Top Machine Learning Applications by Industry: Machine Learning Examples



When to Use Machine Learning

Machine learning is typically used to predict an output or reveal and understand trends, and is particularly useful when data is structured, or already labeled. Because of the ease with which machine learning is able to categorize and assess this type of data, it's especially useful for analyzing and organizing data like videos, images, and audio files (e.g., learning whether a photo has a face in it). Machine learning is most helpful when simple rules or computations can't be used to predict a target value, or when looking at a particularly large data set.

Machine Learning Use Cases

Machine learning is used in a wide variety of industries — not just in the tech-heavy companies you might imagine when you think about someone manipulating an enormous data set. Here, we will discuss machine learning use cases by industry, providing some of the different ways that this tool is being used today by a variety of people and companies.

Machine Learning Applications in Finance

In the financial services sector, analysts use machine learning to automate trading activities, detect fraud, and provide financial advising services to their clients. Algorithmic trading requires traders to build mathematical models that can monitor news feeds and trading trends to predict a rise or fall in security prices. Finance companies also use machine learning to detect fraudulent activity by comparing transactions against other existing data points (e.g., they know if that $500 Amazon purchase was something you're likely to do, or whether it's completely out of character for you and therefore a little suspicious). In portfolio management, robo-advisors built via machine learning provide investors with automated financial advice based on their goals, risk aversion, and other factors. Across fintech careers, machine learning is an

invaluable area of expertise. If you're interested in learning more about this field, you should consider enrolling in a fintech boot camp.

Machine Learning Applications in Business

Machine learning offers businesses an extensive number of ways to boost their effectiveness, efficiency, and offerings. Chatbots, for example, allow businesses to provide faster, more flexible customer service without employing a call center or making customers wait on hold for the next available representative. Internally, businesses also use machine learning to help with decision support, allowing teams to rely on algorithms to make decisions on resource management or identify trends and problems more quickly. Machine learning also helps businesses deal with customer churn by using data to understand how and why businesses tend to lose customers.

Machine Learning Applications in Genetics and Genomics

The human genome is one of the largest data sets ever studied. Humans contain over 20,000 different genes, each of which has potential for variation. Machine learning allows researchers to better understand different genetic traits and abnormalities as they analyze and understand vast data sets. For example, machine learning helps scientists identify the genetic variants shared in individuals with traits that those scientists are studying, like hemophilia or diabetes, allowing them to better understand where in the genome these disorders originate. Occasionally, it can help researchers understand *why* they occur in the first place.

Machine Learning Applications in Healthcare

When applied to healthcare, machine learning can help hospitals and their staff make administrative processes more efficient and streamlined, personalize medical treatments, and better understand and track infectious diseases. Technology like PathAI, for example, uses machine learning to help pathologists make more accurate and faster diagnoses, as well as connect patients with new treatments or therapies that might benefit them.

Machine Learning Applications in Retail

As we've already mentioned, machine learning can be incredibly helpful in understanding and decreasing customer churn (i.e., the rate at which a business loses customers each year), which is a large point of focus for many retail companies. According to Salesforce, 83 percent of IT experts have found that companies using AI have greater customer engagement. Machine learning also helps retailers synthesize the nearly limitless quantity of consumer data that is available to them but almost impossible to understand by basic human analysis.

Machine Learning Applications in Education

Machine learning can help educational institutions on both process-based tasks and more student-focused initiatives. Statistical models can help understand student progress and needs, while scheduling algorithms can help create more efficient and streamlined schedules for institutions of all sizes.

Machine Learning Examples by Company

Companies of all sorts have used machine learning to expand their offerings and streamline their processes. After completing a data boot camp, you will have the skills to start implementing machine learning in your company — or qualify for a new one. Below is just a small selection of companies that have used these tools to great advantage.

Yelp's image curation

In 2015, Yelp built a photo classifier that helps classify user-uploaded photos of businesses. For example, if a user went to the local pub, ordered a burger, and uploaded a photo of it to Yelp, the image classifier would be able to properly identify the burger. To build this classifier, Yelp collected the information through photo captions, photo attributes, and crowdsourcing, and then used machine learning to classify future photos. They also allow users to report incorrectly classified photos — a great example of feedback that helps improve ML-built products.

Facebook's chatbot

In 2020, Facebook introduced a chatbot that was able to converse on a wide array of topics — not just a prescribed set of topics like many customer service chatbots do. According to the MIT Technology Review, this bot, called Blender, was "first trained on 1.5 billion publicly available Reddit conversations." It was then further developed to focus on conversations containing emotion, information-dense conversations, and conversations between users with distinct and differing personalities.

Amazon's product recommendations

Once you begin browsing and shopping on Amazon, you'll start to see suggestions like "Customers Who Bought This Product Also Bought". These are clear results of machine learning, as they categorize both products and shoppers and use that information to suggest items to users.

Does machine learning require coding?

Yes. If you're interested in pursuing a career in machine learning, it's important to know coding basics at the very least. Implementing machine learning does require coding, and therefore machine learning engineers should understand code, even if they're not always going to be the ones writing it. A coding boot camp is a great place to learn the fundamentals of web development and get hands-on experience using a variety of tools and technologies. Meanwhile, if you're interested in finance, it's important to read up on the best programming languages for fintech.