



By Larry Cao

ChatGPT and the future of investment management

In investment analysis or portfolio construction, authenticity will be key

I COMMITTED to writing something about ChatGPT, OpenAI's revolutionary new chatbot, shortly after its November 2022 debut. After all, ChatGPT's success rivalled that of AlphaGo, which marked the beginning of a new era in artificial intelligence (AI).

The reason I didn't write about ChatGPT until now is that it doesn't really need any introduction. I'm not saying this to be polite. ChatGPT is just a computer program. Vanity is not on its menu. But the fact is, whatever we want to know about ChatGPT, we can just ask it (when its servers aren't at capacity). So, why look for second-hand information?

ChatGPT came to my rescue, suggesting, and I'm paraphrasing, that there are several specific areas that I might still want to write about: namely, its accessibility, or lack thereof, as well as its context and depth. So, here we go.

What's the big deal? The accessibility question

ChatGPT made headlines because it has a way with words; and it offered everyone an opportunity to experience the coolest new technology first-hand. Compared with annoying virtual assistants, ChatGPT demonstrates a much better understanding of natural languages. Its responses are thoughtful and, may I say, natural. And, of course, it seems to know everything.

The secret of ChatGPT's breakthrough lies in three letters: G, P, and T. T stands for Transformer architecture in deep learning. It's a revolutionary new natural language processing (NLP) technique that extracts and analyses textual data. P stands for pre-training, which gives the model the capacity to train on vast amounts of data and respond quickly to queries.

For example, ChatGPT has more than 175 billion parameters, which is partly why it answers questions so well. (The downside, however, is that it cannot incorporate new information in real time.)

G stands for generative. Generative AI can produce new data similar to the data it was trained on. As we discuss in the forthcoming *Handbook of Artificial Intelligence and Big Data Applications in Investments*, advancing from NLP to natural language generation – adding the ability to generate natural language text – was a significant step in the evolution of NLP and has opened up new possibilities for an entire suite of NLP applications.

The phenomenon called ChatGPT is the result of G, P, and T working in sync, and its long-term implications for investing and the world are profound. Take chatbots, for example. They have performed customer service tasks for years, including in financial services, and have left many customers unsat-

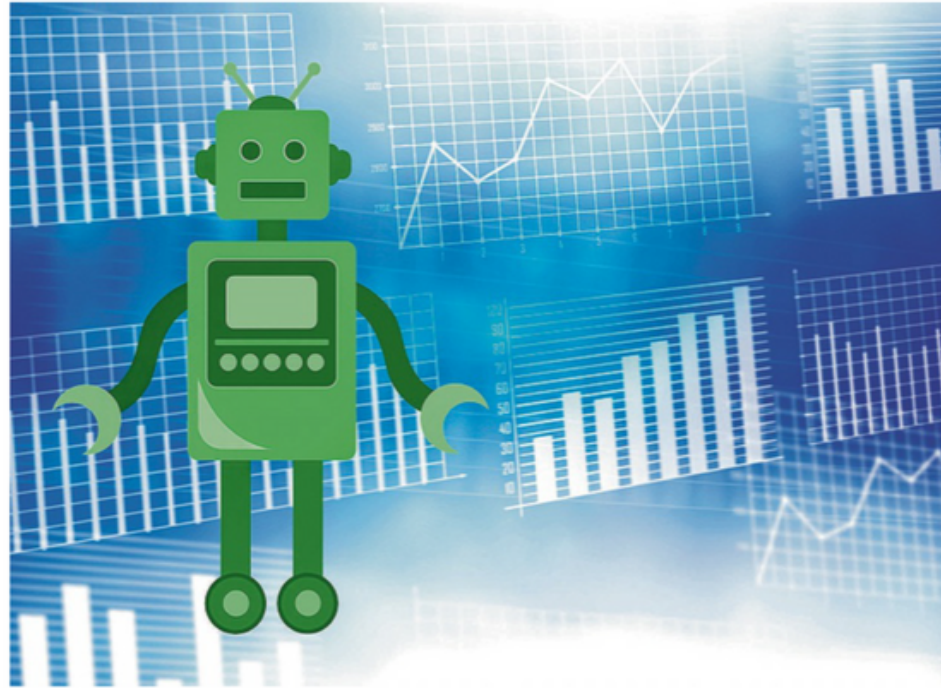


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isfied. With its human-like command of language and the vast stores of knowledge at its disposal, ChatGPT should provide a vast improvement.

