

## IT (Information Technology): Machine Learning

What does it do? (600 words) What is the state of the art of this new technology? What can be done now? What is likely to be able to do be done soon (say in the next 3 years)? What technological or other developments make this possible?

Machine learning is a branch of Artificial Intelligence. It uses Algorithms and data points to mimic the way humans learn, and slowly improving its accuracy. Machine learning is an important part of data science. It is an ability for a computer to learn a task, without being programmed in doing the given task.

Machine learning can do many tasks, here are some examples of what machine learning can do.

- \*Speech Recognition.

- \*Image Recognition

- \*Self-Driving Cars

- \*Face Detection in images

- \*Virtual Assistants

- \*Intelligent gaming

- \*Home Security

Machine Learning started out its life as a sub-branch of Artificial Intelligence. In the 1970's Machine Learning Branched off to become its own thing. In 1967 the Nearest Neighbour Algorithm was imagined. The algorithm used for mapping routes in finding a solution for travelling Salesman to find the most efficient route. The Salesman would enter the selected city into the program, and repetitively has the program visit all the nearest city's until they have all been visited. (Foote, 2022)

In the 1980's Machine Learning got to the stage where Machine Learning could be done for anything where there were data points. Machine learning reached the point where for the first time it was starting to exceed humans in simple tasks. People were starting to imagine the idea of Artificial Intelligence and machine learning operating against humanity.

1997 Machine vs Human. IBM Computer called Deep Blue beat a world champion chess player. This was a world first, as it was the first time a computer beat a world champion chess player.

(Anderson, 2017)

The 2010's saw the Microsoft Kinect, a small Camera array initially designed to work with the Microsoft XBOX 360 that mounts to the top of the user's screen. The device is designed to allow the user to control the console with human movement input only. Making the user the controller This device can read Users Movement and voice with 48 different points. Using the Hardware and software it can recognise humans within its field of vision. And analyse the data to figure out the information that the person wants to relay to the machine. (Cong and Winters, n.d.)

Machine Learning is constantly evolving and with the rate of technology in the next 5 years we may see the following advancements in Machine Learning

**Fine-Tuned Personalization:**

Fine-tuned personalization, with the use of Internet of Things Devices. Linking Machine Learning with humans.

**Better search engine experiences:**

More personalized Search engine results

**No-Code Environments:**

An ability to create a program with no to extraordinarily little coding involved, when it comes to software engineering

**Rise of Quantum Computing:**

Development of a computer based of the principles of quantum theory

(Pickell, 2019)

*What is the likely impact? (300 words) What is the potential impact of this development? What is likely to change? Which people will be most affected and how? Will this create, replace, or make redundant any current jobs or technologies?*

Machine learning is making an enormous impact in today's society. The way AI (Artificial Intelligence) and machine learning are going, it has the potential to make a lot of jobs redundant. Some jobs such as Transportation workers, Call centre workers, manufacturing companies. Will have their Human based work forced replaced with Computers.

This can be a good or a bad thing pending on how you look at it. It has its pros and cons. One, it could make these workers go into a in demand job. And help free up the work force by having computers do the more mundane jobs. But could also have a negative consequence by having more people made redundant and having the social security system clogged up with unemployed people, who once had a job prior to the innovations of Machine Learning.

In the past 100 years or so, increased jobs have already been replaced by computer machine learning. People who once carved guitars out of wood and put their blood, sweat and tears into the craftsman ship. Have now been replaced with a CNC (Computerized Numerical Controlled) machine. Car manufactures who used to build cars by hand, now can use a robotic arm to do the increasingly more of the tasks.

Many of these jobs have been replaced by Machine Learning. And more are still to come. Sociality in general is more opposed to Machine Learning taking their jobs, but large corporate find Machines cheaper to have than paying employees. Since the computer is always faster.

(Thomas, 2022)

*How will this affect you? (300 word) In your daily life, how will this affect you? What will be different for you? How might this affect members of your family or your friends?*

With the future of machine learning, I would not be surprised if in the next 20 years my personal car and work car would have the ability to self-drive. It is seen in some car brands such as Tesla, now, but not in the average Joes car. The more self-driving cars are developed the cheaper the technology will get.

Myself in the Construction industry, machine learning has not affected me. When it comes to install work. Machine learning has not affected me at all.

But I can see machine learning being a thing in freeing up the more mundane tasks. Such as my work car, it could drive me to and from a job site. Without making fatiguing me on the travel aspect of work. That is if my employer does not make us do admin work during the traveling.

When it comes to Fire Systems Machine Learning could speed us up in the Testing and commissioning part. By automatically programming itself and testing itself. This is a thing now. But its more just making an algorithm based of the data we input into the program. It is not anywhere near other Machine Learning technology's that are out now.

As for my friends. I have a few friends who work in a local Timber Mill. The technology is rapidly replacing the workers, with machines. Except for the maintenance staff, I am surprised Machine Learning and machinery have not fully replaced them yet. The only thing stopping that is the Timber Union and the costs of upgrading all the equipment.

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