



EDITORIAL

Machine Learning:

HOW TO MOVE FROM DESCRIBING TO PREDICTING

As more and more machine learning algorithms are being shared and openly sourced, learning how to leverage these tools becomes a challenge.

Discover how to harness machine learning capabilities to gain a fundamental understanding of your customers.

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May, 2017

Algorithms that predict heart attack risk. Smart cars. Facial and voice recognition tools for identifying criminals. Software that uncovers difficult-to-identify malware. Stock market fluctuation predictors. Making complex legal documents understandable to an eighth-grade reading level.

The exponential growth of data across the world combined with technological advancement has already led to these and other **extraordinary uses** of Artificial Intelligence (AI) and Machine Learning. Forrester Research identified AI as one of the top 15 emerging technologies that will change the world between 2017 and 2022. And now that technology visionaries are able to “train” computer software to “learn” from the data it receives – effectively simulating human cognition – the future will likely introduce applications we can barely imagine at this point in history.

“Even now, scientists do not really understand how the brain works, but there is nothing supernatural about it,” notes a recent article in **The Economist**. “That implies building something similar inside a machine should be possible in principle.”

One only has to look at investment spreadsheets from major players such as Google, Baidu, Microsoft, Uber, Facebook, Apple, IBM, Skype and Salesforce to foresee the continued impact on the business world. In fact, worldwide revenues for the big data and business analytics driven by AI are slated to grow from \$130.1 billion in 2016 to **\$203 billion** in 2020 – a compound annual growth rate of 11.7 percent.

Forrester goes so far as to predict that by 2020, every business worldwide will become either a “digital predator” or “digital prey,” with the former harnessing technology tools such as machine learning to create new sources of value for customers and the latter unable to evolve “until it’s too late.”

Democratizing AI

One result of all the proactivity by big industry players is that machine learning capabilities are now available to a wider range of users. Many algorithms are now being shared and openly sourced, transitioning from proprietary systems that formerly required re-engineering for different functions to cloud-based systems that can be repurposed in shorter time frames.

When it comes to machine learning, however, the challenge for most organizations is gaining (or finding) the expertise needed to provide the computers clear rules for learning from data – without the need for explicit human-driven programming every step of the way. Because computers, unlike the human brain, process information in pre-defined ways, a great deal of forethought must occur to determine the types of insights required from an AI system.

For now, that means even the most sophisticated machines remain pattern-recognition engines that must be taught how to “learn” from past experiences through the traditional scientific method (observe, measure, experiment, revise and repeat). Organizations wishing to take advantage must understand at a deep level their informational needs, so that their digital infrastructure can provide the desired outcomes.

Launching your machine learning initiative

Your organization's first step in preparing for machine learning capabilities should be gathering and storing as much customer data as possible through channels in which customers are already engaged — social media, Web sites, kiosks, “smart” devices or any other aspects of the Internet of Things. The more you know about your audiences, the more input you can provide the machines tasked with turning your data into valuable predictive and prescriptive information.

At the same time, you'll want to find a skilled and experienced technology management team that understands how to empower computer systems to fully analyze your data in the cloud using machine learning processes. No longer do you need to build your own specific infrastructure and algorithms for that purpose; major players such as Microsoft, Amazon, and Google are providing the deep learning technology so that your services partner can jump right in and start building an even greater wealth of business insight for your company.

What's in it for you?

Acting proactively to learn about your customer base on a deeper level could give you a significant competitive edge. No need to rely on guesswork, intuition and incomplete research to make your most important business decisions; your new data will reveal detailed insights you can use to inform business strategy. In fact, your entire modus operandi should become more efficient once you gain a more scientific understanding of where your customers buy, what they want and need, and how you can greatly increase your odds of converting them.

Further, consumers may not realize it, but as they're increasingly exposed to systems enabled by machine learning, they will expect your business to know who they are and to step up with suggestions regarding what to do next. The more you can make that happen, the more you can build customer loyalty.



In general, you can expect the following benefits as your business maximizes machine learning:

- **Better forecasting of customer behavior:** Algorithms will accurately identify patterns, enabling for more efficient delivery of products, services, communications and marketing messages.
- **Stellar customer experiences:** Better intelligence on individual customers will save time and money by improving all aspects of engagement.
- **Hyper personalization:** Your customer communications can be even more customized after you know more about their locations, backgrounds, behaviors and other factors.

Overall, Forrester projects four of the most valuable applications of AI over the next several years will be speech analytics that extract meaning and data out of spoken language; tools that create spoken or written words in response; deep learning platforms that maximize unstructured data to minimize the need for human input; and analytics solutions that customize online customer experiences in real time.

Magenic has extensive knowledge on how to get your data under control in the cloud, and can walk you through the machine learning process from signal to insight. Call us at **763-521-4090**.



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