Softwork: What are humans useful for?

Konstantinos Chorianopoulos

Abstract

In this article, we suggest that the use of software applications has already provided a perpetually robust solution to the problem of work, employment, and jobs. We assume that basic human needs (food, shelter, security) have been fulfilled and we aim to address self-actualization. For this purpose, we employ social phenomenology theory and we regard human actions and beliefs as a malleable inter-subjective reality. In particular, we focus on the genre of office productivity software and we provide a case study on Computer-Aided Design (CAD) software. We demonstrate how the work of the architect has gradually morphed from a skillful, embodied, and enacted activity into mere symbol manipulation that can be performed by unskilled humans. We suggest that this finding can be generalized to the majority of software applications that have a similar workflow, which includes editing of content and sharing it with other human beings, in a self- reinforcing cycle. These findings have significant implications for policy, education, and spirituality, which are malleable and could shape human needs in alignment with any goal that we consider as good.

Keywords: digital culture, identity, self-actualization, software, employment

Man is a perpetually wanting animal, A.H.Maslow(1943)

In the future there will be no jobs for humans

In a future dominated by machines and automation, it becomes possible to work less or not to work at all. Previous scholars have provided varying perspectives on a possible future without work. In the past, Keynes (1933)[1] correctly forecasted that factory workers will be replaced by machines, but he was unable to foresee that humans will be employed in new kinds of jobs instead of having more free time for creative pursuits or just for recreation. In the beginning of the information age, Wiener (1954)[2] was concerned that computer technology will increase unemployment, which might destroy even the information industry itself. More recently, Harari (2017)[3] has raised the issue that humans might become useless, which he implies as a worse condition than being exploited by a government or a corporation. Despite the pessimistic forecasts, it seems that employment is always shifting to new activities. Why do we need to work?

It has been established that we need to do a minimum of personal work in order to survive, but it is an open question how much more work is needed. Adam Smith (1778)[4] described the wealth of

[1] John Maynard Keynes. Economic possibilities for our grandchildren (1930). *Essays in persuasion*, pages 358–73, 1933

[2] Norbert Wiener. *The human use of human beings: Cybernetics and society.* Number 320. Boston: Houghton Mifflin, 1954

[3] Yuval Noah Harari. *Homo Deus: A brief history of tomorrow.* Random House, 2016

[4] Adam Smith. *An Inquiry Into the Nature and Causes of the Wealth of Nations*, volume 1. W. Strahan, and T. Cadell, in the Strand, 1778

the nations as the continuous exchange of goods and services between humans, but it is unclear whether there is some saturation point in terms of enough wealth. At the same time there is ample evidence that there is no saturation point in terms of human wants (Maslow 1943)[5]. Moreover, it is worth considering the types of jobs and employment throughout history. In the past, there were few jobs (e.g., merchant, soldier) and the majority of employed work was performed by slaves. In developed economies, automation has been replacing slave work and repeating tasks, but, according to unemployment statistics there are still jobs for mostly everyone who wants to work. Therefore, the type and amount of work we are doing depends mostly on what we (collectively) want to do with our lives.

[5] Abraham Harold Maslow. A theory of human motivation. *Psychological review*, 50(4):370, 1943

What do we want to want?

One of the main benefits of the industrial age has arguably been the liberation of most of the manual work required to fulfill basic human needs, such as food and shelter. Developed countries can already fulfill basic human needs with less than ten percent of the population employed in the agriculture and construction industries. As a thought experiment, imagine the existence of a human nation that is totally satisfied with food, shelter, and security. Then we could expect that the unemployment at that nation would be at least ninety percent, but nobody would be miserable, because we assumed that nobody wants something more than just the basics. In this way, it becomes possible to argue that humans really do want to work. Why is work so important to modern humans?

According to Maslow (1943)[6] there is a hierarchy (pyramid) of human needs that begins with food, shelter, and security at the bottom and the safety, love, and esteem needs in the middle of the pyramid. At the top of the pyramid, we find the self-actualization need, which seems to be the most elastic. In contrast to other basic needs (e.g. food), the self-actualization need is partly subjective and might depend to social, cultural and general environmental conditions, such as geography and economic climate. Thus, we can assume that humans want to work, because work has been culturally established as an important step in the ascend towards self-actualization. Harari (2016)[7] argued that we already crossed the point of fulfilling the basic needs, but his analysis of human work has not considered the perpetual morphing of software, which is a perfect match for the ever shifting human needs for self-actualization.

[6] Abraham Harold Maslow. A theory of human motivation. *Psychological review*, 50(4):370, 1943

[7] Yuval Noah Harari. *Homo Deus: A brief history of tomorrow.* Random House, 2016

As long as humans have fulfilled the basic survival needs of food, shelter, and security, then the majority of the higher level needs are socially-shaped. Thus, it is possible to moderate needs to serve any goal that we collectively consider to be worthwhile (Schutz 1967)[8]. For example, during the last few centuries, work has been motivated by the protestant work ethic (Furnham 1984), which considers laziness as a kind of sin. It might sound as a contradiction, but it seems

[8] Alfred Schutz. *The phenomenology of the social world.* Northwestern University Press, 1967

that modern humans work in order to achieve self-actualization, but the need to work is actually extrinsic, because it has been acquired through culture (e.g., schooling). If humans practiced Buddhism instead of protestantism, then the need to work would look rather superficial. It is undeniable that the combination of capitalism with the protestant work ethic has provided a robust intersubjective reality that has delivered to a significant part of human society massive benefits in many areas of life. Despite the benefits, it is worth considering alternatives and in particular to examine the underlying assumptions.

