braverman, 1974 apud Vallor, 2015, p. 108). A century later, *technological deskilling* continues to put pressure on traditional professions and their specific skills, through advances in biotechnology, nanotechnology, robotics and artificial intelligence (Vallor, 2015, p. 108). In other words, the improvement of the technological tools at our disposal today only redefines the importance of human and moral competences, putting pressure on the possibility of retraining or perfecting social actors.

In Shannon Vallor's vision, *moral deskilling*, as the loss of moral abilities of human beings determined by information and communication technologies, will create numerous ethical problems, with human values becoming vulnerable in the face of an inevitable technological metamorphosis. However, moral skills are necessary conditions in refining practical wisdom, even becoming crucial in protecting authentic cultural values (Vallor, 2015, p. 111), taking into account that “technology has always conditioned our humanity, and our morality as well” (Verbeek, 2011 apud Vallor, 2015, p. 113). Thus, the author pays attention to care professions (for example, those of medical assistance), educational or military ones, presenting a possible partial replacement of them by the new digital means. Whether he is talking about autonomous weapons systems or “carebots”, his discourse turns, rather, to a possible ambiguous coordination between human abilities and those developed by new technologies, complementing each other to serve the social good. And, as the author states, this ambiguity is specific to the phenomenon of moral deskilling, helping us to identify early moral risks to which we are exposed, but also the benefits and development opportunities generated by these technologies (Vallor, 2015, p. 121). Last but not least, he considers a profound change in cultural values necessary in today's

technological societies, centering on the idea that “humans are technomoral artificers and artifacts” in a world where human beings must function as a responsible collective centered on the intelligent direction of technological evolution from their hands (Vallor, 2015, p. 122).

In the same sense, Elke Schwarz addresses, in her analysis, the human need to reorient our attention to the responsibilities held in controlling immersive technologies, using our imagination to prevent moral atrophy from the predicted technologically mediated future (Schwarz, 2019, p. 94). Artificial intelligence is not only a useful product of contemporary societies, but also a “superior Promethean actor” meant to relegate humans as functional data components at best, or as relics at worst (Schwarz, 2019, p. 95). Thus, our agency will atrophy.

Analyzing the writings of Gunther Anders, Elke Schwarz (2019, p. 96) urges people to expand their moral imagination towards a world complemented by, not subject to, the powers of artificial intelligence. But apparently everything humans can do, artificial intelligence can do much better, the author describes the two concepts developed by Anders in his work *Die Antiquiertheit des Menschen VI*. The first is the “Promethean shame” - the more powerful the technology becomes, the more shameful inferiority a human feels, identifying himself as “ill-fitted and inadequate in a technologically-normed environment” (Schwarz, 2019, p. 100). The second concept is the “Promethean discrepancy” and refers to the difference between “producing” and “imagining”, with humans not fully understanding the impact and possibly monstrous consequences of modern technologies (Schwarz, 2019, p.100). Although Gunther Anders's writings are not recent, they offer insights that are still relevant today into the hierarchical relationship between human and technological abilities. Therefore, the urge of this analysis is to regain the elasticity of our moral imagination and to identify the limits of artificial intelligence, the gaps that can be covered by human capabilities (Schwarz, 2019, p. 108).

Emotional labor and artificial intelligence

Given the fact that in the public environment, more and more discourses are being outlined regarding the jobs of the future and the skills needed by individuals in such a predictably automated world, the question arises of replacing humans with robots designed to facilitate the beneficial development of economic progress.

The demand for routine jobs has started to decrease significantly, the emphasis is now on jobs that focus on interpersonal skills, where there must be a direct and actively involved relationship between providers and clients/beneficiaries. Thus, “juggling” with people's emotions becomes one of the main and desirable skills both for occupations based on the “emotional proletariat” that routinely serve goodness (Macdonald, Sirianni, 1996 apud Bolton, 2000, p. 19), and for those intended “angels of mercy” from the sphere of care (Salvage, 1985 apud Bolton, 2000, p. 20).

In this context, the key concept to which we must give significant importance is that of *emotion work* which refers to “the act of trying to change in degree or quality an emotion or feeling” (Hochschild, 1979, p. 561). It creates many conflicting debates about

the implications of what is attributed or acquired, the concept causing confusion in the field of work. Most of the time, people who are successful in the spheres involving emotions are considered to be born with such qualities. In fact, *emotion work* can be seen as a distinctive form of skilled work, with employees who work in such industries being considered, as Bolton (2000, p. 20) states, “multi-skilled emotion managers”. Thus, even the most routine jobs involving emotional labor require much more than natural and spontaneous qualities, given that a significant segment of the workforce is being turned away – especially those who make a serious contribution to the economy knowledge or the well-being of society through emotional labor (Thompson et al, 2000 apud Bolton, 2000, p. 21).

Sharon C. Bolton brings a wealth of information about emotion work, presenting concisely what its implications are. Thus, the author supports the fact that we need a multidimensional classification of skills, which was proposed by Littler (1982) through the lens of the social process of emotional work, so that we can differentiate three dimensions: “skill as work routines, skill as socially constructed status and skill as control over process and products” (Littler, 1982 apud Bolton, 2000, pp. 21-22). In this sense, skill means a collective interaction, not a property of a single individual. If emotional labor is not tied to a recognized technical skill, then this perceived core competency attracts insignificant material rewards.

Essential skills are not just a label attached to jobs by managers to divide and reduce the power of workers or the product of workers' collective resistance (Wood, 1982 apud Bolton, 2000, p. 22), but are part of a social system much more broadly that points out the definition of skilled work through the major impact of class and gender structured inequalities. Emotion work is, definitively, a form of skilled work that deserves such recognition in the social space, “it becomes more than a social process, it becomes a vital part of work, social skills becoming essential work-based skills” (Bolton, 2000, p. 25).

