

How will Artificial Intelligence Affect Our Jobs in the Future

In this project I will explore how the use of AI (Artificial Intelligence) will affect our jobs in the future. I think this is important, as we are possibly on the fringes of another revolution. We may choose to accept this change. We may not. But most importantly, is this progress, or our slide into redundancy?

Firstly I will define Artificial Intelligence. This is harder than it sounds, as intelligence itself has quite a hazy definition. The Oxford Dictionary defines AI as 'The theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages¹.' But this means that any artificial beings, including statistical generators such as Google Translate are intelligent, as they have speech recognition software, translate between languages and make decisions on which word fits most with the input. Most would still agree that google translate is not intelligent, merely a program drawing matched words from a database. This then begs the question, what is intelligent?

For those who work in research of AI, a joke on the definition follows that 'AI is anything a computer cannot yet do.' This could be true though, as in the 1950s, it was thought that once we were able to create a computer which could beat the best human at chess, everything else would follow on easily. This was achieved in the 1970s, by IBM's computer, Deep Blue. In today's age however, this is not seen as intelligent, as Deep Blue, though impressive, was again a very large database of moves. It didn't show any signs of a very human trait which can be used to distinguish between people and androids: adaptability. That is beginning to change. Recently, on 9th March 2016, Google Deepmind's AlphaGo computer beat Lee Se-Dol at another type of board game, Go. AlphaGo used Deep Learning, a type of complex programming, which made it capable of improving. It played itself thousand of times, discovering and developing it's own strategies before the game. AlphaGo also improved throughout the match, adapting to it's situation. I think that is what makes a machine truly intelligent, adaptability, even if within a specialised activity.

Research into AI has really taken off in the last few years, and growth is estimated to speed up more and more. We are beginning to develop computer systems that can actually be described as intelligent. Up to this point we have programmed machines, giving them instructions. A piece of hardware just filing through functions can never be described as intelligent, but now we have robots driving, producing creative texts and winning complex games like go. Industrial Perception has created a robot who

¹ The Oxford Dictionary Website:
http://www.oxforddictionaries.com/definition/english/artificial-intelligence#artificial-intelligence__2

can stack shelves, a seemingly simple task, but hard for basic computers - there may be different sizes, and not already sorted pre-stacking. With the use of AI the machine is able to work out how to stack items of strange shapes, pick them up from funny angles and place them correctly. Although this process is a slow one, it is set to be able to stack boxes at a speed of 1 second per box, compared to a sluggish, human 6 seconds per box. This is true of many machines, and all this technology is a result of creating neural networks in computers, similar to the setup of our own brain. AI as intelligent as a human is predicted to be around by 2029.

Another important part of AI is the use of big data. Big data is the ever growing large amounts of data collected across all stretches of life, that can be used by computers to predict things, for example, film preferences. Programs look at similarities between the data and the user's liked films so far, as, if you liked a certain combination of films, there is bound to be someone else out there who has also liked that combination of films. The computer will see what else that user has liked, and recommend it to you. This sort of process can make a real difference in the real world, for example, business, where big data lets companies get into the minds of consumers.

The concept of AI has only been around for half a century or so, and therefore not many jobs have fallen to intelligent machines yet, but we are on the fringes of another industrial revolution. At the moment AI has taken over a few jobs, but only on a very small scale, for example some journalism, particularly sport is written by AI, though in 50 years time 90% of all articles written will have been penned by a robot. Also beginning to be filled with computers are jobs such as online marketing, which can predict using big data what will most attract a consumer about a product, medical professions, both in diagnostics and surgery, as AI is simply more accurate and even factories, which are already very automated are set to have further job loss. This is still only the tip of the iceberg - it is estimated that 50% of jobs we will be doing in 20 years time haven't been invented yet, but it is clear that no longer is it just the repetitive, monotonous jobs at risk, as machines are enabled to learn and think for themselves, fostering creativity as well, how long will it be before even the arts fall to the siege of AI?

There is much support for AI. Although it is accepted that jobs will be lost, there is much evidence to suggest that new jobs that we cannot even imagine now will be created - at the start of the 20th century who could have predicted the swathes of people to be working in the IT industry (Google's last earnings report counted 55,419 full time employees²). Despite massive automation of millions of jobs, more Americans had jobs at the end of each decade up through the end of the 20th

² <https://www.quora.com/How-many-employees-does-Google-have>

century.³ As before with radical new changes, there has been dissent, but now we cannot imagine life without them (for example the industrial revolution or electricity). Surely we should be accepting further progress?

There is, however, dissent to the introduction of AI. There is already a struggle to find jobs - AI will only increase this. This is unlikely to be a gradual change, and even though more jobs will be created, not everybody will necessarily benefit from the changes. In fact, though the number of jobs have increased, the wages of unskilled workers have on average been falling in the past 30 years⁴. On top of that, with robot intelligence continually growing (Moore's law says that computing power doubles every 18 months), eventually there will be nothing but badly paid jobs where it remains cheaper than to employ a robot for most us, that is, if anything.

Another argument opposing the use of AI is that we will reach a point where computers are far more intelligent, independent and able than humanity and they will destroy us all. This is a view taken by many big names such as Bill Gates, Elon Musk and Stephen Hawking, in an interview with the BBC saying that 'The development of full artificial intelligence could spell the end of the human race.'⁵ This is a possibility, if we create intelligent, sentient beings, able to think for themselves and feel emotions, would we eventually find ourselves as an inferior race.

An even more current threat we will face if we surround ourselves with AI is crime, especially terrorism. Terrorist groups such as ISIS and Al Qaeda have effectively used the internet to recruit, plan and scare, and they will likely keep finding ways to use technology to their own advantage, and to the disadvantage of everyone else. Security will be very important if we are to advance very far in everyday AI. On the flip side, police and military forces will be able to use the technology to their own use, enforcing justice more freely and indiscriminately, and commanding a safer form of warfare.

To conclude, I think that AI does stand as a prominent threat to people in the workplace, and in the coming years we will see the majority of today's jobs filled by computers, but in no way does that mean we will all be left with nothing. If humanity created the technology, then there always will be jobs left for humanity. I do not think we should be reducing the use of AI, and that its introduction is definitely a positive thing. Though it may be wise to tread carefully, we should follow the words of Milton

³<http://www.theatlantic.com/business/archive/2011/10/why-workers-are-losing-the-war-against-machines/247278/>

⁴<http://www.theatlantic.com/business/archive/2011/10/why-workers-are-losing-the-war-against-machines/247278/>

⁵ <http://www.bbc.co.uk/news/technology-30290540>

Freidman, upon seeing a government construction jobs program where no machinery was present, only spades and other manual work tools: “So then, why not give the workers spoons instead of shovels?”⁶, and not be scared of advancing society.

⁶ Martin Ford's Book, The Rise of the Robots