Program or be programmed?

Contemporary service work is increasingly based on software applications, which have created new kinds of work for users and many riches especially for programmers. Ironically enough, even if we choose to program, sooner or later we will probably end up to be programed by the new software that we have created as a solution to the problems of the previous workflow. For example, the architecture of homes could be performed traditionally with continuous presence at the building site, which facilitates a physical enactment. Traditional architects would have to move their body at the building site multiple times during construction, in order to take measurements with bare hands, which was considered a job worth automating. Work automation is usually performed by a hybrid combination of electromechanical robots and software, but in the long term it boils down just to new software.

Contemporary architecture has employed computer-aided design software,

which represents and manipulates symbolically a building or a construction site. In this way, architects have been seating on computer terminals with several devices, such as screens, keyboard, mouse, pen, tablet. Although CAD programs were once described as creative (McCullough 1998)[9], efficient and productivity enhancing, nowadays, which is less than thirty years after the introduction of CAD software, many practitioners refer to themselves, as CAD-monkeys, or other similar terms that do not seem to correlate with self-actualization. We suggest that CAD software is very creative at least for those who are close to the programming part, but it is not very creative for those who are just users (Rushkoff 2010)[10]. The ongoing trend towards increased automation through machine learning requires a significant amount of human work to classify basic notions and symbols on behalf of the computer. For example, an interior architect will have to classify thousand versions of similar objects, before the software is able to automatically recognize, measure, and model them in the CAD software.

In brief, the work of the architect seems to gradually morph from embodied and enacted expertise to increased generic symbol classi-

[9] Malcolm McCullough. *Abstracting craft: The practiced digital hand.* MIT press, 1998

[10] Douglas Rushkoff. *Program or be programmed: Ten commands for a digital age.* Or Books, 2010

fication on a computer screen by someone who has the intelligence of a four years old child. At the same time, the new work practices might be even more dehumanizing than the CAD-monkey paradigm, for the users who train the system. The case-study of the architect job is hardly unique. The pilots of airplanes used to be short of heroes with skills that spanned electromechanical knowledge, navigation, but they have been gradually describing themselves as pilot-monkeys (Carr 2015)[11]. Although this analysis might point to the conclusion that there is a vicious circle, we might explain it as a mere reflection of the nature of software itself. Moreover, we can even regard this process as elegant, in a way that is similar to biological evolution.

[11] Nicholas G Carr. *The glass cage: How our computers are changing us.* WW Norton New York, 2015

What are humans useful for?

The above analysis for CAD applies for a large number of similar office productivity applications, such as word processing, spreadsheets. Actually, it is the software development itself that is into a perpetual recursion. Thus, new software solves the problems of previous software, but creates new kind of opportunities for newer software in a self-reinforcing cycle. It is no wonder that any type of work that is based mostly on software (softwork) will also be subject to the same forces.

In this work, we considered the fulfillment of any possible human need, by making the assumption that the basic needs (food, shelter, security) have been already covered. Moreover, we assumed that we have already reached a saturation point for longevity, health, and war (Harari 2016)[12]. In this context, which is a reality for many countries, we introduced the notion of softwork, which is a hybrid combination of software and work practices. Softwork is totally malleable to our needs or to our desires and it has minimal requirements on scarce earth resources. Most notably, softwork itself affects the shaping of human needs, so it provides a remedy to the inherently ever wanting human nature.

[12] Yuval Noah Harari. *Homo Deus: A brief history of tomorrow.* Random House, 2016

We can imagine several possible solutions for the problem of employment. For example, an engineer in cybernetics might consider a bioelectric apparatus, which is connected to the human body, or just a pill that immediately satisfies the full hierarchy of human needs. As soon as we can modify humans, the possible solutions expand, but for the sake of simplicity, lets assume that we have access only to cultural means, such as software and to complementary policies and practices that affect humans as we currently know them. In this context, the most straightforward and immediate action might be a political one. It is now established that

the emerging work paradigm is very beneficial for the owners of the softwork (Lanier 2014)[13] which can be considered as a means of production. Therefore, we can imagine a political arrangement that regulates the owners of the algorithms and that equalizes the work of

[13] Jaron Lanier. *Who owns the future?* Simon and Schuster, 2014

programmers with the work of the users.

If culture and education affect (e.g., shaping or priming or motivating) personal and social expectations (i.e., self-actualization goals), then it becomes possible to imagine, or even to deploy a future that provides abundant work for everyone. For example, we can design a political system, which requires everyone (or few willing humans) to do a minimum of physical work and then the rest of the work will be softwork. Of course, the amount of softwork is not fixed and depends on the belief system that has been diffused through schooling. We can foresee that some societies will follow the path of Adam Smith and create more jobs (and wealth), so they might need immigrant workers to perform them. On the other hand, there will be societies that choose not to do any softwork, which will be achieved by modulating their wants through meditation (e.g., Buddhism). Of course, the majority of societies will fall somewhere in the middle between the two extremes.

In the future, we might not need to work, but we might as well want to.

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