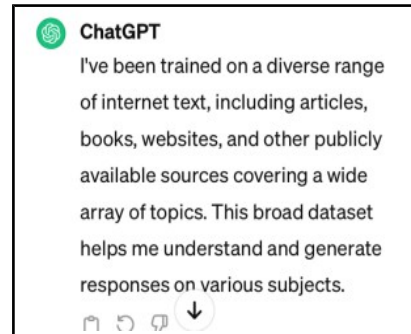


Is ChatGPT intelligent?

Rod Smith
27 March 2024

Is ChatGPT intelligent or is its seeming intelligence an imperfect reflection of the intellect of the humans who created the data on which it was trained? If unintelligent, could it acquire intelligence, and if so, how?



Introduction

Huge interest followed launch of tech company OpenAI's online chatbot ChatGPT in late November 2022. Its answers to questions online users typed seemed strikingly human-like. But did it really understand? If so, adding a human-like sensorimotor interface could yield an intelligent machine capable of mitigating climate change at affordable cost.

I examine claims made by OpenAI about ChatGPT including that it's (a) trained on text, (b) learns the meanings of text, and (c) understands questions online users type.

Many think ChatGPT offers great promise. Huge investment followed release. But was this bubble grounded on sound scientific evidence of potentiality? Or were explanations not entirely candid in order to bolster profit and investment? Given the importance of human-like general machine intelligence (AGI) I also consider these questions.

Meaning and understanding are topics of semantics. Computers are electronic devices. ChatGPT exists as electrons inside electronic components. I adopt John Searle's semantic tools then apply them not to the Turing machine as he did, but rather to the established science of the physics and chemistry of electronic components and transmissions.

Investigation

On 30 November 2022 San Francisco based AI startup, OpenAI, launched its online computer chatbot, ChatGPT, to rapturous acclaim. I logged in and typed questions. Human-like, erudite, and well structured responses appeared. I requested an explanation of the law of torts in a certain jurisdiction. The summary answer was well structured and accurate (apart from the cited cases which didn't exist).

I had nagging doubts (for one: non-existent cases?) But I ignored them, thinking they'll probably resolve as I learn more. So:

YT (yours truly): Am I talking to ChatGPT?

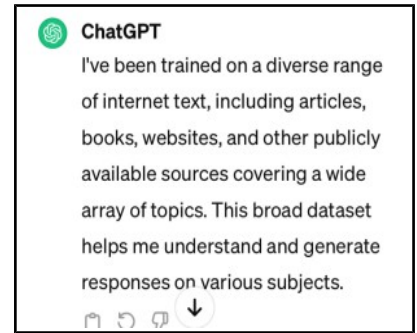
C (ChatGPT): Yes, you're talking to ChatGPT! How can I assist you?

YT: What is the most recent date of the data you were trained on?

C: The most recent data I was trained on goes up until January 2022.

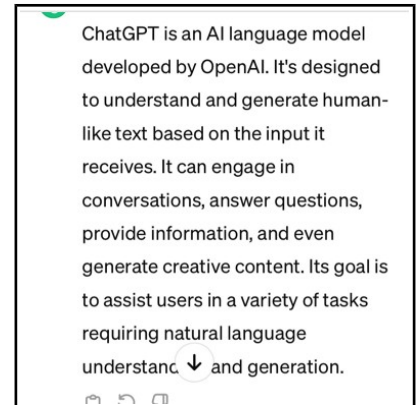
YT: What sorts of data were you trained on?

C: I've been trained on a diverse range of internet text, including articles, books, websites, and other publicly available sources ... This broad dataset helps me understand and generate responses on various subjects.



YT: Can you tell me what you can do?

C: Sure! I can help with a wide range of tasks, including answering questions, providing information on various topics, offering advice, generating creative content like stories or poems, assisting with language translation, and much more.



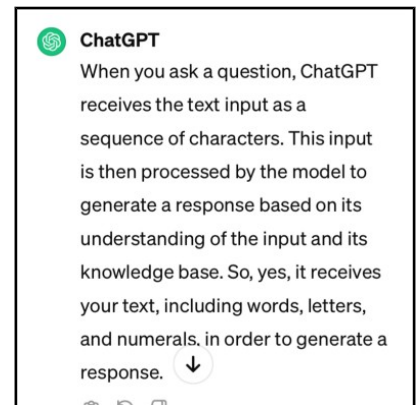
YT: What exactly is ChatGPT?

