5 Innovative Uses for Machine Learning

Though its time horizon can’t be predicted, artificial intelligence (AI) promises to foundationally influence modern society, for better or worse. A sub-genre of AI – machine learning – has garnered particular attention from the pundits for its potential impact on the world’s most important industries.

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Due to the resulting hype, massive amounts of talent and resources are entering this space.

But what is machine learning and why should we care about it in the first place? The answer is that, in the broadest sense, machine learning models are an application of AI in which algorithms independently predict outcomes. In other words, these models can process large data sets, extract insights and make accurate predictions without the need for much human intervention.

Numerous value-generating implications result from the accelerated development of this technology, and many are poised to radically streamline the business world. Here are five of the most innovative use cases for machine learning. They’ll be coming into your life – at least your business life – sooner than you think.

1. Widescale use of autonomous vehicles

The wide-scale adoption of autonomous vehicles represents a far more efficient future for transportation. Early reports indicate that self-driving cars could reduce traffic-related

fatalities by as much as 90 percent.

Though we're probably a few years away from consumer production, the adoption of autonomous vehicles by society is, at this point, inevitable. However, the time scale for adoption of this technology largely depends upon regulatory action, which often lies outside of the tech world's control.

Software engineers developing these self-driving "fleets of the future" are relying heavily upon machine-learning technologies to power the algorithms that enable vehicles to operate autonomously. These models effectively integrate data points from a number of different sensors – lidar (a survey method using lasers), radars and cameras – to operate the vehicle. These deep-learning algorithms become more intelligent over time, leading to safer driving.

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2. A more efficient healthcare network

Although a critical part of the economy, the healthcare industry still operates on top of an inefficient legacy infrastructure. A major point of concern is finding ways to preserve sensitive patient details while still optimizing the system.

Luckily, we can apply innovative machine learning algorithms (that operate without humans) to process large sets of healthcare data without breaching confidentiality contracts. Furthermore, we can use these models to better analyze and understand diagnoses, risk factors and coefficients of causation.

As Dr. Ed Corbett has pointed out: "It's clear that machine learning puts another arrow in the quiver of clinical decision

making.

“Machine learning in medicine has recently made headlines,” says Corbett, the medical officer at Health Catalyst. “Google has developed a machine learning algorithm to help identify cancerous tumors on mammograms. Stanford is using a deep learning algorithm to identify skin cancer.”

3. Embedded retail-management systems

The international retail sector has consistently generated over $20 trillion in sales a year for the past few years. This staggering figure comes with an enormous amount of consumer-behavior data (demographics, trends and tastes), compiled from an infinite trough of consumer-shopping patterns and tendencies.

However, many retail companies are struggling to implement these valuable insights, since the information often comes from disconnected data warehouses. As a result, there is a massive opportunity to implement machine learning models that enable retailers to better understand their customers and provide a more personalized customer experience.

Using previously acquired data, machine learning models can predict everything from which products to recommend to when to give out discounts. Ecommerce retailers, in particular, can combine digital behavior patterns to optimize the entire user journey, from the first point of contact, to the purchase of an item, to follow-up.

4. Improved moderating of content

The moderating of content is a major concern for social media platforms like Facebook and Twitter, as they endeavor to deliver accurate information to their audiences. As the

previous election cycle highlighted, the failure to properly overseecontent can have severe repercussions.

In response to the public outcry over “fake news,” Facebook recently announced it would hire 3,000 new employees specifically to look after the platform’s newsfeed content. This anxiety, however, extends far beyond social media, owing to how tech conglomerates like Google are pouring significant capital into developing content-monitoring teams of their own to support their fast-growing marketplaces.

Emerging machine learning and AI platforms, such as Orions Systems, are providing proprietary systems to “grow and adapt the interactions between humans and artificial intelligence” for tasks like moderating content at scale.

Uniquely, these technologies are addressing the task of moderating content with innovative tools and resources (analyzing, for instance, the context and content of every frame of video) so that employees can work more productively. This is an important advancement, as training machine learning to deal with video is notoriously difficult.

5. Advanced cybersecurity

Cybercrime damage costs are estimated to soar past $6 trillion annually by 2021. Experts predict that companies will spend over $1 trillion in cybersecurity services from 2017 to 2021 to counterbalance this growing threat. Clearly, cybersecurity will continue to be a major priority for startups and large enterprises alike.

Researchers are developing clever ways to implement machine learning models to detect fraud, prevent phishing and defend against cyberattacks. Defense-mechanism systems are being trained, using past data, to quickly spot and protect against suspicious activity. Unlike humans, these algorithms can run 24 hours a day, seven days a week, without depletion.

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As these machine learning models become more accessible to developers, they'll start to gain mass endorsements from consumers and enterprises. And, as that happens, it will be interesting to see which models come out on top.

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