

ARTIFICIAL INTELLIGENCE (AI) – OVERHYPED OR THE NEXT REVOLUTION IN ASSET MANAGEMENT?

Hywel George, Director of Investments, Old Mutual Investment Group

2017 saw the advent of the first fully AI-powered, daily traded ETFs, with some viewing this as heralding a shift into a new investment paradigm, Autonomous Learning Investment Strategies (ALIS).

What's new about these investment processes is that the technology learns and adapts as it goes along based on the information and enormous data sets the algorithms have access to and on which they are basing their investment decisions and solving problems. All with no human input.

As in other fields of AI, this has raised the spectre of Singularity – a much-vaunted future state when computers could potentially have superintelligence that surpasses our own and which could, it is feared, ultimately put humans out of business.

But have we truly crossed the AI Rubicon or is this all just a matter of hype?

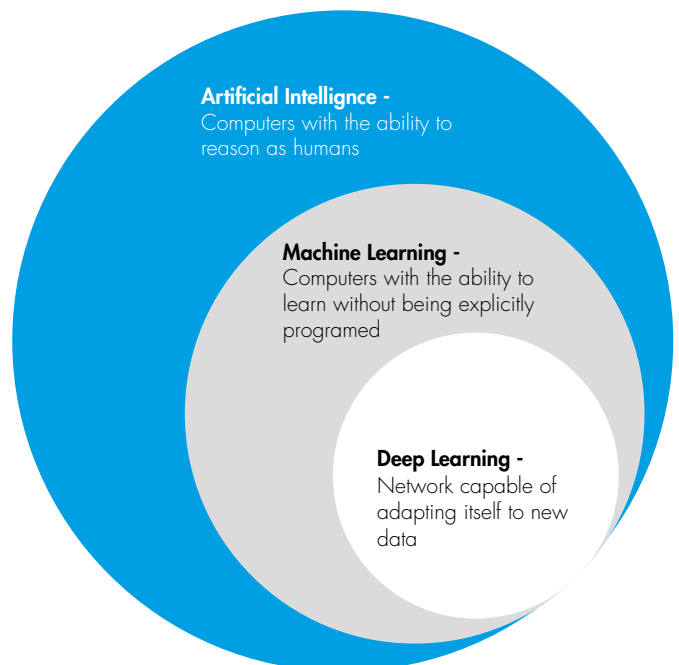
For many, the AI milestones that have been achieved over the last five years (see AI timeline) have set us up for the greatest technological revolution in history over the next decade – and the investment industry will undoubtedly be at the centre of this.

But artificial intelligence and talk of technological revolution has been around for a while. It was first talked about in 1965 when a British mathematician and cryptologist brought up the concept of an intelligence explosion. Then in 1993, a sci fi writer and computer scientist said that within 30 years we would have the means to create superhuman intelligence.

There are many definitions of AI but Forbes magazine contributor David Thomas puts it most succinctly: Artificial intelligence is a branch of computer science that aims to create intelligent machines that teach themselves.

There are different levels of AI, with each level becoming more sophisticated and autonomous in the tasks computers can do without human intervention. There is machine learning (or structured learning), which is the ability of computers to learn and improve at tasks with experience. Then there is deep (or unstructured) learning, when a computer uses algorithms that adapt to new data and thus trains itself to perform tasks. The best known examples of deep learning are IBM Watson and driverless cars.

A DEEPER UNDERSTANDING OF AI



Source: Forbes Magazine

1956	The first Dartmouth College summer AI conference is organized by John McCarthy, Marvin Minsky, Nathan Rochester of IBM and Claude Shannon.
1965	Joseph Weizenbaum (MIT) builds ELIZA, an interactive program that carries on a dialogue in English language on any topic.
1978	Herbert A. Simon wins the Nobel Prize in Economics for his theory of bounded rationality, one of the cornerstones of AI known as "satisficing".
1993	Vernor Vinge publishes "The Coming Technological Singularity," predicting that, within the next 30 years, humankind would have the ability to create superhuman intelligence."
1997	The Deep Blue chess machine (IBM) defeats the (then) world chess champion, Garry Kasparov
2009	Google builds self-driving car
2011	IBM's Watson computer defeated television game show Jeopardy! champions Rutter and Jennings.
2016	Google DeepMind's AlphaGo defeats 3x European Go champion Fan Hui by 5 games to 0
2017	Google's AlphaGo Zero - an improved version of AlphaGo – learns by playing only against itself and beat its predecessor 89:11 after only 40 days

Source: Wikipedia, Old Mutual Investment Group

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Inevitably the advances in AI have spurred robust debate about what impact AI will have on the investment world.

To get a balanced perspective, it's worth considering why AI is developing so rapidly.

AI advances have primarily been made possible by the sharp decline in the price of graphics processing units (GPU's) in recent years driven by gaming. This has enabled AI to access immense amounts of data of all types (numerical, image, voice), which are being made available from companies such as Google, Facebook and Microsoft.

Cloud-based hosting has also provided access to extremely strong AI platforms. For instance, you can use IBM or Google's AI platforms to take advantage of work that they have already done and build on top of this.

WHY IS THIS IMPORTANT?

- It allows for quick-to-market implementation when you have enough data to teach your algorithm.
- With so much data being made available, you don't even need to come up with an hypothesis to code in, you can throw mountains of data at the AI and, through deep learning, it will figure out the pattern.
- Platforms are cheap/free, so the barriers to entry are low, the main barrier is access to enough rich data.

Notwithstanding the increasingly fast paced innovation we've seen and the growing excitement about the potential of AI, it is not likely to be an investment panacea – and it's premature to think that fundamental qualitative investment professionals will no longer have jobs as a result of AI.

Instead, some of the things the investment industry needs to be thinking about are:

- If you pick the incorrect data, you will get the incorrect result (which will come in as the correct result, but is based on the wrong information).
- An algorithm learns as time goes by, but it cannot determine an upcoming black swan event unless it has a previous black swan event to have learnt from.

- AI is very good at doing one thing well, but not at integrating many things into a 'super-solution'. For instance you can use AI to determine what the market may do using machine readable news as a factor in an investment portfolio, but you are not able to just 'ask AI to come up with a portfolio' and let it just figure it out.

More important for the investment industry is to consider how can we use AI to improve portfolios, how we can we use AI to take away the repetitive, grudge work out of our jobs in order to concentrate more time on the hard thinking work and how we use AI to augment what we do as opposed to worrying about it replacing what we do.

IN OTHER WORDS, IT IS NOT HUMAN VERSUS MACHINE; IT IS HUMAN AND MACHINE IS BETTER THAN HUMAN ALONE.