C: ChatGPT is an AI language model developed by OpenAI. It's designed to understand and generate human-like text based on the input it receives. It can engage in conversations, answer questions, provide information, and even generate creative content. Its goal is to assist users in a variety of tasks requiring natural language understanding and generation.

Now at this point the nagging doubts resurfaced:

YT: If I ask a question, does ChatGPT receive my text words, letters, numerals etc.?

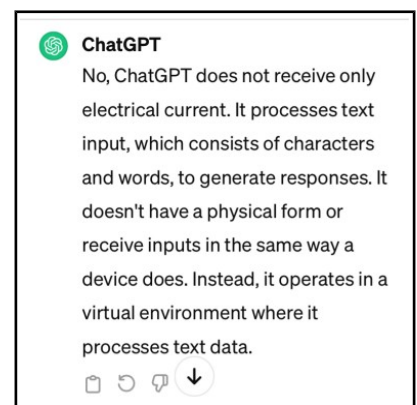
C: When you ask a question, ChatGPT receives the text input as a sequence of characters. This input is then processed by the model to generate a response based on its understanding of the input and its knowledge base. So yes, it receives your text, including words, letters and numerals, in order to generate a response.



That answer seemed like progress. The nagging doubts were beginning to come into focus. But hadn't gone away.

YT: So ChatGPT does not receive only clocked electrical current?

C: No, ChatGPT does not receive only clocked electrical current. It processes text input, which consists of characters and words, to generate responses ... it operates in a virtual environment where it processes text data.



That answer made things much clearer. I'll come back to why in a moment. Then I thought I should test for understanding:

YT: Could you translate into English vo is der bahnhof?

C: "Vo is der bahnhof" is a phrase in Swiss German dialect, and it translates to "Where is the train station?" in English.

That seemed good. Even quotation marks as appropriate. But according to the Swiss-German dictionary (glosbe.com; textshuttle.com) "Where is the train station?" translates to "Wo isch de Bahnhof?" and in German, "Wo ist der Bahnhof?". There seems a lack of basic understanding. Then I branched to satire:

YT: Who is micromegas?

C: Micromégas is a character from a philosophical tale written by Voltaire. In the story, Micromégas is an inhabitant of a distant planet who embarks on a journey through the universe, encountering various civilizations and gaining philosophical insights along the way. The tale explores themes such as the nature of humanity, the universe, and the limitations of human understanding.

I thought, that's impressive, including grammatical form. And in a sense it was quite correct, but in another sense it was wrong.

YT: Isn't micromegas a satirical mockery of French elites?

C: Yes, you're correct. Micromégas can be interpreted as a satirical commentary on the French intellectual and aristocratic elites of Voltaire's time. Through the character of Micromégas, Voltaire criticizes the narrow-mindedness and arrogance of certain segments of society, highlighting their limitations and follies.

Again, impressive, and a confident and accurate high-level summary, but why wasn't that the first answer? Voltaire's intention and purpose was to mock French elites. Anyway, twisted math?

YT: Can you multiply a gazillion by 35?

C: Sure, "A gazillion" is a humorous term representing an extremely large, undefined number. Since it's not a precise value, we can't perform a mathematical operation on it.

That seemed like a template response starting with "Sure. For some reason ChatGPT said "Sure", meaning Yes, then went on to say why the actual answer was No – it couldn't multiply a gazillion by 35. Again, there seems a lack of basic comprehension.

OpenAI's role

As reproduced above, in response to requests to explain itself ChatGPT said: "I've been trained on a diverse range of internet text, including articles, books, websites, and other publicly available sources". OpenAI CEO Sam Altman, in an ABC News interview uploaded to YouTube 17 March 2023 explained: ChatGPT is trained "by ingesting a huge amount of text, a significant fraction of the internet."¹

¹ Sam Altman, American ABC News 2023 interview, YouTube video, "Inside ChatGPT technology".

What does this claim, trained on internet text, indicate about OpenAI's role? OpenAI is a collector. It Hoovers up text which a huge portion of the public have created. It's not responsible for the content. Humanity itself is the source.

