

The Adoption of Artificial Intelligence in Asset Management

Interview with Ong Ai Ling

Ong Ai Ling is Head of AIOI (Artificial Intelligence of Investments) and Portfolio Manager for the LionGlobal Disruptive Innovation Fund at Lion Global Investors. She started her investment career in London and has 18 years of experience managing Asia-Pacific and global equity investments.



What is all the buzz surrounding Artificial Intelligence (AI)?

Ong Ai Ling: Unless you have been living under a rock for the last year, you must have heard of terms like ChatGPT, Generative AI, DALL-E and OpenAI. Everyone has been talking about Generative AI and it has captured everyone's imagination since ChatGPT debut in November 2022. So what exactly is GPT or Generative Pre-trained Transformer?

A transformer is essentially a category of deep learning or neural network AI models that has a certain architecture. The most distinctive part about this architecture is what we call the "self-attention" mechanism. The idea behind the "self-attention" mechanism comes from a 2017 Google paper, which is titled "All You Need is Attention".

In fact, here at Lion Global Investors, we do have a transformer-based model that is using almost the same transformer architecture as ChatGPT. However, unlike ChatGPT, which is trained for Large Languages, here we are specifically training it for large sets of financial data and tuning it for financial purposes. This is just one of the many AI models that we have in our toolkit.

Once you have this transformer architecture in place, you will recall that in previous episodes about AI, we explained that AI of all forms essentially learns by recognising patterns from millions of data points. Transformer AI models also do the same thing. They are basically very, very good pattern recognition machines.

Ong Ai Ling: Now the generative part of GPT which is that after having learned these patterns in its pre-trained framework, you can then use this pre-trained framework model to create new things. In our case, after we have trained it on tons of financial data, we use it to try and make predictions about the financial markets. In the case of ChatGPT, people will be using it to make texts-like responses to your text prompt.



With the right datasets, AI can help us to break down geographical borders, create new products and manage global equities, bonds, and other asset classes.

Ong Ai Ling: People also use it for art. You might have heard of Hugging Face or DALL-E, where people would be asking for the Mona Lisa but in the style of Vincent Van Gogh. It would have learned what Van Gogh does, what kind of art it does, what it looks like, and then try to create the Mona Lisa but in that style, with the little swirls.

People are also using it for music. OpenAI has a program called Jukebox and there you can request for music, like a new song, but in the style of Elvis Presley, or maybe even a Chinese song, but in the style of Elvis Presley. You can mix and match and it is actually quite interesting.

How quickly is the finance industry adopting AI?

Ong Ai Ling: Unfortunately, in the broader finance industry, its adoption rate is still relatively slow. In 2019, there was a CFA Institute survey which found that only 10% of portfolio managers use AI or machine learning techniques, and less than 25% of analysts use some form of big data or AI in their day-to-day work.¹

A follow up survey in 2020 came to pretty much the same conclusion. The level of adoption in the fund management industry is still relatively low.²

Fortunately for Lion Global Investors, we are one of the earlier adopters within the fund management industry and we started our AI journey several years ago. Currently, we already run an ensemble, which is a combination of several machine learning based equity stock picking models, fixed income model and a macro asset allocation model. We also use various Large Language Models (LLM), which is what your ChatGPT is, to analyse filings, transcripts and use for sentiment data. We combine both proprietary and third-party source data as inputs to our core selection and allocation AI models.

How has Lion Global Investors been using AI?

Ong Ai Ling: Now, surveys find that when most people think about AI, they tend to think about the cost savings aspect, which leads to a lot of scaremongering headlines where people talk about how “AI is going to replace humans” or “They are going to take over human jobs”.

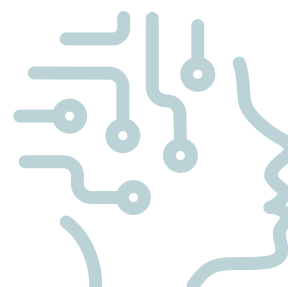
When I spoke at the ACI World Congress recently, I did an audience poll and sure enough, the top use case that people cited even amongst finance professionals, was for cost reduction.

Ong Ai Ling: Interestingly, almost no one chose one of our main purposes, which is to develop new products and open new markets.

In terms of cost savings and productivity improvements, of course we can and do use that. In some ways we are improving our efficiency and productivity when we use AI models like Large Language Models to analyse and process large chunks of text that historically you would have had to use human analysts to analyse. When you are using Microsoft or GitHub Copilot, it helps you improve the speed at which you are analysing information.

The other use case that we use AI for is to improve performance or capture alpha. This is because AI tends to process more information as compared to a human analyst.

The third use case, and one that Lion Global Investors is particularly excited about, is that AI allows us to enter new geographies and creates new products. So long as we can buy the datasets that cover these geographies or asset classes, we should be able to do it right here from Singapore. For example, we can use it to manage global equities, bonds, other asset classes and it helps us break down geographical borders and time zones. At Lion Global Investors, our priorities are on the latter two use case bubbles.



How do you see Asia's adoption and trajectory for AI, compared to Europe and the US?

Ong Ai Ling: The outlook in Asia is pretty varied. On one hand, you have research showing that China and India have the most respondents who claim to have adopted AI and that China is comparable to the US in terms of the number of patent filings in AI and on the number of academic papers written about AI. However, the papers that have been written by China, as well as the patent filings by China, tend to have fewer citations as compared to the ones written in the US.³

Likewise, China and India also have to deal with the issues around geopolitics. You must know that the US has banned Nvidia's H-100 Graphics Processing Unit (GPU) chips, which is the cutting-edge technology that is used to power ChatGPT and other transformer type technologies.

So, it is a big question mark over whether China and the China tech companies like Huawei, Tencent, Alibaba can overcome this ban.

Can they use lesser powered GPUs to do the same level of training? And then what about the actual chips itself? If Taiwan Semiconductor Manufacturing Company (TSMC), which is the offshore Taiwanese foundry cannot ship to China, can the onshore Chinese foundries like Semiconductor Manufacturing International Corporation (SMIC) continue to produce cutting-edge like sub-four nanometer chips?

Ong Ai Ling: When you have a ban on Advanced Semiconductor Materials Lithography (ASML) equipment, these are all questions that we have to answer and are unanswered.

We are fortunate that here in Singapore we do not have to grapple with all these geopolitics. We have a very conducive environment. We have a government that is very supportive of AI adoption amongst the populace, and we do not have to deal with these bans. We have good world class educational institutes that have AI talents that we can draw upon for the work that we do, as well as easy access to Open-Source AI models that we can adopt and adapt for our purposes.



¹AI Pioneers in Investment Management, CFA Institute 2019

²Fintech Survey 2: Has AI and Machine Learning Adoption Advanced, CFA Institute, June 2020

³Citigroup AI primer, 2023

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