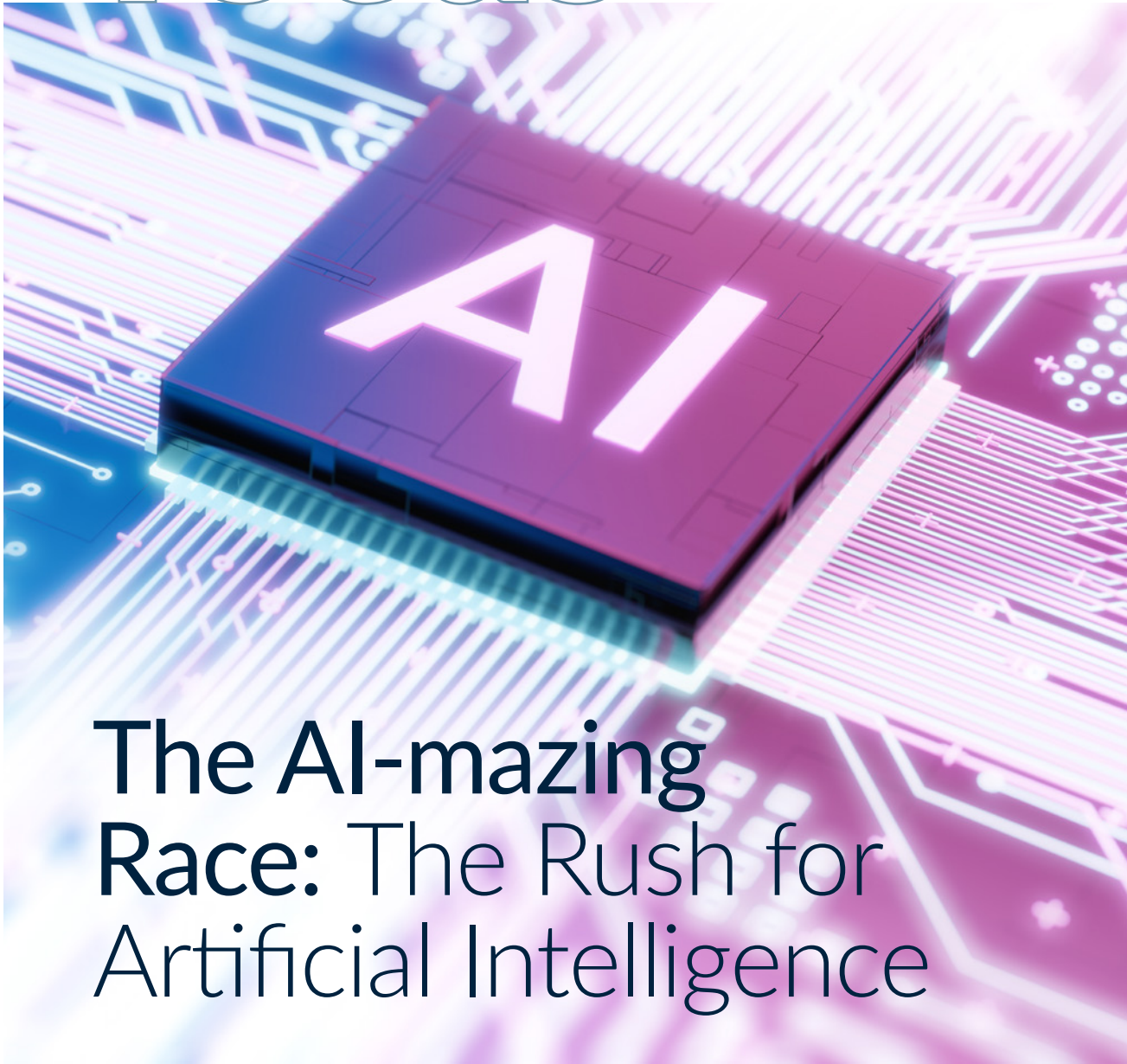# focus

The AI-mazing Race: The Rush for Artificial Intelligence

Artificial Intelligence (AI) has been the en vogue topic for markets in 2023.

While it's been ChatGPT and large language models that have grabbed the headlines, AI is much broader, encompassing a wide range of technologies.