Artificial intelligence and the creation of new tasks

What is anticipated, therefore, is that artificial intelligence will bring quite a lot of change globally, influencing the workforce and the economy in general. Transformational leaders consider AI technology as an impetus to improve performance and develop digital transformation strategies, changing organizational configurations (Thillaivasan, Wcikramasinghe, 2020, p. 1). Thus, using two key concepts - leadership and human capital - the two authors analyze the impact of artificial intelligence on the role of people in the progress of organizations, identifying possible future problems and challenges regarding data security, but also organizational structure and employee retraining (Thillaivasan, Wcikramasinghe, 2020, p. 15). The latter is an issue addressed in most of the articles included in prior documentation. However, the authors also highlight the advantages of these changes, such as increasing the appreciation of cognitive and social skills, creating a collective leadership strategically centered on creative employees, but in collaboration with machines focused on artificial intelligence (Thillaivasan, Wcikramasinghe, 2020, pp. 10-11).

The two authors also focus on current human capital, stating that “automation and digitalization will transform how work is done by substituting, augmenting and creating new tasks for workers” (Thillaivasan, Wcikramasinghe, 2020, pp. 12-13), emphasizing the importance of being aware of the need to learn new skills for a future that moves away from traditional relationships between employers and employees. Such preparation can also lessen the uneven impact that automation generates.

Public opinion on the risks of artificial intelligence

Because I mentioned the way in which the impact of artificial intelligence is exposed in public discourse, the article by Hugo Neri and Fabio Cozman (2020) is very suitable to describe how the mechanism of public perception of the risk associated with the implementation of artificial intelligence works, analyzing 3,682,015 theme posts on Twitter from 2007 to 2018. Specifically, the authors worked with the social amplification of risk framework (SARF), the perception of risk not referring to physical harm, but to “the result of a process by which individuals or groups learn to acquire or create interpretations of hazards. These interpretations provide rules of how to select, order, and often explain signals from the physical world” (Slovic 2000 apud Neri, Cozman, 2020, p. 663). Thus, through this strategy, the two authors wanted to identify the public's perception of risk and negative, neutral or beneficial effects related to artificial intelligence, finding that “experts are the real movers of the risk perception of AI” (Neri, Cozman, 2020, p.663).

The article presents certain triggering agents of the popularization of the perception of risk on the online platform Twitter, such as Stephen Hawking's statement for a BBC interview, interpreted as an existential risk about the end of the human race triggered by the Machiavellian development of artificial intelligence, but also about other causes such as the essential impact of fiction on the image of AI - in particular, that created by the very popular movies with villainous robots destroying the world (Neri, Cozman, 2020, p. 668). Thus, 88% of all tweets linked to these AI-related risks referred to the existential risks propagated by primary broadcasters' messages, followed by risks associated with privacy and surveillance, lethal autonomous weapons, cyberattacks/warfare/terrorism, unemployment, fake news and, finally, with sex robots (Neri, Cozman, 2020, pp. 670-671). The article's conclusions emphasize the impact of the way experts communicate depends on their attitudinal position regarding artificial intelligence, highlighting the ease with which both negative and positive messages are amplified from one transmitter to another.

An overview of the literature review

Synthesizing the specialized literature described in this section, I note that the studied authors believe that the implementation of artificial intelligence will significantly affect the workforce of companies, through the possible replacement of some current tasks, but also creating new opportunities for professional development for employees, as is evident from both systematic diagnoses, as well as from specialized literature. Thus, people need to expand their sociological imagination, but also their moral imagination to focus on new

missions designed to maintain a balance in the relationship between specifically human abilities, such as creativity and empathy, and technological and digital abilities developed to facilitate certain processes currently difficult for humans to manage. Consequently, the emphasis is placed on the need for people to cultivate new skills and abilities aimed at qualifying their actions that will be under the irreversible influence of automation in the industrial sphere. Not least, some of the studied authors believe that societies should abandon the exaggerated tendency to imagine a bleak, fictional future dominated by evil machines and robots focused on taking over the entire workforce, their abilities being limited compared to the purity and uniqueness of human characteristics.

Methodology

This section is intended to present the options regarding the research question, the main objective set, the research method and its related instrument.

The research question from which this approach starts refers to the way in which the discourses in the online environment regarding the influence of artificial intelligence on skilled jobs are shaped. In this regard, it is formulated as follows: What are the main themes identified in the online environment regarding the future of jobs in the context of the implementation of artificial intelligence?

In this sense, as a main objective, I propose to identify what are the main themes outlined in the specialist press articles regarding the influence of artificial intelligence on the future types of jobs and skills required. I find it interesting to observe in more detail what scientists' expectations are about the transformations brought about by the automation of labor, trying to capture the less obvious substrates through critical lenses.

The current research is a thematic content analysis of specialist articles focusing on the predicted impact of technologies on the world. Thus, by means of an analysis grid created especially for this study, I analyzed 35 articles identified in the online monthly specialist magazine *Wired*. I chose this magazine because of the prestige and quality of information verified by researchers and is one of the most appreciated in the field of new technologies that influence, among others, culture, economy and politics (Wikipedia contributors, 2022). I chose to explore *The Artificial Intelligence Database* section of the online journal with articles grouped thematically.

The main selection criteria of the articles were centered on the type of jobs addressed within them, focusing on jobs that require a previous qualification obtained following specific higher education credentials. Thus, I've taken into consideration the articles that discuss topics about the influence of artificial intelligence on jobs that involve cognitive and emotional tasks, devoid of that routine of manual, repetitive tasks. Also, another criterion used in accumulating the necessary data is the timeliness of the information, focusing on the period May 1, 2021 to May 1, 2022 to select the most relevant press articles for my research. Thus, the next section will be dedicated exclusively to their analysis and interpretation.

