MAKERERE UNIVERSITY

COCIS / SOCIT

B.SC. COMPUTER SCIENCE

BIT 2207 RESEARCH METHODOLOGY

ARTIFICIAL INTELLIGENCE AND FUTURE OF JOBS FOR HUMANS

Harold TURYASINGURA

10/U/11447/EVE

April 13, 2017

Contents

INTRODUCTION

Jobs were previously a domain for only human employees. However, in recent years many companies are investing in automation and use of Artificial Intelligence to replace human workers with computer systems and robotic entities. Many factory jobs have been taken up by robots, self-driving cars are being tested for both the transportation industry and for personal use, and some computer systems are being employed in the financial and medical industries to complement human workers. Jobs are now domain shared by both humans and computer systems. But as computer systems get better and more efficient, humans might soon find that they are no longer required to do any job. What will the future look like for the human worker?

What is AI?

Artificial Intelligence (AI) in the simplest terms is the ability of computer systems to mimic a rational thought process. When we say that a computer system is Artificially Intelligent, we mean that the system can derive independent conclusions when provided with a set of data, which might not necessarily be organized. The task would be on the system to discover patterns in the data, and use this information to make a decision.

The computer system could use concepts from Machine Learning, exploit a neural network, to discover patterns and make decisions, then control robotic entities to complete a task. AI can therefore be looked at as a combination of various fields of discipline that enable computer systems to learn new skills, to make independent decisions and take action on these decisions made.

In recent years, the growth of AI has been spurred by advancement in other areas of technology, specifically in the increase of computational power available and at an ever decreasing cost. This along with the drive by big corporate organizations (*i.e.* Google, Facebook and Microsoft among others) to join the Open Source Software movement, further increasing access to quality AI starter kits like TensorFlow. All this

has created an environment where AI is not limited to corporate organizations but instead exposed to vast number of highly skilled individuals who improve AI systems in various ways. This particularly has increased speed of development of AI systems.

Current state of AI

AI today, is widely impressive, we have vehicles that are nearing the dream of Self-Driving. Companies like Tesla have rolled out software updates to their vehicles that enable them to drive without human intervention. George Hotz, an independent developer, built and tested a plug a play system that would add self-driving capabilities to any car, before he scrapped the project and open-sourced his code. IBM built Watson, an AI entity that is being employed in the medical industry to assist doctors to make accurate diagnoses.

What does all this mean? Does it mean that in the not too distant future, we will not need to drive our own cars, that we won't need factory workers or even doctors? But how will humans survive in world where they cannot make a living?

THE RISE OF AI (AT THE WORKPLACE)

Companies are always searching for new ways to reduce costs, which in turn helps to increase their profits. For some companies, employing a robotic workforce has been found to cost less than an equivalent human workforce, not in upfront costs but in long-term engagements. This is very attractive to many companies who like to seek out the benefits of a robotic workforce. However this comes at a cost, a loss of jobs for humans.

The rise of AI is closely related to the benefits of AI and AI enabled workforces.

Benefits of AI

1. **Consistency** For starters, an AI entity can be relied upon to carry out a task for a given period with similar results every single time. It is for this reason that robots have been employed in factories for things like painting cars. These repetitive tasks have been known to be very frustrating for humans. Robots clearly have an upper hand here.

2. **Reliability** AI entities can be relied upon 24/7, they do not need breaks like humans do, and do not get 'biologically sick'.

3. **Speed** Based on their programming, AI entities are almost certainly going to be faster than humans at carrying out a specific task.

Risks of AI