And customer service is just one of many areas that it could disrupt. No wonder so many have speculated in recent months about the jobs ChatGPT will render obsolete.

Who's at risk? The contextual question

Recall that ChatGPT's strong suit is its way with words. So, naturally, the more our jobs depend on traversing the world of text, the more we are at risk. But what about financial news and investment research? Does ChatGPT have any implications for the future of human investment advisers and analysts?

We can look at this question from a couple of angles. First, as far as the direction of travel, the adoption of AI programs, including ChatGPT, will proceed from low-end, repetitive work to more high-end applications – that is, from language (information) to understanding (analysis) to logic (decision making). Second, in terms of training costs, these applications will likewise expand from low-cost subjects and markets to high-cost subjects and markets.

With these principles in mind, we made two predictions back in 2018:

1. Portfolio managers will have longer careers than analysts
2. Investors in liquid markets will enjoy the benefits of AI sooner.

As for financial news and investment research, AI adoption will also proceed from the low end to the high end. Media outlets have deployed AI programs to cover earnings releases, among other basic financial news reporting, for some time. Original reporting, breaking news, etc, will, of course, continue to require top-notch journalists.

Investment research should follow a similar trajectory. Analysts can certainly use AI applications as research assistants, but if our research has no original insight and just serves up what ChatGPT gives us, how could we build and maintain an audience? (Well, humans can be irrational . . .)

We also embraced the "AI + HI (Human Intelligence)" philosophy back in 2018 and theorised that AI will provide "assisted driving" rather than "self-driving" in investments for many years to come.

Indeed, ChatGPT has shown remarkable facility in another kind of language – computer programming – but is unlikely to be the death knell of human

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programmers. That is, top-notch programmers are unlikely to be replaced. In fact, like their high-performing counterparts in the investment world, they may come to welcome these changes with open arms: With ChatGPT tending to support routine tasks, their efficiency can only improve.

Where's this going? The deep question

Answers to the following questions will determine how ChatGPT and its offshoots influence not only the future of finance but also the future of humanity.

1. Does ChatGPT understand more than its predecessors?

ChatGPT seems to grasp what it is talking about and has generated longer and more complex conversations than previous NLPs.

2. Is it self-aware?

While it may insist that it is not self-aware, some psychologists disagree. Indeed, a former Google engineer has already claimed that a Google AI is sentient.

3. Will ChatGPT or its offspring attain artificial general intelligence (AGI)?

AGI – "machine intelligence with the full range of human intelligence" as Ray Kurzweil put it – is the holy grail of many AI scientists. Some believe ChatGPT's cross-disciplinary knowledge may be an early sign of this so-called strong AI.

Again, ChatGPT vehemently denies that this is where it's heading. But Sam Altman, chief executive officer of OpenAI, believes that it may get there.

There's no question that ChatGPT and similar technologies have made impressive progress. But have they achieved truly artificial intelligence? The answer is unclear. Additional research into both machine learning techniques and cognitive science principles – two fields that, from a comparative perspective, are relatively unexplored – is required if we are to achieve further clarity.

So, do we human advisers and analysts stand any chance in the post-ChatGPT world? Absolutely. But authenticity will be key. Originality has always come at a premium, and that premium will only increase in the ChatGPT era.

In investment analysis or portfolio construction, if we're offering little more than the conventional wisdom, then ChatGPT and similar applications could very well eat our lunch.

Larry Cao, CFA, senior director of industry research, CFA Institute, conducts original research with a focus on investment industry trends and investment expertise