FORSYTH BARR

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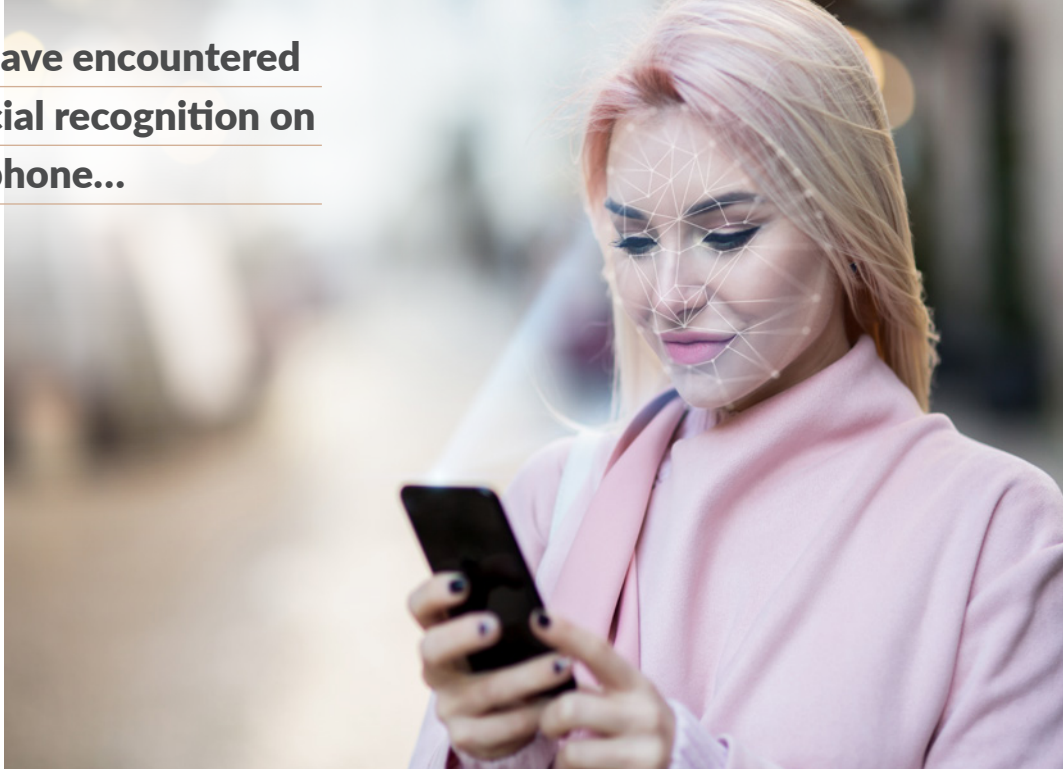
As a general rule of thumb, AI refers to computer systems that can perform tasks that historically have required human intelligence such as learning from data, making decisions, recognising patterns, understanding natural language, solving problems, and creating text, music, or images. Examples include chatbots, self-driving cars, or grandmaster Garry Kasparov losing a chess match to a laptop. In your everyday life you may have encountered AI in the facial recognition on your smartphone, in the tailored ads served up to you on social media, personalised recommendations on Netflix, or Google maps providing the quickest route to your destination.

Despite the hype this year, AI isn't necessarily new — it's been evolving for decades. What is new is how a specific AI technology called Large Language Models (LLMs) has captured the attention of the public and businesses around the world. What once was the domain of the highly technical has become mainstream.

An abridged history

To understand the sudden craze around AI it's helpful to have an idea of how it has developed and what's unique about recent developments. A highly abridged timeline of events is as follows:

Timeline

1950: Allan Turing poses a Turing test (the imitation game) to determine if a machine can exhibit intelligent behaviour that is indistinguishable from that of a human.

1957: Frank Rosenblatt, an American psychologist, introduces the first neural network, a foundational technology for most modern AI (this paper was written on a typewriter). A neural network is a computer system inspired by the human brain. It's made up of interconnected nodes, or "neurons". Neural networks are used in many applications like image and voice recognition, medical diagnosis, and even self-driving cars.

1966: ELIZA, recognised by many as the world's first chatbot, is released as a program that simulates a psychotherapist. People divulged private and sensitive thoughts to this AI therapist (the start of our existential discussions concerning AI's role in society).

1997: Garry Kasparov loses an exhibition chess match against IBM's Deep Blue supercomputer. A clever system and extreme computational power overcame the best human chess player in the world.

2011: Siri becomes available on your iPhone, making day-to-day interaction with technology more convenient and human.

...AI will increasingly be able to simplify various aspects of your life...

2015: Research firm OpenAI is formed, brainchild of Elon Musk, CEO of Tesla and SpaceX, sometimes richest man in the world (amongst many other things!). OpenAI's mission is: "to ensure that artificial general intelligence — AI systems that are generally smarter than humans — benefits all of humanity".

2016: DeepMind's AlphaGo defeats Lee Sedol, one of the world's top Go players, four games to one, in the highly complex and strategic game.

2022: ChatGPT explodes into the public domain. Other LLM tools follow such as Google's Bard and PaLM, Meta's LlaMA, and open-source Falcon. The power and particularly the ease of interaction propels ChatGPT to the most rapidly adopted new consumer software in history. Suddenly the average person had an easy-to-use tool to interact with AI.

What are large language models?

LLMs are machine-learning models that understand and generate text in a human-like fashion. The models are trained on vast amounts of text data. They learn to identify patterns in the text, such as grammar, syntax, and even nuances like sarcasm or emotion. Because of their size and complexity, LLMs require considerable computer power to develop and train. LLMs can be used in a range of applications including translation, summarising documents, understanding and answering questions, and generating original content. Their ability to understand and generate

human language means they're easy to use for a wide range of people, not just experts.