Data analysis and interpretation

This chapter summarizes the information accumulated following the analysis of the 35 articles found online in Wired magazine. These articles refer to the relationship between artificial intelligence and skilled occupations, defined as jobs acquired through the completion of higher education in a specific field of activity. In this regard, this selection criterion together with that of actuality have simplified the identification of certain general patterns, but also some nuances worth mentioning regarding the predicted impact of the automation of the labor force in professional domains.

This thematic content analysis of the selected articles led to the identification of guidelines for the future of skilled jobs, free from the repetitiveness that is often considered easy to automate. Consequently, through the current analysis, I have observed two general scenarios made up of three main themes for each one, being argued and exemplified by artificial intelligence models already implemented or still in the testing period. In the following section, I will present these previously mentioned thematic models, being classified into one of the following two scenarios: optimistic or pessimistic.

The optimistic scenario of the implementation of artificial intelligence

In the optimistic scenario, between humans and artificial intelligence, there is a relationship of reciprocity that shapes the future of societies, but especially that of the labor sector. In other words, humans need AI as much as it needs humans, currently co-existing. Thus, maintaining a balance between these two entities becomes a goal for large employers, given the fact that the automation of certain tasks brings numerous advantages in the evolution of companies.

In this scenario, we are not expected to face general automation in the near future, regardless of the field of activity or the skills needed to operate in a certain professional sphere; this is an optimistic view of the future workforce. Thus, the implementation of artificial intelligence is considered inevitable, but this process is taking place slowly, offering a series of advantages aimed at facilitating the daily duties of employees. In the following, I will detail the main arguments identified that support the optimistic discourse regarding the previously mentioned technological changes.

Artificial intelligence as the savior of time

The articles studied and framed in this scenario start from the assumption that contemporary societies are faced with a dangerous shortage of time and with people being overwhelmed by the volume of tasks they have to accomplish on a daily basis. As their skills are already limited, the automation of daily tasks becomes one of the most suitable options for efficient time management. Although the workload is the same, people manage to save more time due to the changes brought about by technology. Artificial intelligence thus eventually becomes the best tool through which people save time, managing to organize their day in a balanced way and avoiding overcrowding.

Whether we are talking about replacing doctors or nurses in hospitals, astronauts idolized because of their grand goals of conquering the universe, IT programmers or agricultural specialists, as I identified in the analyzed articles, it is certain that we “can turn a day into minutes” thanks to the efficiency created by new smart technologies (Wired Brand Lab, 2022). In this sense, processed information can be distributed extremely quickly from one place to another, even in different geographical spaces, and people can optimize their tasks, relying on the indispensable help of artificial intelligence.

Effective time management due to expected technological changes is indispensable in all spheres of interest. Within my data selection, three core areas of activity were particularly targeted, the medical sphere, IT (programming and coding) and agriculture. Thus, it seems that jobs that are among the most profitable, but also those that require a higher qualification, know the impact of artificial intelligence best. Human expertise can thus gradually be replaced by it with the ultimate goal of facilitating the ability to manage tasks.

In the medical sphere, for example, artificial intelligence contributes to a better organization of the time of medical experts, reducing time and energy-consuming tasks, such as transporting medicines, performing patient analyzes and disinfecting spaces inside hospitals. In addition to these tasks, which tend to be slightly mechanical, despite being performed by skilled people, certain articles in my database present current innovative scenarios in this field, such as identifying wildlife health issues in real-time through artificial intelligence, identifying rare diseases to which children are prone to just by scanning their faces or studying proteins and their structure to facilitate the creation of new neural networks. All these novelties in the medical sphere are due to the time-saving character rendered by the importance of artificial intelligence.

Also, in the current context of inevitable changes, today's programmers are experiencing a transfer of time-consuming tasks to programs that use artificial intelligence in order to free up their list of daily tasks. Thus, some of the Wired articles I reviewed talk about programs that use artificial intelligence to write code and generate coherent text. Programs, such as Copilot or Codex are discussed, which work with different programming languages such as Python or JavaScript, understanding which codes are best suited for certain tasks or creating an optimal alternative text for a specific situation. One of the most well-known language models mentioned in the articles analyzed in the last year within the reference journal is GPT-3, a “fast, affordable, and nearly human” text generation technology (Simonite, 2022), being “the most startling demonstrations of all” (Knight, 2021).

STEVEN LEVY BUSINESS AUG 13, 2021 9:00 AM

OpenAI Is Making Coding As Easy As Talking to a Smart Speaker

Plus: The early days of programming, an existential investigation, and bipartisanship before our very eyes.

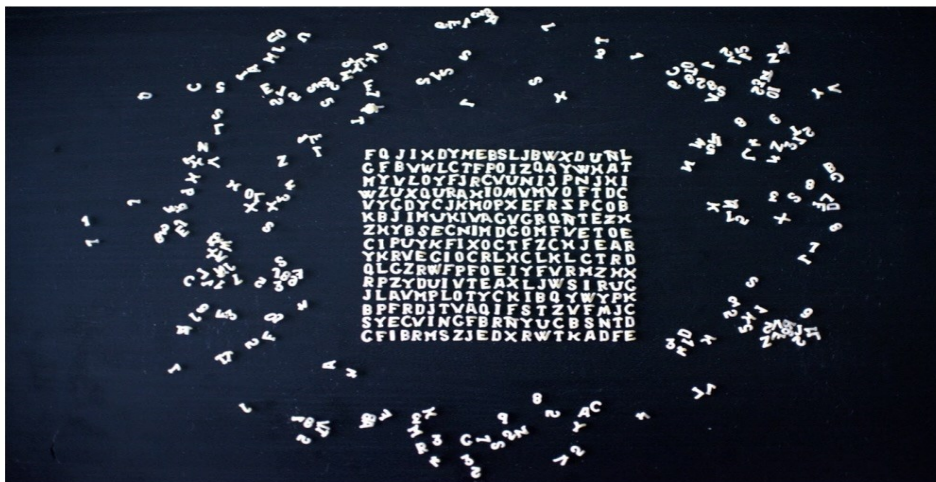


Figure 1. Artificial intelligence streamlines the tasks of programmers
Source: Screenshot - <https://www.wired.com/story/plaintext-open-ai-codex/>

