Ethics and Workplace Automation

Joel Naoki Ernesto Christoph

University College London
Tutor: Dr Frank Witte

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Today, companies face increasing social pressure, from their employees, their customers and wider society, to make responsible decisions in adapting to technological change. Simultaneously, breakthroughs in Artificial Intelligence (A.I.) and Machine Learning are being achieved at unexpected speed – for instance, a 2014 survey of 550 A.I. experts predicts that it will take 10 years for A.I. to beat the world's top-ranked player in Go (Bostrum & Müller, 2014), however it took less by an order of magnitude. The technological potential of A.I. in the workplace engenders both new risks and opportunities. For instance, a survey finds that 41.5 percent of respondents presented with a list of popular A.I. services could not cite a single example of A.I. that they trust (Krogue, 2017). While some argue that A.I. will automate routine tasks, thereby reducing tedious work and increasing employee productivity in other tasks, others argue that A.I. will be used to substitute for human workers altogether or to perfect the continuous monitoring of employees at the expense of their autonomy, privacy and mental health. Although such technological anxieties are not new (Mokyr, et al., 2015), the widespread potential of A.I. as a General-Purpose Technology (Brynjolfsson, et al., 2018) raises concerns about the ethical implications surrounding its use as the most recent automation technology in the workplace (Autor, 2015).

This essay examines the ethical issues related to increasing application of A.I. and related algorithmic automation in the workplace. First, I consider the ethical issues related to A.I. algorithms as a complement to employees, in particular as an instrument that can improve the real-time monitoring of worker performance against continuously-adapted targets. Second, I consider the ethical issues related to A.I. algorithms substituting for workers in either a subset or all tasks on a job, with a marked focus decisions creating 'technological unemployment' (Keynes, 1930) through the automation process. Last, I conclude with recommendations to ensure that the ongoing workplace transformation proceeds ethically.

I. Ethics of A.I. as a Worker-complimenting Technology

There are two types of applications of A.I. and algorithmic automation in the workplace: cases where such technologies compliment workers to increase their productivity and cases where they substitute for workers to reduce a company's workforce. We shall begin by considering A.I. and related automation technologies that work alongside employees in their current jobs.

One of the attractive features of A.I. for bosses is that it enables the delegation of decision-making to machines. Algorithms can collect, monitor and analyse data on workers in real-time to identify outstanding performance or highlight areas that are falling short of expectations. Potential benefits of A.I. optimising decision-making include increasing the accuracy, efficiency and speed of assimilating and interpreting information, thereby reducing bias and subjectivity in management decisions and improving overall business outcomes. In managing workers, A.I. can feedback information, keep track of how information is gathered and modify incentives in real-time to optimize worker productivity.

Nevertheless, whether A.I.-enabled optimisation ultimately improves outcomes for individuals, organisations and wider society also depends on whether the decisions it makes or recommends are ethically acceptable. This, in turn, depends on how the algorithms are developed and used. A.I. could help automate organizations' decision-making to avoid ethical considerations from being overlooked in day-to-day activities. However, A.I. algorithms that optimize decision-making in a particular context can be coded without accounting for ethical issues such as conflicts of interests and unintended consequences. As mathematician and author of *Weapons of Math Destruction*, Cathy O'Neil, emphasizes: "algorithms are just opinions expressed in numbers" (The RSA, 2018). A.I. applications therefore reflect the biases inherent in coders' thinking about an issue and can amplify new and existing problems as A.I. applications proliferate through production processes.

One area of ethical concern where A.I. is rapidly advancing is in tracking and predicting behaviour. On the one hand, A.I. could help companies to distinguish patterns of unacceptable workplace behaviour, retaliation or underperformance (Keller, 2017). A.I. also enables continuous and ever-finer monitoring of employee performance that can help organizations with workforce planning and staffing decisions. This contrasts with the more traditional review of submitted timesheets or the relatively modern use of computer vision and sensors to

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monitor employee behaviour. For instance, A.I. can analyse data from email traffic, phone calls, instant messaging, CCTV, facial recognition software, mood monitoring, tracked keystrokes and other data sources to recommend decisions that improve employee productivity, resource allocation and process efficiency, and ultimately increase company performance (Mills, 2018).

Many UK businesses already collect data including who emails whom and when, who accesses and edits which files and who meets whom and when. For instance, over 1 billion actions of 130,000 people in the UK and overseas have been monitored in real-time by the Isaak system, used to rank staff members' attributes while reducing managerial bias. The London-based company behind the software, Status Today, argues that "the Isaak system shows managers how collaborative workers are and whether they are 'influencers' or 'change-makers'. The computer can compare activity data with qualitative evaluations of workers from personnel files or sales performance figures to give employers a detailed picture of how behaviour affects output." The company promises "real-time insights into each employee and their position within the organisational network" to better allocate workload and responsibilities, "ultimately improving the overall workplace environment and reducing stress and overworking." (Booth, 2019).