How you can use AI in your day to day life?

AI will increasingly be able to simplify various aspects of your life, making tasks more efficient and reducing the burden of manual work. Examples include:

LLMs: Employing something like ChatGPT to write your emails and texts, summarise a big report, or provide ideas for a movie or a birthday present.

Smart Assistants: Utilise voice-controlled AI assistants like Siri, Google Assistant, or Alexa to handle tasks such as setting reminders, managing your calendar, sending texts or emails, and answering questions.

Smart Home Automation: AI modelling can learn your preferences and schedules, leading to more effective use of electricity and more convenient use of your appliances. Having the house warm when you get home and the washing machine running when power is cheap will be the new norm in years to come.

Language Translation: AI-powered translation apps and services can help bridge language barriers, going beyond current translation methods and keeping up to date with pop culture and slang to allow much more accurate translations.

A number of other applications use AI in the background to do clever data analytics. Many apps in health, ecommerce, ad-blocking, education, and travel and transport already use AI technology behind the scenes.

Transformational for business

In the years ahead, AI will be a transformative force in the business landscape and the broader economy.

One of the most immediate impacts will likely be in efficiency. AI-driven technologies can automate both routine and complex tasks. We have already seen chatbots used to improve customer service and it has now become standard practice that we interact with an AI tool before we engage with a human.

AI is also quickly finding its way into common business practices. Need a professionally written email? Ask an AI. Need a draft of a report you're working on? Ask an AI. Want to understand a lengthy report but don't want to wade through all the details? Ask an AI to summarise.

Business practices will increasingly move away from time-consuming and repetitive processes, helping to improve efficiency, reduce labour costs, and remove human error. Automation isn't limited to manual or repetitive tasks. AI can also handle increasingly complex jobs like financial forecasting, logistics and supply chain optimisation, and quality control. Companies that adopt AI early and effectively may gain a significant competitive edge.

AI also has the potential to drive innovation across a wide array of sectors. A few examples include:

In healthcare, AI might be used to analyse imaging, assist with diagnostics, and accelerate drug discovery and testing.

In agriculture, AI can analyse soil conditions, weather data, and other environmental factors to optimise planting, fertiliser, watering, pesticides, and harvesting.

AI could provide personalised education for students based on individual needs.

Self-driving cars may make transportation safer and more efficient.

AI can personalise customers' shopping experiences, manage store inventory, and even predict consumer buying behaviour. Automated checkouts and AI-driven customer service are also possibilities.

Smart grids powered by AI could optimise the distribution of energy, improving efficiency and sustainability.

Above are just a few examples of AI cases that have already emerged or are on the radar, but there will certainly be a vast amount more, some of which we haven't even dreamt of yet.

What about the risks?

Along with the benefits, the rise of AI also brings challenges and risks, particularly around the job market and ethical concerns. As automation becomes more prevalent there'll potentially be job losses in certain sectors. Upskilling and reskilling will become increasingly important as the nature of work changes.

On the ethical front, businesses will have to navigate issues ranging from data privacy to algorithmic bias. The regulatory environment is also likely to evolve, requiring companies to meet new compliance standards related to AI and data usage.

An exciting path ahead but it's still very early

The AI buzz has been a major feature of markets this year. We've seen some large share price moves for companies that supply the processing power to train and power AI technologies, along with a few that have released early AI-based applications. A few examples include:

Nvidia, which makes the processors that are incredibly popular for the development of AI models.

Microsoft, which has rolled out its co-pilot AI tool across its 365 suite of business programs to help with things like building spreadsheets and improving writing.

Tesla has long been a big name in AI technology, with its self-driving cars utilising AI for navigation.

Workday provides online HR services and uses AI technologies to automate many HR and finance processes.

MongoDB integrates AI into its data analytics that sit on top of its database services.

Considering how AI will transform sectors and companies will be important for investors in the years ahead. It is, however, also important to remember it is still very early days. As with any new exciting technology, sometimes the hype can outpace reality, leading to inflated valuations and high volatility. Investors must also be cautious about differentiating between companies with genuine AI capabilities and those using 'AI' more as a buzzword for marketing.

...AI will have a wide range of impacts across a whole raft of industries...

In the early days of a new technology it's generally not clear who the ultimate winners will be. Looking back at the internet boom in the late 1990s, the likes of AOL and Yahoo! were seen as market leaders while companies such as Alphabet (Google) and Meta (Facebook) weren't listed on the share market or didn't even exist. Even those companies which proved to be ultimate winners experienced dramatic share price declines that took a long time to recover or, in some cases, have never been recouped.

AI will have a wide range of impacts across a whole raft of industries. Some will benefit (and in ways we haven't even thought of), while others may see their business models disrupted by greater or new competition. At this stage it's impossible to know exactly which horse to back with perfect foresight. We recommend a diversified basket of investments as the best way to get exposure to this important new technology and its benefits in the years and decades ahead.

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