Last but not least, artificial intelligence comes to the aid of agricultural specialists, another important branch found in my analysis, where a significant number of people are concentrated. Thus, farmers could be replaced by robots designed to simplify even some of the most rigorous tasks that require human involvement, such as analyzing and testing the soil, making predictions about the evolution of future crops, but also estimates about possible signs of soil and crop disease (Knight, 2021). In an article reviewed, the idea of Ali Moghimi, an assistant professor at UC Davis, is found, stating that “recent advances in AI are going to be a game changer; this is the path we have to go down”, automation in agriculture being inevitable, despite the slower process of transformation caused by the complexity and cyclical nature of the agricultural field (Knight, 2021).

According to the above, the phrase “time savior” is correctly attributed to artificial intelligence, referring to the thematic analysis I carried out. Most of the identified articles bring to the center this advantage of the implementation of artificial intelligence in various professional spheres, significantly simplifying the work schedule of employees. The field of applicability of artificial intelligence denotes the diversity of the influence it can have on the whole society. Thus, this automation not only redefines human's relationship with his time but also redefines his relationship with society as a whole.

A new reality – the innovative nature of artificial intelligence

As I briefly mentioned in the previous sub-chapter, artificial intelligence reformulates the relationship between human and technology, despite the fact that it has an uneven character of action on the social structures involved. Following the 35 analyzed articles, I have identified numerous creative ideas for applying artificial intelligence in jobs that require prior qualification, but its innovative character becomes worthy of highlighting in this research.

Most of the innovations found are, most of the time, in the category of prototypes in the testing phase, occasionally registering various shortcomings that must be adjusted so that they fit properly into the proposed final goal. Ultimately, these last goals can be attributed to the optimistic scenario about the impact of artificial intelligence, leading to the surprising revelation that we are being absorbed into a new reality, a truly automated one, precisely in the “second machine age” which Brynjolfsson and McAfee (2014) mentioned in their specialist article.

Futuristic changes are part of a wide range of spheres of professional interest, from the most common in this analysis – the medical one, to robots more or less emotionally involved in raising and protecting our children, but also painters and professional dancers. From Wired magazine, we gathered information both about identifying rare diseases from childhood by scanning children's faces, or about reading X-rays by artificial intelligence to predict the race of patients, and about warning researchers early about possible diseases wildlife broadcasts, during which employers send synthetic videos of virtual avatars intended to convey the important information of the day to their subordinates. However, let's not leave out the ability of artificial intelligence to automatically detect defamation or to conquer and explore space instead of the classic astronauts. That's how complex and multidisciplinary the innovations that are taking shape today, they build the foundation of the new intelligent reality mentioned earlier. Basically, they have a dual character, the pessimistic one will be presented in the section specific to the nature of this type of discourse.

Partial substitute, not a total one?

The current analysis outlines the optimistic outlook on the replacement of humans by artificial intelligence. In the articles associated with this scenario, the essential need to preserve human involvement in professional processes is highlighted. Humans are represented as ultimately irreplaceable. Around this idea, the articles try to counter the belief in the collective imagination that humans will be completely replaced by robots meant to make the economic process more efficient through the obvious advantages it brings, creating an open horizon for hope. The online discourse within the universe of my research tends to emphasize that, in the near future, there will not be total automation of the labor sector, with humans still needed because of their human, emotional perspectives.