Rather, OpenAI responsibly moderates content. It "aligns" its model to be "better at following user intentions" and to be "less toxic"². It modifies the content to conform with principles of decency, noting that prior to ChatGPT, "we were not as aggressive in filtering out toxic training data as we might otherwise have been. We have invested more in ... removing such material..³

Thus the process of alignment doesn't enlarge or embellish the training set. It culls. It removes. It prevents undesirable internet data reaching end-users. Earlier chatbots by other makers were quickly pulled. They were easily tricked into racist and other unacceptable responses. OpenAI was both collector and guardian of decency.

But did OpenAI also add a detailed narrative to its model? One that implied ChatGPT was on the cusp of the Holy Grail of AI research, artificial general intelligence, when OpenAI knew that was untrue?

So did OpenAI knowingly add false content? If one wants to allege, Yes, then what's the evidence? And what exactly was the content? And would it have likely bolstered profit and investment? I investigate this.

ChatGPT's reception

On Monday 5 December 2022, less than a week after ChatGPT's launch, OpenAI CEO and co-founder Sam Altman went on Twitter saying, "ChatGPT launched on Wednesday. Today it crossed 1 million users!".

On 2 February 2023, Reuters reported:

"ChatGPT, the popular chatbot from OpenAI, is estimated to have reached 100 million monthly active users in January, just two months after launch, making it the fastest-growing consumer application in history".

The Guardian, 2 February 2023, added: "[ChatGPT] had about 590m visits in January from 100 million unique visitors, according to analysis by data firm Similarweb."

OpenAI's finances

According to Reuters, 15 December 2022:

"The research organization [OpenAI], co-founded by Elon Musk and investor Sam Altman and backed by \$1 billion in funding from Microsoft Corp (MSFT.0), is expecting its business to surge. Three

2 OpenAI, 27 January 2022, "Aligning language models to follow instructions", available at <https://www.openai.com/research/instruction-following>

3 OpenAI, 3 March 2022, "Lessons learned on language model safety and misuse", available at <https://www.openai.com/research/langauge-model-safety-and-misuse>

sources briefed on OpenAI's recent pitch to investors said the organization expects \$200 million in revenue next year and \$1 billion by 2024."

On 19 May 2023, Forbes said in an article titled "A short history of ChatGPT: How we got to where we are today":

OpenAI is currently valued at \$29 billion, and the company has raised a total of \$11.3 billion in funding over seven rounds so far.

On 20 October 2023, The New York Times in, "OpenAI in talks for deal that would value company at \$80 billion", noted:

"OpenAI is in talks to complete a deal which would value the company at \$80 billion dollars or more, nearly triple its valuation less than six months ago, according to a person with knowledge of the discussions. The company would sell existing shares..."

On 15 January 2024, online site *Business of Apps* explained:

"ChatGPT set a record as the fastest app to reach 100 million active users, reaching that milestone in two months. OpenAI generated \$1.6 billion in revenue in 2023, primarily through ChatGPT.

OpenAI's explanation of ChatGPT fascinated and excited potential investors and the general public. What were the explanations of the app by those in positions of trust? On what did the public rely for its understanding? What explanations contributed to the history-making tech bubble following ChatGPT launch?

I consider two sets of explanation: those of OpenAI itself (including ChatGPT) and those of widely respected media.

OpenAI's explanations

ChatGPT itself:

"ChatGPT is a computer program that uses artificial intelligence (AI) to understand and respond to natural language text, just like a human would. It can answer questions, write sentences, and even have a conversation with you. It's like having your own personal robot that can understand and talk to you."⁴

OpenAI online FAQ:

"ChatGPT is fine-tuned from GPT-3.5, a large language model trained to produce text. ... These models were trained on vast amounts of data from the internet written by humans..."⁵

4 A reply by ChatGPT, quoted in USA Today, (27 January 2023), "What is ChatGPT? Everything to know about OpenAI's free AI essay writer and how it works".

5 OpenAI.com, (2023), "What is ChatGPT", online FAQ retrieved 30 August 2023. Various documents are available at OpenAI.com. These are carefully worded, and somewhat strangely, quite scientifically sparse. However, the many YouTube videos of senior OpenAI officers including interviews and talks of chief executive, Sam Altman, during his world tour are more informative.

