Killer Apps and Killer Robots

An Ethical Framework for Answering Questions of Automation

Peter McKay, Nisansa De Silva, Elizabeth Fuller, Bradley Green, Gautam Sondur

Information and Computer science Department

University of Oregon

CIS 590 - Winter 2016

Abstract— In the following paper, we carry out an examination of two related ethical quandaries concerning the increasing degree [1] of automation in the modern world. First, we consider the ethics of existing systems, exploring the case in which automated systems make choices apparently on their own, and what kind of moral reasoning we face in such situations. We consider the idea that systems may act as moral agents, or as proxy agents [2] for the humans involved in their design and deployment. Secondly, we examine a somewhat more fundamental issue: is it right to automate these tasks in the first place? Rather than trying to achieve answers both general and correct, we will instead lay out a framework which may be put to use in the pursuit of answerss for specific questions.

I. INTRODUCTION

II. BACKGROUND

Later on in our paper, we will put forth an ethical framework for use in answering questions related to automation and related tecchnologies. As an important part of that framework, we aim to analyze who may be affected by changes in the state of the art of technology, and how those effects may ripple out to change society at large. While such an analysis would be much simpler were it not the case, the fact of the matter is that technological innovation is part and parcel of human society, and advances in such technology cannot be extricated from the social conditions that led to those advances, or the consequences that result from those advances. Indeed, this very fact is the motivation behind this paper in the first place. If we wish to base our analyses in historical fact, it seems prudent to first review some basic history with an eye towards the factors we intend to consider. If we wish to see a preview of the impact that automation will have on the workforce, and consequently the society at large, it seems prudent to look at the ways automation shaped society as its effects on the economy were first made manifest.

It seems prudent to start with a look at a single, practical example of the early industrial process, proceeding thereafter to the broader patterns engendered by such an invention: To that end, let us consider the steam hammer. The steam hammer, a powered hammer for forging and stamping of metal parts, was invented in the mid-1800s as increasingly large and complex machines necessitated the fabrication of larger and heavier components. It made routine the construction of many works that would have been considered marvels of engineering and concerted human effort, only years before. It contributed to the construction of great ships, the production of delicate clockwork, and a massive increase in the industrial productivity of Western Europe. It also contributed [3] to a sharp decrease in the leverage that skilled engineers held over their employers, resulting in drastic consequences for working environments, and sharp increases in child-labor. James Nasmyth, one of those credited with the invention of the steam hammer, made the following statement in regard to the machinery he had helped introduce to the world in wake of widespread strikes in the 1850s:

"The characterstic feature of our modern mechanical improvements is the introduction of self-acting machinery. What every mechanical workman has now to do, and what every boy can do, is not to work himself, but to superintend the beautiful labour of the machine. The whole class of workmen that depend exclusively upon their skill

is now done away with. Formerly, I employed four boys to every machine. Thanks to these new mechanical combinations, I have reduced the number of grown-up men from 1,500 to 759. The result was a considerable increase in my profits." [4]

OUTLINE

Talk about how social issues are intimately connected to automation and industry. That is, we cannot disconnect any innovation from the changes it drives in society, and we seek to give examples of that sort of thing. (check)

compare industrial revolution to automation and such (check)

Talk about the Steam Hammer.

Talk about how economics, and the concept of the economy of scale, demands ever-increasing levels of efficicency and innovation

(probably connect that to primitive accumulation to connect to the next bit)

Related to that, talk about the need for a concentration of capital. Specifically, discuss how Japan, the Soviet Union, China, and the West achieved it differently, and the costs related to each of those situations.

Talk about the legacy of those approaches, and how they inform our current economic status and sociopolitical climate. Name the winners and losers, and mention that we're going to keep an eye on history when we get to the point of identifying stakeholders.

Probably mention Elizaeth's point, in that there are many current groups who see the path we're on as reflective of certain different parts of history. That is, they each take particular lessons from that history, and the lesson they consider to be most important tells us something about their approach.

III. The Current Scenario

IV. A Review of Present Solutions

A. *The Hope of the Singularity*

B. *Bill Joy*

C. *Jason Lanier*

D. *The Amish*

E. *Deep Green Resistance*

Deep Green Resistance is a group primarily identified by their beliefs and behavior with regard to specifically environmental matters, rather than more general opinions about technology. Specifically, DGR subscribes to the notion that industrial civilization poses too great of a threat to life on the planet earth, both human and otherwise, to be allowed to survive. The ultimate goal of DGR is the destruction of industrial civilization and a return to an earlier stage of societal and economic development.

DGR's philosophy draws from the Deep Ecology movement, which holds that an anthropocentric analysis of ecology, defining other forms of life in terms of their utility to humankind, does not do an adequate job of describing the complexity of ecological systems. DGR takes this a step further, in declaring all life to be equal to human life. Starting at the problem of inequality among life, they turn to ideals similar to the political stance of anarcho-primitivism: the idea that human society, industrial capitalism in particular, cannot be reformed into a more beneficial form.

Such a philosophy stems from an agreement with Friedrech Engal's seminal anthropological work on early civilizations [5], specifically the assertion that early gatherer-hunter societies were unable to produce structural inequality without the ability to acquire surplus wealth. Unlike Engals, modern Marxists, and even their fellow anarchists, DGR and anarcho-primitivists do not believe that a society can ever reach a level of egalitarianism and freedom from oppression that they are comfortable with. Rather, they believes that the only truly equal societies that have ever existed were only able to function without the trappings of civilization. Therefore, they are willing to advocate

any means to right the wrongs they see with the world. To them, technology is not evil per se. Rather, technology is another product of a system with which they cannot make peace, and as such, it must fall by the wayside.

Later in our paper, we advance an ethical framework for the analysis of decisions regarding technology and automation. In so doing, we emphasize that we must look to the past when examining possible consequences of an action, basing, wherever we can, our reasoning on historical fact. In this case, we would be remiss if we did not qualify our description of the views of DGR with the caveat that their views ultimately reduce to something chillingly familiar. A return to pre-industrial levels of technology would necessitate either the death of billions, or the restriction of new births to a fraction of their current levels. Without modern medical technology, it becomes a disturbing fact that disabled people will not be able to survive in such a world: this means DGR endorses either genocide or eugenics.

V. A COHERENT ETHICAL FRAMEWORK

A. *Identifying Stakeholders*

B. *General Classes of Stakeholders*

C. *Defining a Coherent Value System*

D. *Synthesis*

VI. SELF-DRIVING CARS: AN APPLICATION OF OUR FRAMEWORK

VII. CONCLUSION

REFERENCES

[1] Carl Benedikt Frey and Michael A Osborne, "The future of employment: how susceptible are jobs to computerisation," September 2013.

[2] Deborah G Johnson and Thomas M Powers, "Computers as surrogate agents," *Information technology and moral philosophy*, pp. 251–269, 2008.

[3] Peter Gaskell, *The manufacturing population of England, its moral, social and physical conditions*, Baldwin & Cradock, 1833.

[4] Karl Marx, "The strife between workman and machine," in *Capital*, vol. 1, chapter 15. 1867.

[5] Friedrich Engels and Tristram Hunt, *The Origin of the Family, Private Property and the State*, Penguin UK, 2010.