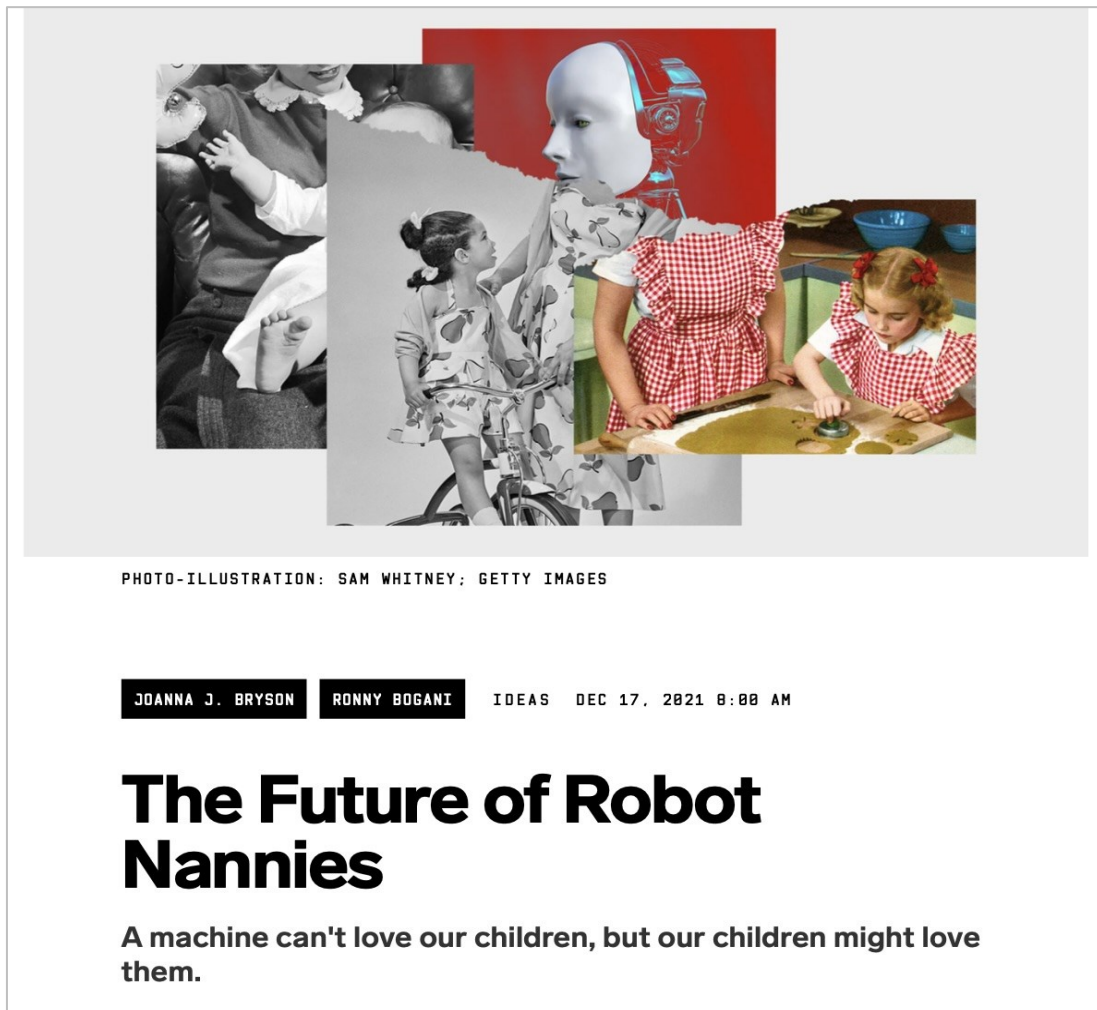


Figure 2. Human characteristics outweigh the implications of artificial intelligence
Source: Screenshot - <https://www.wired.com/story/roboto-nannies-ethics-liability/>

The problem that emerges in response to this portrayal of the future, however, focuses on numbers, namely: how many people are still irreplaceable, given that substantial parts of jobs are automated, even partially? Certainly, in this scenario, artificial intelligence will not take over all current jobs, but it will encourage a decrease in the number of people needed. Moreover, what today is considered irreplaceable, and tomorrow can be easily changed. The uncertainty of the future rendered by the predicted impact of artificial intelligence leaves the door open for new reflections on its implications for the workforce.

In this context, some changes can be seen in the way individuals work, even among those who practice skilled trades, acquired after graduating from higher education. Artificial intelligence helps them by simplifying daily tasks by reducing work time and by implementing quick solutions. However, in order for as many people as possible to still be needed, we need to discuss some changes regarding current skills, the necessary retraining

and their degree of involvement. There is also a need for policies to create a balance in the human-technology relationship, providing ethical, moral and privacy security.

For example, for the near future, it is quite visible that robots will not completely replace experts in the medical sector, given the errors they produce even in manual tasks. Human medical expertise and the necessary empathy are factors difficult to replace by artificial intelligence, the doctor-patient relationship being one centered on interaction and direct communication, on empathy and adaptability to people's spontaneous attitudinal changes. Instead, "robots are manufactured devices that if they represent anything, represent the entities that develop and market them" (Bryson & Bogani, 2021), lacking emotional intelligence. The goal of artificial intelligence is to help people more and more in organizing their tasks; Yoky Matsuoka, among others the co-founder of Google X, stated that "AI and humans will continue to work together, and will need to work together to provide help" (Rose, 2021). Thus, the coordination report between the two entities aimed at simplifying the evolutionary path of the companies is presented.

TOM SIMONITE BUSINESS JAN 16, 2022 7:08 AM

When It Comes to Health Care, AI Has a Long Way to Go

Medical information is more complex and less available than the web data that many algorithms were trained on, so results can be misleading.




ILLUSTRATION: ELENA LACEY; GETTY IMAGES

The illustration shows a blue trash bin overflowing with various medical data cards and a checkered flag. The cards have text such as '480', '4', 'Total Cases', 'Hospitalizations', and 'Deaths'. The checkered flag is black and white. The background is a solid yellow color.

Figure 3. The limits of artificial intelligence in the medical sphere
Source: Screenshot - <https://www.wired.com/story/health-care-ai-long-way-to-go/>

Even in the sphere of programming, humans are still needed, however much we may think that only a programming language is needed that artificial intelligence could assimilate and later apply easily, without the involvement of affectivity, as in the case of the domain of medical care. Specifically, AI can generate coherent multilingual texts on certain topics and codes for programmers, but still requires the presence of humans with considerable skill in the domain to use the autonomous program, as its actions often need to be verified or modified. Thus, even artificial intelligence is not without errors, as Alex Naka, a data scientist, states in an article in the current analysis: “it seems that it [artificial intelligence] makes errors that have a different flavor than the kind I would make” (Knight, 2021).

Another example suitable for this context of complementing human expertise with autonomous technology can be brought up due to its complementary nature. With this term, I want to highlight the way in which artificial intelligence offers extensions to human abilities, where they are missing or not sufficiently developed. For example, artificial intelligence can create synthetic clips with avatars of real people (so-called *deepfakes*) to convey important information in an innovative way, aimed at creating an effective way to animate routine interactions with customers. In the article that talks about this innovation in the workplace, the improvement of human qualities brought about by artificial intelligence is also presented, the previously mentioned extension: a business partner who did not speak Japanese used the translation function built into the Synthesia technology to display his avatar speaking Japanese fluently for a client in Japan (Simonite, 2021). Thus, artificial intelligence brings benefits to human interactions, effectively and creatively building human skills that are acquired over a long period of time.

Another example identified comes from the field of art, with artificial intelligence coming to the aid of music composers, streamlining their entire creative process. Dynascore, one such program, is becoming incredibly useful, especially in commercial projects, as it offers aspiring and established filmmakers new musical options for a single track, “undoes the creative limits of the medium” (Hall, 2021) through its innovative character.

