



MACHINE LEARNING AT WORK

Four big brands are using artificial intelligence (AI) technologies such as machine learning to build new business models and transform their industries—**agriculture, banking, insurance and healthcare.**

JOHN DEERE: AGRICULTURE

The company's Precision Agriculture platform enables farmers and their advisors to react to data in real time. Machine learning is the connector among technologies the company is putting to work—including autonomous driving, onboard computing, geospatial referencing and telematics. The result is precision farming, where problems are detected and solved quickly, often before they arise.



COMPUTER VISION

"AI in combination with computer vision can replace the eyes of the grower. As a sprayer goes through the field, for example, it differentiates between a weed and a plant—and distinguishes a healthy plant from an unhealthy plant....**AI will take productivity to a level we haven't seen in agriculture.**"

PREDICTIVE ANALYTICS

"By monitoring machines remotely as they're in the field, we can maximize their functions and increase crop yield. We can do a lot of predictive analysis and sense mechanical failures before they even happen.

Being able to monitor how the machines are performing is a huge benefit to us as a company and also a big benefit to our customers."



JOHN MAY

Chief Information Officer, John Deere

CAPITAL ONE: BANKING

The arrival of chatbots and robo-advisors is the tip of the disruptive iceberg in the industry. Big data, open-source software, cloud computing and fast processors—with AI technologies as the foundation of the mix—are transforming all aspects of the industry. Capital One is applying AI to the customer experience with nuanced fraud and lending decisions, in addition to chatbots.



THE CLOUD

"In 2015, we declared ourselves a cloud-first organization, meaning all new development will be built on the cloud. We control our environment better; we move with speed and agility and flexibility. **As the cloud infrastructure evolves, we can evolve with it, and we think that's really powerful.**"

DEEP LEARNING

"We're focused on building capabilities around what we call explainable AI. **We think it's important to have models that aren't just black-box models but ones that enable us to understand why deep learning and neural net models are making the decisions they're making.** Financial services can help people achieve their dreams, but when it's done poorly, an institution can get in the way of someone's dreams."

ROB ALEXANDER
Chief Information Officer, Capital One

AON BENFIELD: INSURANCE

Managing risk is at the heart of insurance. Products such as variable annuities have huge data sets that add up to enormous warehousing and computing challenges. Aon Benfield's PathWise division built a cloud-based AI system that applies machine learning to inputs—assets, liabilities and scenarios—in a way that sees risk through time.



THE CLOUD

"We do not do 100 simulations or 1,000 or 100,000—or a million. We do trillions of simulations. If I want 100 GPUs [graphics processing units] for 48 hours, I can get it [on the cloud]. **We're talking about minutes instead of months.** You could look at situations where, in terms of dollar performance, we're just way ahead of our competitors."

MACHINE LEARNING

"Machine learning is going to really help the industry in claims management and fraud detection...and it will help specifically in variable annuities. I see it extending into underwriting and client support. **Machine learning is also well-positioned to enhance the client experience and to help reduce costs.**"

PETER PHILLIPS

President and CEO,
PathWise Solutions Group at Aon Benfield



PHILIPS: HEALTHCARE

The Dutch electronics and healthcare giant is connecting a vast ecosystem of medical devices and information on the cloud. The result is a "healthcare Internet of Things" that is personalizing patient care. Deep learning systems feed off present and historical data, giving medical professionals the insight needed to refine diagnosis and target treatment to the individual patient.



THE CLOUD

"Three years ago we started to securely connect medical devices, **making them smart, to create a common view of data that enables teams to analyze and orchestrate what to do.** Doctors can plug into this deeper and more precise and timely in action, and they can apply the right therapy."

DEEP LEARNING

"Deep learning is applicable to each of our core businesses—diagnosis and treatment, which are built around our imaging systems and the informatics around them. **The more we know about [an individual patient], the more we can guide what we should be looking for and what we're seeing.** And that ability can guide our interaction with the device itself."

JEROEN TAS
Chief Innovation & Strategy Officer, Philips

