

When asked, OpenAI's ChatGPT believes its arrival will have as significant an impact on human communication as the invention of the printing press or the Internet.

Ask ChatGPT a question, and it will generate a response as if conversing with the user. It can write poems, educate us on the finer nuances of Marxism's influence on French society, assist us in completing a job application, and help middle schoolers with an assignment. ChatGPT can be a learning tool to simplify complicated subjects like nuclear fusion or string theory. It can even write or debug code and recommend a dish based on ingredients in your refrigerator.

This type of artificial intelligence (AI) model is known as natural language processing (NLP), and it's the technology behind ChatGPT. GPT stands for generative, pre-trained transformer, with "pre-trained" being the key. Before its debut, ChatGPT was trained using scores of databases, web pages, books, texts, and other sources.

The generalized, versatile, and natural language style of ChatGPT is what makes it so exciting and popular. Within two months of its public launch, ChatGPT has amassed over 100 million users—the fastest adoption rate of any software platform ever.

While many "experts" have made wild predictions about what AI could mean for humanity, we offer what we believe is a more level-headed view: We think ChatGPT will cause a gradual change in our work and lives, but will not cause the abrupt disruption that many in the media would like us to believe. Nevertheless, the excitement and rapid adoption of ChatGPT have us looking inward and thinking about the opportunities that generalized AI models may offer to asset managers.

AI'S INFLECTION POINT

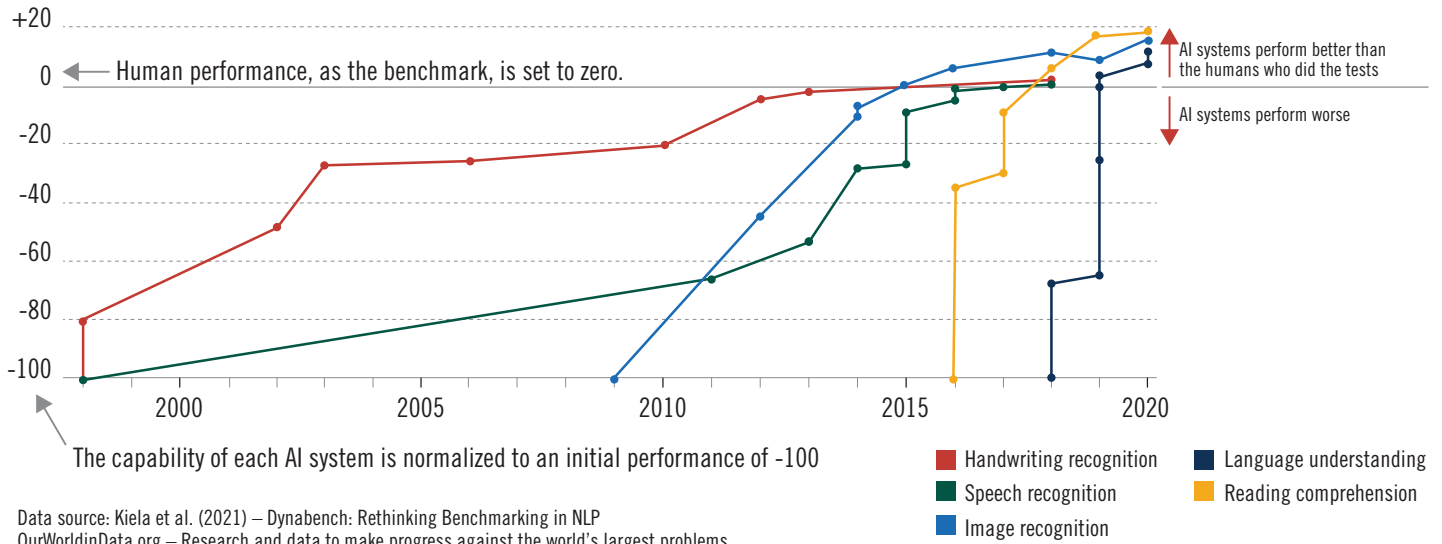
AI reaching a point of parity versus human performance has been a major focus of computing since the introduction of the "Turing Test," developed by the late Alan Turing, an English mathematician and computer scientist, in the 1950s. Turing proposed that computers will eventually be able to answer questions in such a way that it would be hard to distinguish whether they emanated from a computer or a human. In other words, Turing envisioned a computer capable of synthesizing a response based on its knowledge and experience rather than responding based on pre-trained or predetermined algorithms.