Last but not least, several articles analyzed in this research are heading towards a more serious sphere, such as the military one. The implementation of artificial intelligence in the military system of the United States of America, for example, would be useful because it would simplify the work of people in uniform, supporting projects that require a lot of data, while also improving the military decision-making process (Simonite, 2021). Also, in the domain of population security, artificial intelligence comes to the aid of the police, monitoring social networks with the aim of providing aggregated data, with the aim of combating disinformation and evaluating public reactions on various current topics. Zencity is one such solution that creates customized reports for city officials and law enforcement, using machine learning to scan public social media conversations (Fussell, 2021). This type of information gathering raises questions about data security, but this issue will be discussed in the next section.

Thus, humans are continuously assisted by AI in their daily lives, with some stability between human expertise and skills and the emerging competencies held by AI algorithms.

This section was intended to highlight the main themes within the optimistic scenario regarding the predicted impact of artificial intelligence in the skilled labor sector. In the following, I will present the opposite scenario, found in the discourses analyzed in the present research.

The pessimistic scenario of implementing artificial intelligence

In contrast to the previously presented scenario and the stated main themes that offer optimistic perspectives on the impact of artificial intelligence, this section is intended for the pessimistic scenario with themes that highlight and amplify forecasted negativity about the toxic replacement of humans by false artificial intelligence used. Thus, 10 articles out of the 35 belonged to this attitudinal pole, emphasizing the negative effects created by our desire to automate certain tasks in order to make our time spent at work more efficient. I will present the main themes identified in my analysis that fall within this scenario.

Discriminatory societal patterns

In the framework of this thematic analysis, I have identified, in addition to the strengths mentioned in the previous section, a series of disadvantages that lead to a different impact of artificial intelligence on the population. In this regard, in certain professional environments, artificial intelligence errors that are encountered lead to the inappropriate persistence of inequalities between people. Thus, situations of discrimination have been identified with the use of automation programs, generating discrimination, racism and gender inequality. These situations, from my point of view, constitute a paradox, since people create artificial intelligence, being aware of the urgent need for societies to significantly reduce discriminatory situations that increase inequality between social actors.

Discrimination was one of the keywords identified in many of the analyzed articles, being generated by the impact of artificial intelligence. For example, in certain domains, such as in the medical sphere, “some health care algorithms in use have proved unreliable, or biased against certain demographic groups” (Simonite, 2022). A 2019 study described in Tom Simonite's (2022) article for *Wired* identified a system designed to prioritize people with complex health problems in accessing the additional care they need. However, the system generates a discriminatory problem: first priority is given to white patients at the expense of black ones (Simonite, 2022). Likewise, a review of over 150 studies using artificial intelligence in predicting medical diagnoses concluded that most of these studies “show poor methodological quality and are at high risk of bias” (Simonite, 2022).

In the same regard, an article on the humanities aimed at saving Big Tech from its own influence quotes Chris Gillard as saying that “surveillance technology always ‘finds its level’. Its gaze is always going to wind up focused on Black folks - even if that was not the ‘intent’ of the inventor. [...] Surveillance systems, no matter their origin, will always exist to serve power” (Maris, 2022). Thus, “the tech industry needs to think of creative and meaningful ways to marry technical and sociocultural expertise, throughout the

development and deployment of technologies” (Maris, 2022), given the fact that Big Tech has harmful effects that must be combated by the humanities and social sciences.

The expansion of automation amplifies specialist anxieties, with “some economists and ethicists fear AI will also accelerate inequality and give more wealth and power to people who are already wealthy and powerful” (Johnson, 2021). In the article written by Khari Johnson (2021), it is brought to the readers' attention that there are initiatives to create new jobs, especially for underrepresented people, such as women and people of color. Even in programming, such problems arise, with language programs “inevitably capture and reproduce subtle and overt biases around race, gender, and age in the language they consume, including hateful statements and ideas” (Knight, 2021).

In health care, too, “Black patients and other marginalized racial groups often receive inferior care compared to wealthy or white people” (Simonite, 2021). This is caused by the medical data used to train the algorithms, as they carry traces of racial inequalities in disease identification and medical treatment based on historical and socioeconomic factors (Simonite, 2021). In this sense, it is highly possible for an algorithm to suggest an incorrect diagnosis because the patient is a person of color. Thus, it is necessary to consider this issue of unequal allocation of medical care, given that “race is a social construct and not in itself a biological phenotype” (Simonite, 2021).

According to the previously mentioned information, artificial intelligence can put people's lives at risk based on the errors it generates, also creating inequalities in terms of access to medical care and treatment corresponding to real conditions. Karandeep Singh, an assistant professor at the University of Michigan, states in an article that there are many widely used platforms about which we know far too little, so there is a possibility that the results of an AI-facilitated consultation could be wrong (Simonite, 2021).

Even the GPT-3 language pattern is cited as discriminatory, “makes racist jokes, condones terrorism, and accuses people of being rapists”, while “associates white people with terms like «supremacy» and «superiority»” (Johnson, 2021). Consequently, although it is claimed that artificial intelligence comes to the aid of humans, it manages to produce large problems of social inequality based on gender, race, ethnicity and age. Specialists' recommendations are to thoroughly research the substrates of artificial intelligence and calculate the risks it has on human safety.