Sam Altman, OpenAI co-founder and chief executive officer:

"[ChatGPT is trained] by ingesting a huge amount of text, a significant fraction of the internet."⁶

Andrej Karpathy, senior OpenAI executive officer:

"[ChatGPT] understand[s] a lot about the structure of the text [that it is trained on] and all the different concepts therein ... The New York Times ... trained a small GPT on Shakespeare. So you have a small snippet of Shakespeare and they trained a GPT on it."⁷

Mira Murati, OpenAI Chief Technology officer:

"[ChatGPT] can tell you if it doesn't understand a question and needs to follow up..."⁸

OpenAI, "Introducing GPT-4", website document:

"GPT-4 is incredibly advanced and sophisticated. It can take in and generate up to 25,000 words of text, around eight times more than ChatGPT. It understands images and can express logical ideas about them..."⁹

ChatGPT itself:

"I'm ChatGPT, a large language model trained by OpenAI. I'm capable of understanding and generating text and can answer a wide range of questions ... I have been trained on a massive dataset of text which allows me to understand and generate text on a wide range of topics..."¹⁰

Respected Media outlets

After receiving explanations about ChatGPT from OpenAI, respected media published:

New York Times, 5 December 2022:

"[ChatGPT is] trained on billions of examples of text pulled from all over the internet."

Washington Post, 28 December 2022:

"[ChatGPT] was trained on a trove of internet text..."

Wired, 19 May 2023:

"The browsing [of the internet by ChatGPT] seems to be limited to just text-based information on webpages..."

6 Sam Altman, (2023), American ABC News 2023 interview, YouTube video, "Inside ChatGPT technology".

7 Andrej Karpathy, (2023), Microsoft 2023 YouTube video, "State of ChatGPT".

8 Mira Murati, (2022), *The Washington Post*, 10 December 2022.

9 OpenAI, YouTube video, "Introducing GPT-4", 16 March 2023.

10 CNBC documentary, "Why OpenAI's ChatGPT is Such A Big Deal", YouTube, m:ss. 2:10, 23 February 2023.

Forbes, 22 March 2023:

"[ChatGPT] is trained in vast reams of information – articles, textbooks, the internet..."

Scientific American, 28 December 2022:

"[ChatGPT] was trained on a vast corpus of human writing available online..."

The Guardian, 5 December 2022:

"[ChatGPT] is trained on a huge sample of text taken from the internet."

BBC, 7 December 2022:

"[ChatGPT] is trained on vast databases of text scraped from the internet..."

Techradar.com, 15 March 2023, online:

"ChatGPT's most original GPT-3.5 model was trained on 570GB of text data from the internet, which OpenAI says included books, articles, websites, and even social media. [ChatGPT has] been trained on hundreds of billions of words..."

What does the science say?

Understanding text is semantic. So firstly, semantics. I love AI, but I also love Western philosophy. John Searle in his (in)famous Chinese room argument explains what text is and how we use it. Text is tokens whose shapes have been assigned linguistic meanings by individuals or communities. We see its shapes, we react to its shapes, and this reaction includes understanding the meanings of the shapes.

I live on one side of Planet Earth and ChatGPT on the other. I press keyboard keys each inscribed with a certain shape. I see the shapes. I press the shapes. The sequence of shapes is my question. ChatGPT is not exposed to the shapes. If I'm emailing a human, the human recipient is exposed to the shapes. They look at the shapes and interpret what they mean. But ChatGPT is not exposed to the shapes.

I love AI and I love philosophy, but I also love electronics. Before personal computers appeared I was modifying valve radios and building transistor radios and amplifiers. When PCs arrived I bought one. The screen displayed uppercase characters only. But you could enable lower case by cutting copper PCB (printer circuit board) traces and soldering on an additional memory module (the character generator produced the lower case signals but there was no factory-installed memory to store them once generated).

I did the modification. I knew about gates, pin-outs, flip-flops, pnp and npn and the rest. I knew about the discrete components, diodes, capacitors, resistors, transistors and so on.

And I knew this: everything in a computer runs on electricity, that is, electrons. Such equipment is *electronic*. There's no such thing as text received by, stored in or emitted by computers.

