

### TASK 3

## **WHAT NEXT FOR MACHINE LEARNING?**



Machine learning is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. Machine learning focuses on the development of computer programs that can access data and use it learn for themselves. Machine learning is a method of data analysis that automates analytical model building. It is a branch of artificial intelligence based on the idea that systems can learn from data, identify patterns and make decisions with minimal human intervention. It was born from pattern recognition and the theory that computers can learn without being programmed to perform specific tasks; researchers interested in artificial intelligence wanted to see if computers could learn from data. It's a science that's not new – but one that has gained fresh momentum.

“Machine Learning at its most basic is the practice of using algorithms to parse data, learn from it, and then make a determination or prediction about something in the world.” – Nvidia

Banks and other businesses in the financial industry use machine learning technology for two key purposes: to identify important insights in data, and prevent fraud. The insights can identify investment opportunities, or help investors know when to trade. Other widely publicized examples of machine learning applications are: self driving cars, online recommendation for Amazon and Netflix, Digital media(Twitter, Facebook), fraud detection, Optimization opportunities in supply chain management, security and smart homes, healthcare at your door, Robots for risky jobs and as friends, intelligent gaming.

Machine Learning has already drastically altered the business landscape. A very good example of that can be seen as self supervised learning approach in which robots generate their own training approach for performance improvement data captured close range to interpret “long-range ambiguous sensor data.” And prior training is included in this .it is inbuilt in robots which these can accept and reject the objects which came seen in other additional devices also which range from identifying fruits, obstacles, 3-D sense analysis and modeling vehicles. Watch Bots are the type of bots which learn from seeing human activities through camera, laptop, sensor and a laser pointer. Similar examples can be autonomous learning, road detection etc.

By the above mentioned things we can tell that future has already started

### **Cutting through the hype to the real current state of the art in machine learning**

Apart from being in the spot light from so long it is true that and said and surveys that 9 out of 10 investors don't know what is machine learning they use it in day to day life but don't really know how it works or what it is called.

On the other hand we can say People know that there are using but there is that much amount of competition that they can't really judge what to pick as they which one is better and how much that thing will be helpful as we can see the growth of Generative Adversarial Networks GANs. The real life applications seem to be few and far between though, and it changed very little in 2018 but still it has so much of potential. One of the most realistic approaches which were in hype was employing style transfer techniques to generate realistic looking photos or generator to increase the resolution of its output progressively throughout the training process.

### **What machine learning can't do?**

Machines only learn from the data that they receive and can analyze, there are several technologies that need to work together in perfect synchronization for Machine Learning to work and give reliable results and the importance of communication between app developers and the mobile communication service providers will also grow as ML grows. To conclude this Machine Learning has not and will not be able to replace humans explicitly.

We still don't understand how humans, by which I mean children as early as 2 years old, acquire their first language. We can't go to Best Buy today and buy a learning machine (e.g., say an Alexa) that will simply hear languages being spoken in your house, and within some time, start conversing with you. After having so many big companies working on same thing and applying so many logics can't figure this out yet.

### **Next big thing after machine learning**

Whole brain emulation is running a computer simulation of a human brain. A successful whole brain emulation would exhibit artificial general intelligence (AGI). Artificial general intelligence is an AI characteristic in which the AI has full human-level intellectual capabilities across the board. Social interaction and moral reasoning of full human-level capabilities in intellectual endeavors a true AGI would exhibit, not just in logical problem-solving as we tend to see for AIs today. Or a multi-data centers-sized brain, with physically separate data centers connected together through networking and integrated together through software or a simple data center-sized brain. there is a holistic single application that they access, but there are many networked components serving that application (load balancers, application servers, database servers, etc.) to the end user.

The most critical reason that whole brain emulation will be so impactful is that once one has emulated a human brain, and enhanced its intellectual abilities, that emulated brain can itself do AI research (and material science research, and computer science research, and electrical engineering research, etc.) in order to recursively improve itself. The term for this is "intelligence explosion"-writer

Blockchain is the next big thing for sure. It appears that there is a consensus by computer scientists that these technologies will have a significant impact in the crypto and traditional financial markets alike in the next 5 to 10 years. It may alter the business and tech paradigm considerably enough to oblige business leaders to take action regarding development.

### **Machine learning and Robotics**

We have known robots as in sci-Fi and in real life also. The most important difference that AI brings to robotics is enabling a move away from automation (hard-programmed) to true autonomy (self-directed). If a chatbot being able to recognize more than what you're saying with your words? That would be so amazing for customer service. Companies are trying to develop these. There are some levels by which if innovation is going on and finally it will impress us Driver Assistance, Partial Automation, Conditional Autonomy, High Autonomy, Complete Autonomy. We've begun to spot pilot projects with AI-enabled robots (level 3/4). Warehouse piece-picking is a good example. we will see explosive growth and a changing industry landscape brought by next-generation robots as deep learning, reinforcement learning, and the cloud unlock the potential of robots. Not all industries adopt automation at the same pace because of incentives of current players and technical complexities mentioned above.

### **Other Paradigm of Future of Machine Learning**

- Trading - ML can help in filling orders -which may be tough with manual efforts. Another way crypto trading is being influenced by AI and ML is through the analysis of sentiments, which can be from various sources as articles, blogs, research papers and books which give positive, negative or neutral response. The high emotionalism of the crypto market ecosystem has already become a topic of study by developers who are attempting to come up with an AI-based solution to increase profit returns.
- Stock Market- A research group has also recently used machine learning to predict stock market performance based on earning docs. The relationship between language content and stock price is tested building a model which showed approx 60% accuracy
- Medicine - ML can use the data sample and shall help in diagnostics of sick person much more effective. Likelihood of a patient death can be predicted for which some researchers obtained 95% of accuracy. At first it will seem scary but it can help in saving so many lives and increase the health rate also.
- Mobile devices – this may not sound that much of a big deal but saving battery is a everybody everyday need so machine learning can help in reducing the usage instead of using all types of apps. Mobile device may have the ability to conduct machine learning tasks locally as object recognition, speech, face detection, and other innovations for mobile platforms.
- Its service becoming common- more businesses will start using the cloud to offer machine learning as a service (MLaaS). This will allow a wider range of organizations to take advantage of machine learning without making large hardware investments or training their own algorithms.
- Algorithms will constantly retrain - Currently, most machine learning systems train only once. Based on that initial training, the system will then address any new data or problems. In the near future, more machine learning systems will connect to the internet and continuously retrain on the most relevant information. Over time, the training information often becomes dated or imperfect.
- NLP- natural language processing will help everyone as machine will become good in interaction with human as there can be seen sarcasm, emotions and other different form of interactions
- GPU - Traditional CPUs alone have had limited success running machine learning systems. GPUs(Graphical Processing Unit) however, have an advantage in running these algorithms because of simple core. Field-programmable gate arrays (FPGAs) for machine learning is also user by experts sometimes. At times, FPGAs can even outperform GPUs.

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