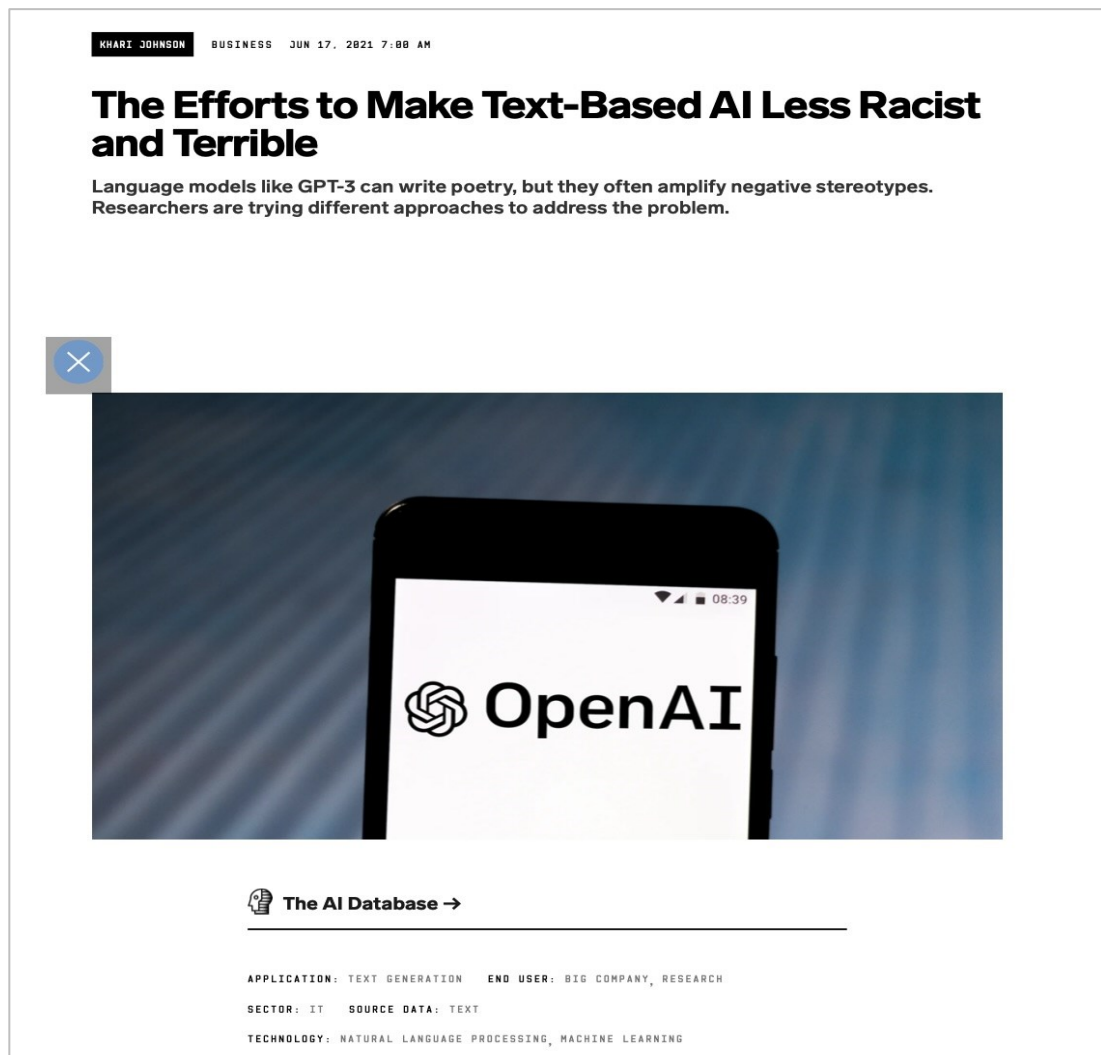


Figure 4. Artificial intelligence promotes discrimination

Source: Screenshot - <https://www.wired.com/story/efforts-make-text-ai-less-racist-terrible/>

Data privacy vulnerability

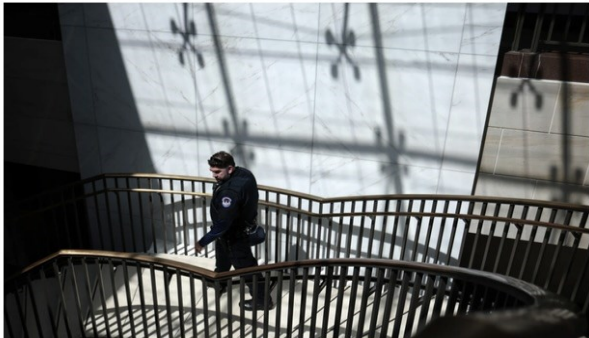
Another theme raised several times in the pessimistic discourse about the impact of artificial intelligence on skilled jobs and human safety centers on the vulnerability of the privacy of the data it operates with. Some of today's workforce is concerned about the nefarious purposes that may lie behind the personal data stored by artificial intelligence designed to deliver results as close to reality as possible. For example, in the context of deepfakes used to broadcast internal corporate video messages in a creative way, with the help of avatars extremely close to reality, some individuals expressed some skepticism about this idea, fearing of the possibility of digital cloning that devalues the human element in workplaces (Simonite, 2021).

Also, in contemporary societies, there is a discursive theme of fear about the power of the state and its institutions to monitor all our actions. With the development of technological giants operating in surveillance capitalism, based on personal data taken from users, this theme has also become relevant for surveillance by commercial or private actors. Thus, several issues related to the security of identity and personal data come into play. Sidney Fussell's (2021) article about police monitoring social media to create personalized reports based on available public conversations mentions the alarm over such an initiative, with people fearing surveillance of their online conversations. The platform's ability to monitor these discussions is, in fact, alarming, but Deb Gross, a councilwoman in Pittsburgh, argues that “surveilling the public isn’t engaging the public. It's the opposite” (Fussell, 2021).

SIDNEY FUSSELL BUSINESS JUL 6, 2021 8:00 AM

This AI Helps Police Monitor Social Media. Does It Go Too Far?

Law enforcement officials say the tool can help them combat misinformation. Civil liberties advocates say it can be used for mass surveillance.



