Patrik Barkman
barkm@kth.se
Artificial Intelligence DD2380

Artificial Intelligence: A New Revolution

Society has through the course of history undergone many of its major changes due to specific inventions and development of new technology. Examples of such transitioning events are the agricultural and industrial revolution. As known, the industrial revolution resulted in the majority of the workforce leaving agriculture and turning to industrial employment in the city. Ever since, the development of technology has to great extent been conducted in order to relieve humans of physical labor.

The notion of *automation* – the progress of replacing human labor with machines – is not something new. In many parts of society there are machines that are specialized to perform specific tasks extremely well. These machines can be anything from printing presses to industrial robots. However, due to the progress in artificial intelligence the concept of automation can be taken to yet another level. Instead of developing machines with mechanical muscles it is possible to construct intelligent machines with cognitive and reasoning skills comparable to that of humans. Therefore, humanity is possibly now standing before yet another revolution.

Even though such machines seem to belong to the distant future, intelligent systems are being implemented and currently constitute important parts in the industry. At the moment the most prominent example might be self-driving cars. However, there are more examples that are less obvious to the general public such as automated transportations in warehouses and mining facilities [1]. Yet another example is the logistic system in the hospital New Karolinska Solna, which is based on automated guided vehicles [2].

In some sense these intelligent systems are still specialized since they cannot compete with humans when it comes to solving a wide range of diverse tasks. On the other hand, the important feature of these systems is their intelligent behavior, rather than providing mechanical strength. Therefore, an important aspect of future artificial intelligence research is to build new general-purpose systems that can perform well in many situations. One approach to this difficult problem is to construct systems that learn and adapt to their environment.

It is evident that intelligent systems used for automation are very applicable in society. Not only may these system perform better than humans in many tasks they are also very cost effective. This highly motivates companies to replace their human workers with automated systems. The development of intelligent systems thus leads society into a transition phase similar to that of the industrial revolution. It is important to keep in mind that this new revolution of artificial intelligence not only affects the low skill jobs but professions ranging all of society. The computers that constitute the core of the intelligent systems are tireless, efficient and cheap. Consequently they are able to process huge amounts of data and theoretically enabling them to surpass human reasoning in domains that require complex decision-making. All things considered, it

is possible that the development of artificial intelligence may cause a cascade of unemployment of unprecedented magnitude.

The major challenges associated with the development of artificial intelligence may be related to the transition to a society where humanity has found a place alongside advanced technology. During this phase society may have to accept that some people will inevitably become unemployable and that a system that cares for those people must be constructed. It is difficult to hypothesize possible solutions, but what may be most important is to simply spark a debate in order for society to prepare as much as possible for the coming revolution.

573 words.

References

[1] Caterpillar Autonomous Operations. http://www.caterpillar.com/en/company/innovation/customer-solutions/autonomous-operations.html

[2] Automated Logistic System at New Karolinska Solna. http://www.svt.se/nyheter/lokalt/stockholm/har-ar-roboten-som-gor-jobbet-pa-nks