Review Article

Computer Science

ARTIFICIAL INTELLIGENCE – HOPE OR DOOM

Argjent Mehmedi

BA in English Language and Literature. State University of Tetova. Certified Software Tester. North Macedonia.

Abstract

Humanity has always strived to find new ways to facilitate our way of living and communication. Once upon a time, there were the ancient civilizations, then came the Industrial Revolution and, most recently, the enormous progress in the field of computer technologies. At first, all of these developments were accepted as era-defining and vastly positive assets for the human race. However, as witnessed by almost all of us, things weren't always as black and white as they seemed; there was a consistent grey area inside the human psyche that these undertakings, no matter how conveniently looking to be, if gone wrong, they could spell doom to our society. Many scientists, fiction writers and humanists such as Isaac Asimov, Stephen Hawking, Michio Kaku, etc. have continuously expressed a worrying viewpoint on these issues in general and on Artificial Intelligence in particular. In this paper, we will examine both the positive and negative views regarding AI and give a balanced analysis in trying to help the reader to have a more knowledgeable stance towards this matter. We will draw a line between what is considered science and science fiction, and what is probable and possible to happen in the mysterious future that awaits us.

Introduction

Every single day we listen to such sayings which suggest that we live in the Digital Age, or the Age of Big Data. This certainly means that we are facing something that at times seems attractive, at times confusing, sometimes daunting but overall quite interesting. In all of this entanglement of viewpoints, there is no IT field which has initiated more debate than Artificial Intelligence. AI is a notion which, especially recently, has become a selling point for every major computer or mobile device. We hear about a phone camera that uses AI to take more accurate pictures. AI has been extensively used for face detection as a replacement for the common passwords with number and letters; it also has been used in medicine, forensics, astronomy and every other scientific field of investigation. But apart from the mainstream scientific community that views AI as a tool for scientific advancement, the common people are aware of the issue at hand from science fiction in the movie industry, books, comics and other similar mediums. This involvement has blurred the line of what is science and what's fiction. The majority of Hollywood blockbusters represent AI as a part of a grim period of human future, suggesting destruction, desperation and retaliation. In the following pages, we will try to provide arguments from both sides of the coin and give a conclusion of what we believe to be truer.

Hope

Over seven billion people are living in our world, every one of them has his or her needs for a better life, thus requiring a continuous search for adequate ways and methods to achieve such needs. Computer technologies have certainly provided enormous progress in facilitating our life by giving us tools for education, communication, medical help, etc. Artificial Intelligence nowadays is at the forefront of these developments encapsulating every major area of human life. This fact has made AI a field where IT companies, government institution, medical facilities and

other similar institution are making huge investments to advance the field as further as possible. In recent years The Pentagon has invested more than $2 billion to fund DARPA (Defense Advanced Research Projects Agency). In other developments, a group of medical institutions have invested more than $130 million between 2017 and 2018. Depending on the field of operation, some of the investments have been offered to make a more reliable defence mechanism in defending from various cyber-attacks, others have developed tools such as medical imaging to help doctors visualize and treat all kinds of health issues.

Human society is entering in what we call a "golden age" period where Machine Learning is assisting humans in various security and production issues. It is important to notice that the majority of people, especially those who are professionals or hobbyist in any given science, have begun to consider AI as something of an opportunity to make things better and not like something out of a Terminator movie. AI is seen as a waypoint that can provide the tools to make things better, faster and more accurate. If there is a field where AI or ML is very promising it certainly is in the field of automation which help us predict things faster; this is especially important if consider predicting malware attacks, responding to incidents, thus making the field of forensics more reliable. It should be noted that AI is not magic out of a Harry Potter universe; yes, it is a different kind of tool than any other IT technology, still it requires that software and machine developers develop very complex algorithms which make millions or billions of calculations in order to provide us with the required results (Curry, 2019).

We should understand the scepticism directed towards any totally new technological innovation, this is especially important to notice when we acknowledge the fact that we are dealing with a scientific field that is probably still struggling to prove the effect of investments that are flowing into its lap, considering the massive spending from the past decade or so (Commins, 2017).

It is obvious that many experts who suggest that the era of AI and machine learning in every scientific, and in healthcare in particular should not be seen through the lenses of hype, considering it as a magicians trick to solve our problems, still, they also work in the direction of pointing out the positive side of AI, and in that way making us aware of the benefits that can be found in the ongoing changes that AI is doing to the healthcare system, thus making it hard to ignore its benefits and even harder to refuse such a thing (Commins, 2017).