PHOTOGRAPH: ANNA MONEYMAKER/GETTY IMAGES

Figure 5. Monitoring people

Source: Screenshot - <https://www.wired.com/story/ai-helps-police-monitor-social-media-go-too-far/>

Even in agriculture, such fear is seen once automation takes over, even though this transformation brings serious financial and time-saving advantages. However, “automating more of farming, and adding AI, may also stir debate around replacing workers as well as ownership and use of the data it generates” (Knight, 2022). Also on the same note, there are some concerns about cybersecurity risks in the medical sphere, raising the issue that robots meant to help doctors and nurses in hospitals can be corrupted by hackers, taking control from afar and violating patients' privacy (Johnson, 2022). In addition to the discrimination issues mentioned in the previous sub-chapter, replacing humans in this sphere with artificial intelligence to collect patient data produces privacy issues, with the accumulated data sets having a biased character anyway (Simonite, 2022).

General misinformation

In addition to the discriminatory nature and vulnerability of the privacy of the data it works with, artificial intelligence has the potential to produce a high degree of misinformation that negatively influences human perceptions. For example, in the context of the text-generating models mentioned in the previous sections, there is a fear about the persuasive ability to write about any topic and the possibility, in this line of ideas, “to generate bogus reviews, spam, or fake news” intended to mislead individuals (Knight, 2021). Also, an article on GPT-3 claims that it can easily lead to misinformation because it has the ability to generate coherent yet persuasive texts that induce confusion and create false narratives (Knight, 2021).

As solutions to the proliferated misinformation and differential impact produced by Big Tech, Elena Maris (2022) highlights in her Wired article the need for social workers and librarians, basically sociocultural experts, to get actively involved and reduce the current damage produced by the technological industry (Maris, 2022). Zencity, the social media surveillance program, offers a less invasive alternative to combating misinformation and gauging public reaction on various topics, producing customized reports for city law enforcement that do not compromise data privacy (Fussell, 2021).

Consequently, in this scenario, artificial intelligence is a generator of problems that must be carefully analyzed and dealt with so that errors related to discrimination, inequality, privacy, cybersecurity or misinformation are diminished and even reduced completely. Given that people own the mechanisms to create artificial intelligence, it is necessary for them to avoid the implementation of repeated human errors over time. In the implications of automation, its purpose being to simplify the lives of individuals, not to perpetuate the old problems of societies or even create new ones.

Research conclusions and discussions

The implementation of artificial intelligence in the work sector is much more visible today, registering many significant changes aimed mainly at simplifying the daily tasks of individuals. Despite this beneficial aspect of automation, the impact it has on the future of the workforce amplifies certain societal shortcomings, while also creating new problems that increase skepticism and even fear of individuals letting themselves be guided by

artificial intelligence algorithms, regardless of the field of activity to which we refer. Thus, I set out to identify what were the discourses outlined in the online environment regarding the way in which artificial intelligence acts on skilled jobs.

In order to facilitate my process of identifying the main themes stated regarding the evolutionary course of technological changes, I performed a thematic analysis on some articles from the Wired online magazine. Thus, based on a specific analysis grid, I accumulated 35 articles found in The Artificial Intelligence Database section of the magazine, and the main selection criterion was centered on qualified jobs that require intellectual and emotional involvement. Last but not least, the topicality of the articles represented another selection criterion, the publication interval of the articles I set for myself being May 1, 2021 - May 1, 2022.

Thus, the analysis of these articles outlined two types of attitudinal expositions regarding the forecasted impact of artificial intelligence, namely one centered on optimism and another centered on pessimism, the antithetical, each of which sums up different themes intended to argue the discursive framing. However, a general idea with applicability in both scenarios is worth mentioning at the outset: the studied authors believe that artificial intelligence will not completely replace the current workforce, with a clear need for human expertise to monitor and direct the incipient errors of automation.

The optimistic discourse is the one that takes precedence in my analysis, 25 out of 35 articles falling into this attitudinal sphere. In principle, a balanced relationship between people and technology is promoted, in which interactions are centered on evolution, progress and simplification of the daily tasks involved in skilled jobs. Thus, people's need for technology is highlighted and vice versa, the two entities coexisting. In this regard, for the optimistic scenario, I have identified three major themes centered on artificial intelligence, which is a time savior, an innovation tool and a partial human substitute. These three features highlight the advantages of the impact it has on the workforce, streamlining tasks and working time, and offering innovative ideas in many spheres of activity such as medicine, programming or agriculture; while emphasizing that there will be no general automation, but only a partial one, technology supplementing the instinctive nature of humans in skilled actions.

The pessimistic discourse, on the other hand, expresses concerns and fears regarding the risks that new technological implications generate in the professional sphere. Unfortunately, the authors note that artificial intelligence contributes to the perpetuation of inequalities and discrimination centered on different social constructs, such as gender or race, with a differential impact on action. In addition to this idea frequently identified in the discourse of pessimistic articles, two other themes have taken shape and are worth mentioning. Artificial intelligence puts data privacy at risk, creating both human safety and cybersecurity concerns. Last but not least, the impact of artificial intelligence leads to misinforming the population, generating erroneous data and false narratives.

In conclusion, today's skilled jobs are undergoing numerous transformations induced by the inclusion of technology in the human substrates of everyday tasks. Rather, artificial intelligence seems to have a positive impact on the professional future of

individuals, in Wired magazine's social imaginary, significantly reducing work time through a fair division of tasks. Innovation also comes with new solutions to current problems, offering novel perspectives of work. In this sense, the partial replacement of certain tasks reduces the fears of individuals regarding the loss of jobs, since technology complements human skills.

However, as no story has only happy moments, the implications of artificial intelligence justify, in the discursive imaginary of Wired magazine, the concern about submission to automation. People give their easy consent to be constantly monitored, discriminated against based on certain criteria and forced to lose the confidentiality of their identity and the data they expose online.

The articles in the optimistic scenario and the pessimistic scenario both have in common the emphasis on the human and social decision-making capacity to influence the future. Consequently, “the AI chess pieces being moved today will shape tomorrow’s endgame” (Chakravorti, 2021), so humans still have the power to say “checkmate” in a world shaped by automated players.

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