Why Machine learning is the Future?

1. Easily identifies trends and patterns

Machine Learning can review large volumes of data and discover specific trends and patterns that would not be apparent to humans. For instance, for an e-commerce website like Amazon, it serves to understand the browsing behaviors and purchase histories of its users to help cater to the right products, deals, and reminders relevant to them. It uses the results to reveal relevant advertisements to them.

2. No human intervention needed (automation)

With ML, you don't need to babysit your project every step of the way. Since it means giving machines the ability to learn, it lets them make predictions and also improve the algorithms on their own. A common example of this is anti-virus softwares; they learn to filter new threats as they are recognized. ML is also good at recognizing spam.

3. Continuous Improvement

As ML algorithms gain experience, they keep improving in accuracy and efficiency. This lets them make better decisions. Say you need to make a weather forecast model. As the amount of data you have keeps growing, your algorithms learn to make more accurate predictions faster.

4. Handling multi-dimensional and multi-variety data

Machine Learning algorithms are good at handling data that are multi-dimensional and multi-variety, and they can do this in dynamic or uncertain environments.

5. Wide Applications

You could be an e-tailer or a healthcare provider and make ML work for you. Where it does apply, it holds the capability to help deliver a much more personal experience to customers while also targeting the right customers.

Applications of Machine Learning across major Industries

1. Healthcare & Clinical Care

1.1. Clinical Decision Support systems

Machine learning can help with data-driven clinical decision support (CDS) to physicians as well as to the hospital staff. For example, it can look at all the aggregated data in a patient's chart, to predict and identify patients who are suffering from metastatic cancer or not metastatic cancer, and to use that to enhance, and make more efficient, clinical trial matching (Green, 2019). 10xDS has trained machine learning models for predicting Skin Cancer and Knee Injuries using image classification models.

1.2. Drug discovery

Machine Learning and AI together are being used to find new uses of existing drugs, with the aim of helping cure rare diseases.

1.3. Medical diagnosis & smart health records

Machine learning is propelling the development of AI systems that can access the presence or absence of any disease, and if present, specify its type, severity and stage. These solutions integrate all the data from Health, EMR, EHR, claims, thereby making meaningful predictions for risk of patient re-admission for any specific health issues. 10xDS has built use cases to predict in-patient length of stay using available in-patient data and vitals.

2. Insurance

2.1. Fraud detection

Machine Learning is used to identify fraudulent claims that were incorrectly coded.

2.2. underwriting

ML also helps expedite speeding up functions, for instance expediting claims that meet defined criteria. Today, rule based underwriting platforms are being enhanced using ML to make the process more streamlined and accurate.

2.3. Personalization in marketing

Some insurers are deploying ML for target marketing where algorithms are used to identify purchase patterns across hundreds of variables.

3. Pharmaceuticals

3.1. Predict and prevent lifesaving drug shortages

The pharmaceutical companies use machine learning algorithms to predict and prevent lifesaving drug shortages, analyse in real time data points from the supply chain, including pharmacies, hospitals and wholesale distributors.

4. Farming

4.1. Assess harvest quality

Tractor manufacturers are working on developing deep learning algorithms to classify and assess the quality of harvested grains and make automatic adjustment systems for the harvester. (Perry, 2019)

5. Retail

5.1. Sense trends and adjust inventory

ML and AI together help supermarket chains and retailers to sense trends and adjust inventory, suggest right product assortment to maximize sales. Algorithms can help sales order recommendations by using historical purchase data, SKUs, structured and unstructured sources, promotions, returns and similar store purchase behaviour.

5.2. Product recommendations for customers

10xDS has built-in recommendation model using collaborative filtering to provide customer and product recommendation. Retailers are introducing apps powered by Machine learning which allows customers to shop by uploading images of products they want and be matched with similar products available on the retailer's wider marketplace. (Radojev, 2019).

5.3. Virtual customer support

Another common use case is with customer support where chatbots help customers with their orders and payment.

5.4. Fraud detection

Machine Learning application is deployed in fraud detection systems by retailers where it validates orders real time to previous deliveries, cost of basket and customer information. 10xDS had built credit card transaction category identification models to identify any fraudulent credit card transactions.

6. Oil & Gas

6.1. Asset evaluation

Machine learning helps enhance the evaluation of Oil and Gas assets like tank leak detection, decline curve analysis (in terms of how a well will produce less and less over time), pipeline corrosion prediction, and geological features identification to boost exploration outcomes.

6.2. Virtual sensors and insights

Machine Learning algorithms provide virtual sensors and insights to perform what-if analysis, scenario analysis and address the best options for optimization.

7. Banking and Finance

7.1. Personalized services to customers

Banks are combining AI, Machine Learning and customer data to continuously optimise and prioritize across all the available messages, alerts, conversations and communication at any given time, across channels. This is helping them to deliver personalized services to their customers. Machine Learning algorithms are being used to advise users on financial products and rapidly provide suggestions based on feedback just like Netflix or YouTube suggestions.

7.2. Fraud detection and prevention

Artificial Intelligence (AI) and Machine Learning (ML) can run through large reams of data, fraud protection layers to online banking and speed up the review process for Banks and Financial Institutions that are on the hunt for fraudulent transactions.

7.3. Automated signature validation

10xDS is working with clients and technology partners on automatic signature validation on documents like cheques using deep learning to learn unsupervised clustering model, auto-classify the documents into various categories based on the contents.

7.4. Assessing credit risk

Banks and Financial institutions apply machine learning for assessing the credit risk of their customers. 10xDS loan approval / rejection models can accurately predict customer eligibility during loan processing.

8. Real estate

8.1. Real estate appraisal or property valuation

Property owners and investors use apps built on Machine Learning to predict / estimate property's value looking at data from location, features, neighbourhood statistics and economic indicators.

8.2. Building operations Safety

Artificial Intelligence (AI) system with Machine Learning is helping improve efficiency and safety of building operations.

8.3. Property space utilization

Using data ML is also helping property owners enrich tenant/ user experience by maximizing underutilized space.

Conclusion

Machine learning is the science of combining code development with data thereby defining predictive model to get an output or uncovering trends. When combined with deep learning, neural networks, computer vision, and big data, ML has tremendous potential to transform each sector and enhance the customer experience. Applying machine learning models into production is a challenge which if addressed, a wide range of industries could witness the rise of some of the disruptive solutions of our times.