The time has finally come for computers to perform at the same or a higher level than humans in many different areas thanks to exponential increases in computational power and the introduction of semiconductor technology specifically focused on AI, which reduced the development cycle of reading comprehension and language understanding. Much of this advancement came in the last decade, as the accompanying graphic shows. ChatGPT became the most widely used language understanding model to pass the Turing Test, which we see as an evolutionary milestone rather than a revolutionary change like the Internet.

KEY TAKEAWAYS

- Exponential increases in computational power and the introduction of semiconductor technology specifically focused on AI have led to computers performing at the same or a higher level than humans
- Shortcomings of ChatGPT preclude it from being a valuable tool for sentiment analysis, a hallmark of our specialized NLP model, the Virtus Systematic AI Broker Sentiment Model
- ChatGPT will cause a gradual change in our work and lives but will not cause the abrupt disruption that many in the media would like us to believe
- Society tends to overestimate the impact of any new technology in the short term and underestimate it in the long term—ChatGPT is no exception

TEST SCORES OF THE AI RELATIVE TO HUMAN PERFORMANCE



CHATGPT IN ASSET MANAGEMENT

To understand how a language prediction model like ChatGPT can augment an investment process, we dissect the activities of a typical investment company to understand where ChatGPT might be able to contribute. Overall, the activities have been grouped into two key categories:

1. Executing an investment strategy, particularly data gathering
2. Client communications, particularly reporting and investment commentary

Executing an Investment Strategy

Any successful execution of an investment strategy starts with data. The data used for investments can be in varied forms, media, and sizes—including large quantitative datasets, unstructured data, and more informational data content. However, after extensive testing, we find ChatGPT to be numerically challenged. Ask the model anything to do with specific numbers, like ranking sectors by average return the day after the U.S. President’s State of the Union address, and ChatGPT often responds with an apology.

Data Type	Examples	ChatGPT Use Case
Large quantitative data	- Price and financial information - Mall traffic - Other large numerical data sets	Weak: The linguistic focus of ChatGPT makes it inadequate for handling numerical information
Unstructured data	- Textual data, including earnings transcripts, analyst reports, and other written materials	Limited: While ChatGPT has been heralded as a replacement for NLP models to quantify sentiment in textual content for asset managers, ChatGPT was trained on general information and not financial text, a distinction that can create limitations, weaknesses, and distortions in determining sentiment
Informational data	- Nuances of a subject, like the potential impact of a right-wing party coming to power in democratic European country - General knowledge that could be obtained using a search engine	Beneficial: With the right prompting, ChatGPT’s vast acquired database can offer potentially valuable information to asset managers

Client Communications and Reporting

We've broken down client communications and reporting into three main deliverables: reporting and attribution, portfolio positioning, and investment commentary.

Client Deliverable	Examples	ChatGPT Use Case
Reporting and attribution	<ul style="list-style-type: none"> - Client/composite performance reports at the security level - Sector attribution 	<p>Weak: The numerical and formulaic nature of the process makes a linguistic software like ChatGPT unfit for such function</p>
Portfolio positioning	<ul style="list-style-type: none"> - Investment rationale for specific security selection - Observations on relative positioning versus an investment strategy's benchmark 	<p>Limited: With the right coaching, ChatGPT can help an asset manager explain the rationale behind owning a security or being overweight or underweight in a sector. However, the manager's approach to the query can result in bias (e.g., "offer a positive view on a stock held in the portfolio that has underperformed during the quarter.")</p>
Investment commentary	<ul style="list-style-type: none"> - Quarterly investment commentary on emerging markets - Full-year review of U.S economic events that impacted the stock market 	<p>Strong: ChatGPT's linguistic training and vast knowledge base is ideal for investment commentaries, which can be customized by querying specific focus areas</p>

