

Machine-learning promises to shake up large swathes of finance

The Economist, May 25th 2017 (abridged and adapted)

In fields from trading to credit assessment to fraud prevention, machine-learning is advancing

Machine learning is beginning to shake up finance. A subset of artificial intelligence (AI) that excels at finding patterns and making predictions, it used to be the preserve of technology firms. The financial industry has jumped on the bandwagon. To cite just a few examples, “heads of machine-learning” can be found at PwC, a consultancy and auditing firm, at JP Morgan Chase, a large bank, and at Man GLG, a hedge-fund manager. From 2019, anyone seeking to become a “chartered financial analyst”, a sought-after distinction in the industry, will need AI expertise to pass his exams.

10 Machine-learning is already much used for tasks such as compliance, risk management and fraud prevention. It excels in spotting unusual patterns of transactions, which can indicate fraud. Firms ranging from start-ups such as Feedzai (for payments) or Shift Technology (for insurance) to behemoths such as IBM are offering such services. Some are developing the skills in-house. Monzo, a British banking start-up, built a model quick enough to stop would-be fraudsters from completing a transaction, bringing the fraud rate on its pre-paid cards down from 0.85% in June 2016 to less than 0.1% by January 2017.

20 Natural-language processing, where AI-based systems are unleashed on text, is starting to have a big impact in document-heavy parts of finance. In June 2016 JPMorgan Chase deployed software that can sift through 12,000 commercial-loan contracts in seconds, compared with the 360,000 hours it used to take lawyers and loan officers to review the contracts.

25 Machine-learning is also good at automating financial decisions, whether assessing creditworthiness or eligibility for an insurance policy. Zest Finance has been in the business of automated credit-scoring since its founding in 2009. Earlier this year it rolled out a machine-learning underwriting tool to help lenders make credit decisions, even for people with little conventional credit-scoring information. It sifts through vast amounts of data, such as people’s payment history or how they interact with a lender’s website.

Perhaps the newest frontier for machine-learning is in trading, where it is

used both to crunch market data and to select and trade portfolios of
35 securities. The quantitative-investment strategies division at Goldman
Sachs uses language processing driven by machine-learning to go
through thousands of analysts' reports on companies. It compiles an
aggregate "sentiment score" based on the balance of positive to
negative words. This score is then used to help pick stocks.

40 Quant hedge funds, both new and old, are piling in. Castle Ridge Asset
Management, a Toronto-based upstart, has achieved annual average
returns of 32% since its founding in 2013. It uses a sophisticated
machine-learning system, like those used to model evolutionary biology,
to make investment decisions. It is so sensitive, claims the firm's chief
45 executive, Adrian de Valois-Franklin, that it picked up 24 acquisitions
before they were even announced (because of tell-tale signals
suggesting a small amount of insider trading).

So it seems odd that some prominent quant funds are machine-learning
sceptics. Martin Lueck of Aspect Capital finds the technique overrated,
50 saying his firm has found only limited useful applications for it. David
Siegel, co-founder of Two Sigma, a quant behemoth, and David Harding
of Winton Capital, have also argued that the techniques are over-hyped.

The real vulnerability may in any case lie outside trading. Many quant
funds depend on human researchers to sift through data and build
55 algorithms. These posts could be replaced by better-performing
machines. For all their professed scepticism, Two Sigma and its peers
are busy recruiting machine-learning specialists.