Automation Moderation: Finding Symbiosis with Anti-Human Technology

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Abstract

I examine Artificial Intelligence and automation technology from the perspective of Aristotelian virtue ethics, focusing on the detrimental impacts automation technology can have on human creativity, learning, and attention. As a potential solution, I put forward "automation moderation," which is a human-centered approach to designing AI, and showcase some examples of it.

Introduction

> *"The time has come for computer professionals. We now have the power to alter the state of the world fundamentally and in a way conducive to life."*
> –Joseph Weizenbaum, 1987

Framing automation as an economic dilemma rather than an ethical dilemma is a category mistake that must be soon admitted and corrected. Especially in excess, automation technology exhibits anti-human tendencies, such as degrading effects on our creative capacity, our learning potential, and our ability to focus. To examine automation as an ethical issue, it will first be helpful to look at certain examples of automation technology and to consider the dangers they pose. With these dangers in mind, we can then appreciate examples of automation technology that benefit our minds and bodies, as well as reflect on the distinctions between the harmful examples and the beneficial examples.

In pointing out that job automation technology has not received attention as an ethical dilemma – unlike the self-driving trolley problem, which seems to get attention from every armchair philosopher who has an internet blog – we should not overlook that the technology has received plenty of attention as an economic dilemma. Many have observed the looming threats of unemployment, massive workforce transitions, and other potential consequences of automation technology, mostly through the lens of abstract statistical projections. Gigabytes of unemployment metrics, job reports, GDP growth, and the like have served as the basis of evaluation thus far (Holdren, 2016). But a proper evaluation of automation technology should begin with humanity, not statistics. In other words, we should give attention to both the intrinsic value and consequential value of the technology, but we must start with the former.

Work is a fundamental part of human life, and so to take away someone's work is to take away part of their humanity. Countless civilizations have defended the necessity, privilege, and meaning of labor – though it is worth pointing out that, by historical accounts, the resistance to work in modern western society is quite bizarre. It is possible that the communities of artificial intelligence researchers and automation experts know the importance of work, and merely want to "save us" from expending effort on the unimportant things – "the things nobody wants to do" – but a few examples will show that is not the case. In fact, we will see that unmoderated automation technology has already corroded human creativity, learning and attention.

Cold creativity

Although manual labor jobs may come to mind first when discussing job automation, a great deal of automation technology actually aims for human creative processes. One example is architectural design. Given the rich history of cultural expression that one can learn from studying architecture, it is surprising the extent to which computer-aided design (CAD) programs have sought to expunge humans from the design process. This was not always the case. The first CAD systems encouraged creativity, giving the designer a new set of expressive tools, all the while improving architectural

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precision. But today, mostly as a result of CAD software that accepts a handful of parameters as input and provides a full building design as output, architecture is becoming less and less a creative and expressive human endeavor. Instead, "parametricism" is the defining post-modern architectural style, described by one renowned architect as a style marked by "blobs" that can be produced with a few clicks on the computer (Schumacher, 2010). With an excess of automation, CAD programs have now put the computer, in its cold and mechanical decisions, at the center of a human design process, that is, CAD programs have "saved us" from the creative process. We will see later that these automation efforts in moderation can empower human creativity while still capitalizing on the power and precision offered by the computer.

Lax Learning

Automation excess has also found its way into the aviation industry. Just as some CAD programs remove humans from design decisions, some flight systems remove humans from navigation decisions. Airbus has indicated that it hopes to make planes that are "pilot-proof," with humans sitting in the cockpit essentially to babysit the aircraft. On the surface, this form of automation seems like an innocent effort to cut down on labor. It takes diligent time and practice to learn the rules of flight, many hours to gain certification, and still many more hours at the yoke to truly master the complexities of aeronautics. How could cutting out this effort be such a bad thing? From an alarmist perspective, one could point to autopilot, and specifically, to Air France flight 447, which crashed in the Atlantic ocean and killed each of its 228 passengers in June of 2009. Part of Airbus' automation-centered design is that mechanical yokes are replaced with what are essentially digital joysticks. In traditional planes, both pilots hold their own yoke, but they are mechanically linked such that both yokes move identically. On flight 447, this was not the case, and black-box data has revealed that one pilot was pulling back on his joystick, a critical (and in this case fatal) error which the other pilot would have noticed had they been steering with mechanically linked yokes instead the joysticks that supposedly "save them" physical energy. Automation-centered design also encourages excessive use of the autopilot feature, which prevents pilots from practicing and maintaining the many skills required to fly an aircraft. In situations like 447, practicing could be the difference between life and death.

