



Is Machine Learning the next fad?

Is Machine Learning coming out of the laboratory at last? – by Jackie Down

Today's businesses are dealing with an onslaught of challenges, but undoubtedly a major hurdle is the use of data. Every single company and every single industry is struggling with this problem. Cutting-edge companies have realised that data is actually a strategic asset that needs to be harvested for rich insights that can help fuel business growth. They have also recognized that there has to be a culture conducive to turning data into something that's actionable from the top down.

Until now, most of today's data creation has been from increasingly powerful mobile devices and the various social media channels. The second wave of data growth, which will significantly increase the data growth is the Internet of Things (IoT). This data will continue to grow as more and more data sources come online over the coming years.

With all this data comes the challenge of integrating all these new and complex data sources across businesses. Here is where the application of machine learning can help.

What is Machine Learning?

Machine Learning (ML) is a class of algorithms that can learn from and make predictions on data. Generally speaking, the more data the better the outcome for machine learning techniques. Machine Learning doesn't require explicit rules to guide decision-making. It does not require manual construction of "if this, then that." It will make that determination on its own, based on the data.

Machine Learning is:

- **EFFICIENT** - Machine Learning models predict and detect patterns faster than any other manual program or method.
- **EFFECTIVE** - Machine Learning models can do a better job than humans when analysing and predicting large scale (and streaming) datasets.
- **SCALABLE** - Machine Learning models can provide solutions to large data problems that traditional ones can't solve.

The ultimate scenario is one where machine learning can accurately guide forward-looking business decisions and reveal previously unseen patterns. It is this promise of delivering accurate, actionable, predictive information that will drive machine learning to play a greater role in big data analytics.

Traditional analytics tools are limited by data volume and the need for human interaction to specify program



execution, Machine Learning offers the scale, speed and accuracy needed to uncover the full value of big data.

High-performance machine learning can analyse all of a big data set rather than extrapolate against a limited sample. This scalability not only allows predictive solutions to be more accurate, it also provides the speed to interpret billions of data points in real-time and to analyse live streaming data.

Also, unlike traditional analysis, machine learning thrives on growing datasets. The more data fed into the system, the more it can learn and apply the results to higher quality insights.

There is tremendous opportunity in the application of machine learning to discover valuable insights that can lead to better and faster business decisions.

Machine Learning Applications

The practical applications of machine learning on big data are abundant. Financial institutions can detect fraud more quickly – almost before it happens. Utilities can systematically predict failures and optimise maintenance costs. Retailers can reduce customer churn, and anticipate consumer purchases with greater accuracy.

Applicable to almost any industry, Machine Learning has a few key distinctive benefits:

It self-learns, gets better over time as it gets exposed to new data, and it can be applied in real time. For example, IBM's Watson got really good at playing chess and won the game show Jeopardy. It is now being applied in situations like replacing contact centre representatives to handle straightforward queries, or playing the role of personal care physician for a routine checkup.

Machine learning can handle very complex tasks, such as self-driving or learning Japanese, as IBM's Watson has. Machine learning, is now found all over Apple's products and services. Apple uses "Deep Learning" to detect fraud on the Apple store, to extend battery life between charges on all your devices, and to help it identify the most useful feedback from thousands of reports from its beta testers. Machine learning helps Apple choose news stories for you. It also determines whether Apple Watch users are exercising or simply perambulating!

In the case of fraud detection and prevention, machine learning has been helpful to improve American Express's already excellent track record, including their online business interactions. To do this, modelling methods make use of a variety of data sources including card membership information, spending details, and merchant information. The goal is to stop fraudulent transactions before substantial loss is incurred while allowing normal business transactions to proceed in a timely manner. A customer has swiped their card to make a purchase, and expects to get approval immediately. In addition to accurately finding fraud, the fraud detection system is required to have these two characteristics:

- Detect suspicious events early
- Make decisions in a few milliseconds against a vast dataset

Large-scale machine learning techniques done correctly are able to meet these criteria and offer an improvement over traditional linear regression methods, taking the precision of predictions to a new level.

Machine learning is now beginning to move into the marketing space, so companies can get smarter about their customers. Companies can be nimbler as they improve customer experiences across the board; serving up relevant content and offers, and/or real-time responses during customer interactions.



Imagine if you could design an algorithm that leverages all of the profiles, actions, behaviors, and information about your customers across all channels to trigger the “next best” action. This would be a machine learning algorithm that would also continuously learn from the customer data being generated and get smarter over time.

Machine learning is not a panacea. Of course, it has its advantages, but it’s not perfect. However, machine learning has real promise as the way to approach analytics for the future. It can solve difficult problems that are not solvable by other means. It provides the insights and potential for taking advantage of real-time information and acting upon it that data immediately, which in turn can provide a competitive advantage for those who adopt this data driven approach. Although machine learning is still a long way away from nirvana, it has its place and is definitely worth adopting for greater gains.