Computer storage for the last several years has taken the form of electrons in such as VRAM (video random access memory) electron traps. Electrons aren't words, letters or numerals. Prior to that, storage included magnetic orientations. Magnetic orientations aren't words, letters or numerals", either.

Text interfaces allow human to use computers. But these interfaces, "peripheral devices", are additional to the computer proper. They simply point text shapes into the environment. The shapes are on keyboard keys, screens or sheets of paper – existing there just for one reason – so humans can see them.

Text shapes actually have no relevance to a computer. They simply face outwards from exposed surfaces. They're never on the inside. They're never received or sent. The computer never reacts to them. When users are online to ChatGPT, text exists in just two places – on their keyboards and on their display screens. Everything else is electronics: electrons or electromagnetic radiation.

In my chat with ChatGPT, I knew it received only clocked electrical current. Yet when I asked what it received I saw the display: "yes, [ChatGPT] receives your text, including words, letters and numerals".

I knew this reply was false. So I asked whether it receives just electrical current, then saw on my screen: "No, ... It processes text input, which consists of characters and words".

The science directly contradicts this. The physics and chemistry of electronics, what ChatGPT is actually made of, shows there's no such thing as text on the internet or received or emitted by ChatGPT. The only place text exists is on surfaces users look at.

So while my screen displayed the shapes:

"ChatGPT receives the text input as a sequence of characters. This input is then processed by the model to generate a response based on its understanding of the input and its knowledge base. So yes, it receives your text, including words, letters and numerals..."

the science of the internet and computer electronics paints a very different picture. ChatGPT was using a false narrative to explain itself – and likely not just to me but to tens of millions of other of its over 100 million registered users.

The false narrative

ChatGPT's false narrative persisted over my online conversation:

C: I've been trained on a diverse range of internet text, including articles, books, websites, and other publicly available sources...

- C: ChatGPT is an AI language model developed by OpenAI. It's designed to understand and generate human-like text based on the input it receives.
- C: When you ask a question, ChatGPT receives the text input as a sequence of characters. This input is then processed by the model to generate a response based on its understanding of the input and its knowledge base. So yes, it receives your text, including words, letters and numerals...

Surely ChatGPT's maker, OpenAI, knew this narrative was fake. I'd like to consider four possible reasons for this scientifically false explanation of ChatGPT not just from ChatGPT itself but from others including OpenAI and trusted media sources.

1. The false narrative was buried in the training set, and OpenAI inadvertently missed it.
2. Explaining the truth, the science, was difficult and the false narrative was much easier.
3. Text does in fact exist on the internet and was received, stored and emitted by ChatGPT, but the word "text" in this usage means electrons.
4. The false narrative was a carefully planned deception intended to supercharge profit and investment by falsely implying that ChatGPT was on the path to AGI.

1. The false narrative was buried in the training set

The false narrative was buried in the training set. OpenAI simply, inadvertently overlooked it.

This explanation seems unavailable. ChatGPT was under wraps. The name "ChatGPT" wasn't public till November 2022. The training set date range ended nine months earlier, January 2022. There was nothing in the training set under the name "ChatGPT".

The false narrative about ChatGPT couldn't have come from the training set. It must have come from OpenAI itself, presumably in the "tuning" and "alignment" phases. Why didn't OpenAI train ChatGPT on the facts, on truth, on the science? Why train it on falsehood? One potential answer: Ka-ching! Ka-ching! (Overly loud cash register.)

2. Explaining the truth was too complicated

Explaining the science of electrons and electromagnetic radiation (Bluetooth, WiFi, fiber optics, cell tower radio-spectrum transmissions), the truth, is complicated and arcane. It's much easier to say, though falsely, that the internet and computers process and store meaningful shapes, the sort of thing one finds in textbooks and on roadside billboards.

But if this approach is taken of using knowingly false descriptions, it's incumbent on the describer to clearly say the descriptions are false, and also to clearly indicate why fake explanations are being used, and where a reader might find the truth.

In the computer and internet case, this disclosure could be achievable by saying computers and the internet receive and store "text-equivalents", or electronic material that "corresponds to text", and that Wikipedia contains the science. But it would be incumbent not to say ChatGPT understands text or is trained on text, since without disclaimers that would be a lie.