But besides this warning against automation-driven flight, there is reason to embrace human-centered flight. It is arguably the very reason the Wright brothers were successful: an intrinsic appreciation for the wonderful experiences that one finds as a result of learning efforts. Once the hours of learning are applied, however arduous that learning may be, applying this knowledge to partake in human flight is nothing short of bliss. Thus, to shortchange the work of learning is to shortchange a deep, hard-earned, blissful satisfaction.

Dull Decisions

Finally, in addition to automation technologies that degrade the mind's creativity and learning power, automation excess has also threatened our attention and focus. A clear is example is the "app suggestion" feature on both iOS and Android. This feature prompts a user to open an app based on the user's habits combined with current context details such as location, time of day, and connected devices. Just as CAD originally enabled creativity and the plane originally offered bliss from learning, the phone originally enabled focused attention. In the days of the payphone booth, one had to make the active decision to spend their attention on a phone call to a specific person for a specific amount of time. Now, with automation features such as app suggestions, it is the phone that makes the active decision, using probabilistic models and statistical learning to tell the user what he or she should do with precious time and attention. One may argue that app suggestions save the user time, but few of us would consciously choose the few seconds it takes to make a few extra taps over our very autonomy – our will and our ability to make choices are both essential to our humanity, and must not be automated. In a proverbial sense, we were once able to use the phone, but automation means the phone is able to use us. We should be weary of technologies that promote this reversal, especially if they only "save us" a couple

of seconds.

At this point, we can move beyond the gloominess of unmoderated automation technology, and examine what might be called "automation moderation." In short, creating this type of automation technology simply asks that we discern between "can" and "should" before putting automation technology in the center of human endeavors.

Semi-automatic

Although many CAD programs are drifting towards fully automated design processes, some have recognized the need for human creativity and already offered robust, human-centered solutions. For example, some researchers have designed a CAD program (Gross & Do, 1996) that allows for freehand drawing as an input mode. This promotes a designer?s connectedness to the design, partly because moving a pen with your hand engages more sensory perception and cognition than tapping a keyboard. A blank page is also more conducive to creativity than a keyboard – a keyboard limits possibilities, a blank page leaves possibilities to the designer. All the while, this program uses sophisticated refinement processes to discern the designer's intention and thus capture it with the detail and precision required for modern manufacturing. Whereas removing humans from this process discourages them from creative design, putting humans at the center of the creative process preserves and encourages their capacity for innovation.

Changing times

No discussion of automation would be complete without mentioning the assembly line. For a short case study, the Detroit-based watch manufacturing company Shinola will be useful. Although assembly lines are generally not known for their teaching abilities, Shinola defies that reputation by focusing on "skill at scale," which involves hand-making each individual piece of the watch from start to finish. Workers learn different parts of the artisanal process as they spend more time at the company under an apprentice system, a system that encourages workers to gain a skill set rather than encouraging them to watch a machine remove the need for that skill set. Although not all manufacturing can use humans instead of machines from start to finish, in this case, humans are properly valued for their ability to learn and perform a skill in a way that automated machines cannot. A machine can follow a recipe, but only a human can taste-test.

A phone of the people, for the people, by the people

Lastly, an example of automation moderation that gives you back your attention and fits in your pocket (Siempo, 2017). Marketed as "the phone for humans," Siempo is designed from the ground-up with human psychology as its main consideration. Rather than suggesting apps and behaviors, Siempo's interface is dubbed the "intention field," where users must type in the course of action they wish to take using their phone. Instead of bombarding users with unpredictable alerts that vaporize attention, Siempo sends notifications during windows that the user defines, for example, once every hour. This puts decision-making abilities back into the hands of the user, avoiding the incessant and unpredictable interruptions that characterize the modern smartphone. In other words, this human-centered phone is designed to allow and encourage users to practice focusing their attention. Like creativity and learning, the ability to focus our attention is an intrinsically valuable skill, and one that any human will find worthwhile in and of itself. Siempo recognizes the importance of attention, while still giving users the basic tools and technology that we now expect from our phones.

Conclusion

As this essay has shown, automation can not be reduced to statistics, whether the decimal points represent income dollars or employment percentages. Unfortunately, the popular way to construe automation technology and job loss is merely as a money issue. When construed as a money issue, only money solutions are needed. And so, many technologists (including Elon Musk) have unabashedly suggested universal basic income as a solution to the dilemmas of automation technology. But the issue, which is ethical before

it is economical, is that automation excess causes people to lose creativity, learning capacity, and ability to focus. These are qualitative, human-centered concerns rather than quantitative, mechanically-centered concerns. If we aim to solve the quantitative concerns, both people and statistics will suffer. Only if we aim to solve qualitative concerns do we have a chance, in the long run, to mend both.

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