IT (Information Technology): Machine Learning

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 provides the ability for computers to learn the requirements of a task, without being specifically programmed to do so.

Machine learning has many applications, including.

- 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 a discrete field of study. In 1967 the Nearest Neighbour Algorithm was imagined. This algorithm can be used to develop mapping routes for finding the most efficient path, which is an effective method to solve the traveling salesman dilemma (Foote, 2022).

In the 1980's Machine Learning developed to the stage where the concept could be applied to any problem that could be defined through 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 chest 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 at 48 different data points. Using the hardware to capture and the software to recognise any humanoid object within its field of vision a system can analyse the data to interact with the physical world. (Cong and Winters, n.d.)

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

The ability to create a program with little to no coding involved.

- Rise of Quantum Computing

Development of a computer based off the principles of quantum theory (Pickell, 2019).

What is the impact?

Machine learning is making an enormous impact today. The way AI (Artificial Intelligence) and machine learning are going, it has the potential to make jobs redundant. Jobs such as transportation workers, call centre workers and manufacturing companies will have their human based work force replaced with computers.

This presents several pros and cons. It may allow workers to enter a higher demand role, by completing mundane task with automated processes. Conversely, this could also have a negative consequence by reducing the quantity of low skill employment opportunities, creating a greater number of unemployed people who once had a job prior to the innovations of Machine Learning. This also places increased pressure on an already strained social security system.

In the past one hundred years or so, several occupations have already been made redundant by advancements made possible through machine learning. People who once carved guitars out of wood and put their blood, sweat and tears into their craft, 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 an increasing number of 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 companies find machines cheaper to have than paying employees, since the computer is always faster. (Thomas, 2022)

How will this affect you?

With the future of machine learning, I would not be surprised if in the next 20 years cars would have the ability to self-drive and learn to adjust to their environment. This technology is already being included by many car manufacturers, with greater integrations with the driving process such as collision avoidance, lane-assist, merge-assist and adaptive cruise control to become standard as the technology matures.

Currently in the construction industry, machine learning has not affected the way I undertake my work. I look forward to seeing how machine learning can be integrated with my industry.

Machine learning may assist developments with robotics that can complete 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 the testing and commissioning phase, by automatically programming and testing itself. A limited form of machine learning is currently used in the industry tools, however there is significant scope for growth of the capabilities.

As for my friends. I have friends who work in a local Timber Mill. The technology is rapidly replacing the workers with machines. Expect 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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