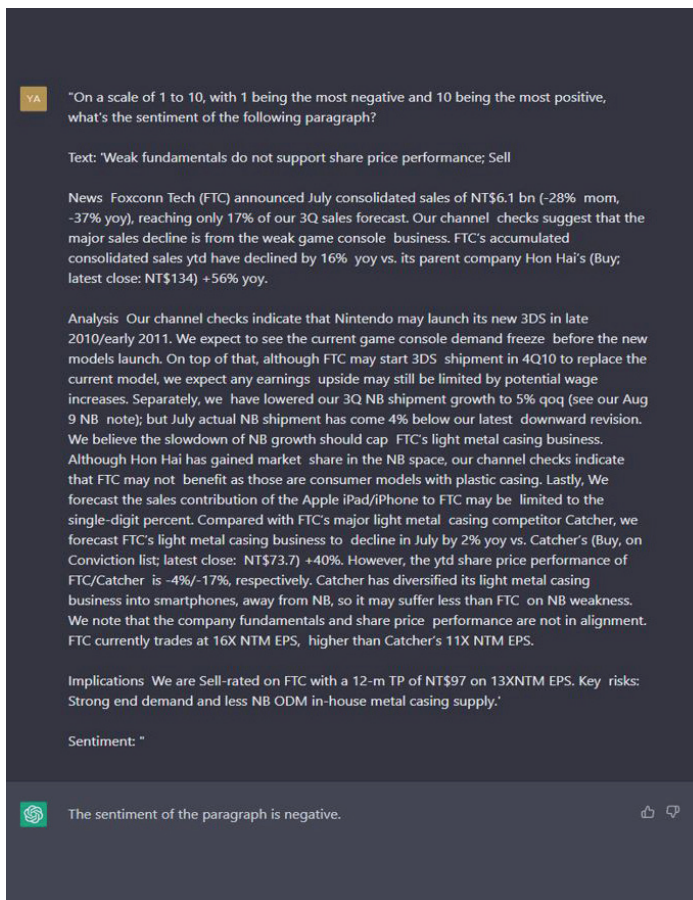
GENERALIZED VS. SPECIALIZED AI MODELS IN ASSET MANAGEMENT

Virtus Systematic has been using and developing NLP models since 2016, long before the current hype around ChatGPT. The purpose of our AI-NLP model is specialized: to identify mispriced stocks measured against the sentiment of textual content. The model focuses on the text content of market participants, like sell-side broker reports, or company management earnings call transcripts.

We compared the potential of using ChatGPT, a generalized AI model, as a replacement for our specialized NLP model, and we identified two inadequacies of ChatGPT. First, a typical sell-side broker report does not usually come in a machine-friendly form. They are often available in a Portable Document Format (PDF) format, which includes logos, pictures, tables, and information like regulatory disclosures. The information in the sell-side broker report needs to be distilled into a machine-readable format where the analyst's essential economic and business-related views are preserved, and the other extraneous information is removed.

ChatGPT works with a text-based prompt and cannot handle a PDF format of a report. Moreover, it cannot discern the content differences between tables, logos, or disclosures. This inability to glean the investment-related data leaves ChatGPT prone to erroneous sentiment forecasting. Therefore, any user who intends to use ChatGPT for a sentiment analysis must invest in building a data cleaning infrastructure and intellectual capital or employ an extremely tedious, manual data clean-up process.

The second weakness we observed with ChatGPT is the "shyness" of ChatGPT to quantify the sentiment. Although ChatGPT can grasp of the sentiment of a text, it does not have the resolution to generate a sentiment score. In the following image, we explicitly asked ChatGPT to predict the sentiment of an excerpt from a broker report and assign a score. ChatGPT correctly identified that the sentiment of the text was negative, but it refrained from offering a score. In contrast, the Virtus Systematic AI Broker Sentiment Model determined the same text has negative sentiment, but more importantly, assigned it a score of -0.55 (on a scale of +1 to -1).



Source: ChatGPT.

On any given business day, more than 2,000 sell-side reports are published worldwide, of which about 50% tend to have a negative sentiment. In other words, a binary classification of “positive” or “negative” sentiment may not be helpful for making alpha-generating investment decisions.

We refrain from comparing the quality of the sentiment assessment between ChatGPT and the Virtus AI-NLP model. The above two highlighted shortcomings of ChatGPT preclude it from being a valuable tool for sentiment analysis, making the quality of the sentiment analyzed by ChatGPT a moot point.

A JACK OF ALL TRADES, BUT A MASTER OF NONE?

Is the advent of ChatGPT a revolutionary event like the printing press or the Internet, as ChatGPT self-proclaims? As a society, we tend to overestimate the impact of any new technology in the short term and underestimate it in the long term. We believe ChatGPT is no exception.

We expect ChatGPT’s language processing skills to eventually impact industries with heavy reliance of text-based content. We envision call centers, legal, insurance, and doctors’ offices as some areas that can benefit from ChatGPT. In asset management, we anticipate that ChatGPT will play a role in certain areas, but its current limitations will likely keep its adoption relatively marginal.

Ultimately, an asset manager must continuously innovate while quickly reacting to new information and changing market conditions. The Virtus Systematic NLP model was explicitly built to assess sentiment in a changing market environment and identify mispriced equities. We believe ChatGPT was not built for this purpose and should not be used for it. In investing, collective wisdom says to trust the specialists. The same should be said for AI in asset management: trust the AI specialist model over the AI generalist model.



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