The AI' s reach will affect every field of the health systems, starting from diagnosing patients, predicting an outcome based on a patient's history; health administration and everything in between. The following figures provide us with the data about the number of investments that are being made or are planned to be made in some of the major areas of our society.
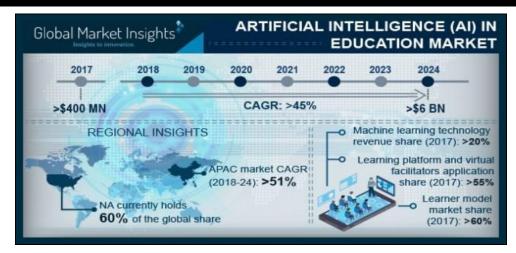
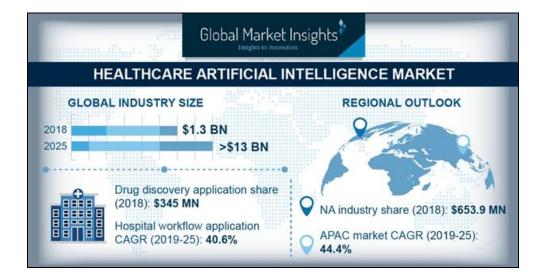Fig. 1. AI investments in Education

Fig. 2. AI Investments in Healthcare

Doom

If there are proponents who always try to expose the benefits than AI can provide us as a human society, it seems that an equal amount of people, whose voice can be heard even more loudly than those who are on the side of Hope, are trying on daily basis to make us aware that the future of AI is surrounded by the destruction of the human society as we know it, or, as some go even further by suggesting that it will be the downfall of humanity as a whole.

As we mentioned previously, this view, by and large, is directly affected by science fiction media. We have all probably seen a movie that deals with this issue, be it The Terminator, I Robot, 2001 A Space Odysseys, etc. Each one of these movies deals with the view that advancements in AI will lead to creating machines that could eventually become self-aware and turn against humans.

But we must be honest in this aspect. Not everything is based on science fiction. Many famous scientists believe that AI can lead to many problematic developments in human society. Consider these words from, Stephen Hawking, probably the most famous theoretical physicist of the last decades, who had this to say: *"The development of full artificial intelligence could spell the end of the human race… It would take off on its own, and re-design itself at an ever-increasing rate. Humans, who are limited by slow biological evolution, couldn't compete, and would be superseded."*

To move things even further, in January of 2015 a group of scientist, Hawking included, signed an open letter regarding developments in the field of AI. Other signatories include Elon Musk, the co-founders of DeepMind, Peter Norvig who is the director of research at Google, and many other AI experts. The letter suggests that: *There is now a broad consensus that AI research is progressing steadily, and that its impact on society is likely to increase… The potential benefits are huge since everything that civilisation has to offer is a product of human intelligence; we cannot predict what we might achieve when this intelligence is magnified by the tools AI may provide, but the eradication of disease and poverty are not unfathomable. Because of the great potential of AI, it is important to research how to reap its benefits while avoiding potential pitfalls… it may be desirable to retain some form of meaningful human control over intelligent machines designed to kill… If self-driving cars cut the roughly 40,000 annual US traffic fatalities in half, the carmakers might get not 20,000 thank-you notes, but 20,000 lawsuits."*

This issue becomes more and more serious when we consider the fact of how fast things are moving forward. This is explained in a very illustrious way by the renowned theoretical physicist Michio Kaku who had this to say on The Curiosity Podcast: *"Robots are pretty stupid now. However, eventually they'll be as smart as a mouse, then a rat, then a rabbit, then a cat, then a dog. By the end of the century, they may be as smart as a monkey. But by end of the century, yeah, Elon Musk is right. They could become self-aware. At that point they're dangerous."*

Considering everything that was stated, the following figure displays every major area where AI can pose a direct risk for each one of us as members of the human family.
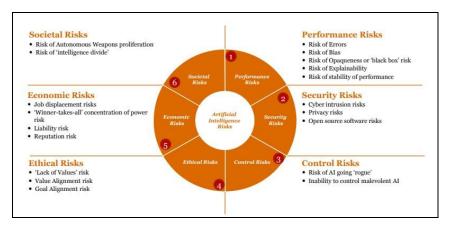

Fig. 3. AI Risks (*Data from European Union Comission*)

Conclusion

Based on the arguments provided in this paper, we can conclude that the issue of Artificial Intelligence is a truly hot topic revolving around many scientific fields, which at times it is suggested that it provides a much-needed help, while at times it gives us nightmares. Whatever the future might hold on this regard, one thing is for sure, AI will continue to cause debate and inspire many other Hollywood blockbusters with dazzling visual effects, but for us as human beings the most important thing is to moralize the way we make scientific advancements by not exceeding the boundaries of ethics, because if God destroyed the Dinosaurs to make way for humanity, we should in no way push the button of our self-destruction.

References

Commins, J. (2017). Artificial Intelligence: The Hope Beyond the Hype, Online Article on healthleadersmedia.com (accessed September 2, 2019)

Curry, S., (2019). AI and ML: Greatest Hype or Hope, Article on Forbes Magazine Online Edition (accessed August 30, 2019)

Data from Global Market Insights, (2018)

Group of Scientists, (2015), Open letter regarding AI https://www.bbc.com/news/technology-30290540 (Stephen Hawking on AI) accessed September 4, 2019)

Lee, K. F. (2018). AI Superpowers: China, Silicon Valley, and the New World Order, Houghton Mifflin Harcourt

Rao. S. A. (2018). Responsible AI & National AI Strategies European Union Commission.