However, use of A.I. to monitor employees also raises ethical issues about the limits to such applications. For instance, data generated on company equipment can generally be examined by employers to varying degrees, however keylogging, voice recording, location tracking or screen-capture software can violate employees' privacy when company equipment accesses personal information. Moreover, workers generally lack access to such data, which is controlled directly by the employer. Besides privacy concerns, the use of A.I. to monitor staff behaviour minute-by-minute can increase pressure on workers, create a climate of distrust and pose a risk to mental health (Booth, 2019). A 2018 survey finds that 6 in 10 workers fear greater workplace surveillance through technology will fuel distrust (65 percent) and discrimination (66 percent) (Trades Union Congress, 2018). Worker monitoring systems can be used to continuously fine-tune performance targets and measure workers against them. However, this risks increasing pressure on workers, who fear the judgement of the algorithm. A.I. monitoring could also alter incentives affecting employee behaviour: for instance, taking hands off the keyboard may be interpreted as not working and this could discourage workers from taking breaks or spending time in creative thought that will not be logged. This could undermine innovation and present mental health risks if workers feel unable to take breaks or to talk to a colleague for help Ankur Modi, chief executive of Status Today, admits that "there's a risk that it might be misused" and agreed that there is a legitimate concern that companies will use monitoring software only to boost productivity, without regard to wellbeing (Booth, 2019). Analysing this trend towards greater measurement in all aspects of life, the Royal Society of the Arts (RSA) predicts that within 15 years, life insurance premiums will be calculated with data from wearable monitors and workers in retail and hospitality will be tracked for time spent inactive (Dellot, et al., 2019). A final concern is that, depending on how it is implemented, non-stop algorithmic monitoring of employees could either raise or lower pressures to compromise organizational standards (Thomson Reuters Legal, 2019). If worker productivity is to be maximised without regard to ethics, then workers may be encouraged to pursue performance targets at the expense of workplace standards, regulations and governance guidelines.

Thus, A.I. can be a benign addition to the workforce, identifying gaps in employees' learning or discovering outstanding performance. Nevertheless, A.I. can also increase pressure on workers, create a climate of distrust and fear and worsen both morale and mental health. For instance, 56 percent of respondents to a UK survey state that they are currently monitored by their boss at work. This includes tracking internet use, keystrokes and webcams, using location tracking by handheld or wearable devices, facial recognition software to assess workers' moods and recording time away from work tasks such as toilet breaks (Trades Union Congress, 2018). This engenders ethical concerns including workers' worries that data will be used by employers to set unfair targets, micromanage them and take away control and autonomy. Innovations are continuing in this field of A.I. and without clear limits to workplace applications, A.I. may eventually be used to listen to employee conversations and judge whether the content is appropriate. As the use of A.I. and related algorithmic monitoring spreads, limits to the use of such technologies must be clearly defined and communicated. In particular, four out of five UK workers

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say that employers must be legally required to consult their workforces and reach agreement before using surveillance (Trades Union Congress, 2018). Until regulations catch up, companies must establish their own ethical guidelines to address the concerns arising from A.I. as a worker- complementing technology.

II. Ethics of A.I. as a Worker-substituting Technology

A 2018 Deloitte survey of A.I.-aware executives finds that 36 percent of respondents deemed job cuts due to A.I. automation to be an ethical risk. In industries such as financial services, executives announce plans to automate tens of thousands of jobs in the next few years. Of concern for employees in virtually all industries is that an overwhelming majority of executives prefer new hires with required skills over retraining and retaining current workers: only ten percent of respondents state an explicit preference for retraining and keeping current employees, compared to eighty percent that tended towards either "keeping or replacing employees in equal measure" or "primarily replace current employees with new talent." (Davenport, et al., 2018). Professor Thomas Davenport, author of "Only Humans Need Apply: Winners and Losers in the Age of Smart Machines" notes that surveys he has worked on suggest that "more than half of U.S. executives in large companies don't feel they have an ethical responsibility to reskill their workers. They don't plan to reskill – they plan to hire new people" (Forbes Insights, 2019). Despite this, only 38 percent of firms have a clearly-defined strategy outlining how they will implement A.I. in their organisations (Gerbert, et al., 2017). In addition, a 2018 survey finds that 58 percent of organizations globally have not discussed the potential impact of A.I. on their workforces with their employees. (The Workforce Institute, 2018). Many companies therefore risk being unable to maintain an ethical commitment of transparency to their workers, as well as a commitment to equipping workers with new skills for the increasing application of A.I. in the workplace. The current predicament is highlighted by a 2018 Accenture survey which find that while 67 percent of executives report an increasing skills gap in their company and only 26 percent of senior executives believe their workforces are prepared to work with intelligent technologies, only 3 percent intend to increase investment in worker reskilling programs over the next three years (Carrion, et al., 2018).

Workplace automation is not entirely opposed by employees: 64 percent of workers would welcome A.I. that reduces time-consuming drudge work (64 percent) and increases fairness (62 percent) (The Workforce Institute, 2018). Notwithstanding this, the efficiency gains enabled by A.I. are expected to lead to job losses as tasks that used to be performed by humans can increasingly be completed by machines. For instance, one study estimates that about 47 percent of total U.S. employment is at risk of computer automation (Frey & Osborne, 2017), while another estimates that within fifteen years, around half of U.S. jobs may be replaced by A.I. (Lee, 2018). Notably, the pace of companies' investment into A.I. has increased 54 percent year-on-year in 2018 and is expected to increase a further 171 percent by 2021 (IDC Corporate USA, 2018). Given this acceleration, bosses face ethical choices in making decisions and communicating the likely impacts of A.I. to their employees.

How a company deals with workers' anxiety about the relevance of their skills and their prospects for continued employment is a consequential matter of ethical responsibility. A 2018 study finds that worker exposure to automation risks increases job insecurity and leads to poorer physical and mental health outcomes (Devaraj, et al., 2018). Research also suggests that job termination is associated with long- term earnings losses and lower job quality; declines in psychological and physical well-being; loss of psychosocial assets; social withdrawal; family disruption; and lower levels of children's attainment and well-being (Brand, 2015). Importantly, a survey of executives finds that 87 percent of respondents acknowledge worker fears that automation will eliminate jobs (ServiceNow, 2017). Nonetheless, neglecting such ethical issues is likely to affect overall firm performance through various channels. For instance, a non-trivial emphasis on Corporate Social Responsibility is reflected by customers that are willing to pay a premium for products that meet certain ethical norms (Freestone & McGoldric, 2008) and workers that accept a lower pay to work for a firm that demonstrates ethical leadership (Nybord & Zhang, 2013).

Organisations applying A.I. and related worker-substituting technologies must therefore account not only in terms of efficiency and costs, but also in unintended outcomes amid a wider social and environmental context. One

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option is for business leaders to take measures that help workers reskill to show that the company values its employees and the contributions they make. This is likely to be more cost-effective than firing and hiring new employee segments with different skills and accustomed to different organizational cultures. The alternative of hiring new workers instead of re-skilling current employees, is likely to reduce collaboration and expertise in implementing A.I. in the workplace and to undermine relationships with employees and stakeholders that are based on trust (Forbes Insights, 2019). Another ethical strategy is for employers to advise workers how A.I. is likely to impact their jobs in the future and to provide time for the acquisition of new skills or for preparing transitions to new employment. Early notice can benefit organisations by helping employees to retrain in anticipation of work restructuring (Davenport & Katyal, 2018) and also promotes employee collaboration in the implementation of new technologies. One method is to give workers a designated period introducing them to new A.I. systems to help them understand how A.I. works in their context and how it impacts task allocation. Such experimentation can beneficially engage workers in co-designing A.I. and automation initiatives and can increase employees' acceptance of worker-substituting technologies.

III. Conclusion and Recommendations

Companies face increasing ethical issues of fairness, rights and inclusion in deciding when and how to apply A.I. in the workplace. In managing this transition, company ethics boards with representative views from a broad context and that are capable of dissent are more likely to promote acceptance among workers and other stakeholders. For instance, Google scrapped its ethics advisory council on A.I. after controversial selection of members provoked a backlash from both inside and outside the company (Waters, 2019).

As A.I. algorithms become more widespread, business leadership must take accountability over their implications in their organisations and ensure that employees are provided with the necessary training and guidance to highlight issues as they arise. To ensure that the ongoing workplace automation occurs in an ethical manner, business leaders must take responsibility to understand and monitor how A.I. affects their organisations' culture and values. The urgency to act is amplified by the substantial private and societal risks of adopting A.I. solutions without properly understanding their implications. Where A.I. complements workers in the form of monitoring or decision-making, data protection regulations must safeguard workers' rights to privacy and prevent excessive or intrusive surveillance methods. Employees are key stakeholders in the workplace transition and will need to be educated about what A.I. does and does not do to better detect and remedy unethical decision-making.

Governments can help by developing well-defined regulatory frameworks. For instance, the UK government's mandatory reporting on gender pay gap has brought attention to the issue. In a similar vein, regulation and governance can help to mitigate the significant risks and amplification of biases inherent in A.I. algorithms. Appropriate safeguards can be developed to ensure that new automation technologies help organisations and managers in particular to engage in more ethically responsible behaviour. In the meantime, the attention turned to A.I. is continuing to increase. For instance, Google Trends show that interest in the topic "artificial intelligence" quadrupled between 2014 and 2018 (Google Trends, 2019). This rising interest will likely further increase awareness and discussion about ethical issues related to A.I.

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