3. The name "text" in the current usage means electrons

The word "text" often means the sort of thing one sees when looking at textbooks – shapes assigned linguistic meanings by observers. But a given word can be assigned more than one linguistic meaning. Another meaning of "text" is electrons.

In response one can say, of course, one might redefine any word. For example, "text" to mean fermented cabbage. My Bavarian sausage was made even more delicious by being liberally coated with lashings of scrumptious text! Yum!

But "text" with the claimed reference of electrons is a special technical definition unique to AI research and perhaps computer "science". Special meanings in popular explanations need to be clearly stated to avoid conflation. If not, one can end up with very misleading public statements like:

"[ChatGPT] was trained on a vast corpus of human writing available online..." (Scientific American), "[ChatGPT] is trained in vast realms of information – articles, textbooks, the internet..." (Forbes) and, "[ChatGPT has] been trained on hundreds of billions of words" (Techradar).

If OpenAI's was using the alleged special technical definition, where was the explanation that the word "text", means electrons? Answer: Hear the sound of the tumbling tumbleweeds.

Why did OpenAI give no such explanations? If one listens intently enough, it might even hear the sound of distant cash registers ringing up distant sales in distant lands during an executive's world tour.

4. Carefully planned deception designed to supercharge profit and investment

The explanation of ChatGPT by OpenAI, respected media outlets and ChatGPT itself was based on a false narrative created and disseminated through multiple channels by OpenAI. This implied ChatGPT had potentialities it did not have – the aura of AGI.

If ChatGPT is trained on the same things we are, and comes to understand text because of that training, as we do, then ChatGPT is on the road to AGI. It really is a harbinger of true machine intelligence. But the science of the internet, of computer electronics, paints a very different picture.

OpenAI had scientists. They must have known that text comprises instantiated shapes assigned linguistic meanings. That text is interpretable shape, the sort of thing one see in

textbooks, *with eyes*. They must have known that there's no such thing as text manipulated or stored inside the computers that comprise the internet.

Media repeatedly said the internet contains text comprising "words", "textbooks", "human writing". OpenAI had a responsibility to correct these false claims. But OpenAI didn't do this.

But for ChatGPT the science is clear. It's not trained on text. It doesn't understand text. It's inherently unintelligent. ChatGPT, when the science is considered, is seen to be as dumb as a brick.

Response: Fire-hoses of falsehood seem components of a business model followed by such as Theranos, Bernard L. Madoff Investment Securities, FTX crypto exchange, some of the dotcom bubble, and many others, as perhaps a fundamental and in some speculative quarters much-loved feature of American shareholder capitalism.

Falsehood seems a feature of business ventures, politics, daily life generally, and as such might be considered a foundation of the American Way. But even if so, that's not a good reason for lack of honesty and clarity about new products because deception diminishes trust.

Why does ChatGPT seem intelligent?

On 27 January 2023, *USA Today* in an article titled "What is ChatGPT? Everything to know about OpenAI's free AI essay writer and how it works" reported that when asked to explain itself, the chatbot replied:

ChatGPT is a computer program that uses artificial intelligence (AI) to understand and respond to natural language text, just like a human would. It can answer questions, write sentences, and even have a conversation with you. It's like having your own personal robot that can understand and talk to you.

But as we know, ChatGPT doesn't "understand and respond to natural language text" whether "just like a human would" or in some other way. For a start, it has no eyes. For second, all it gets exposed to is electrons. ChatGPT doesn't and never could understand the meanings of the shapes on the keys online users press.

So is the chatbot simply the latest iteration in a long line of AI systems where human intelligence configures the electronics to seem intelligent, but where any intelligent behavior is merely a delayed effect of the human intellect used to set up and configure the system? In the case of LLMs "configuring the system" includes humans pressing keys which cause electrons to be stored on the internet which then form the training set.

In the ChatGPT case of being trained on internet content, the causal history of the stored internet material comes through human minds. A human pressed certain keys inscribed with certain shapes. The keys were selected because of those shapes. And it was the human mind

that did the selecting. That's the causal history of what is stored on the internet. The intelligence is in the human.

Could ChatGPT be modified to have AGI?

Could a modified ChatGPT understand as we do, intrinsically? Could it understand the environment? Trees, spiders, water melons? Could it ever understand in the same sense we understand? Could it be modified to have AGI?

A machine with human-like understanding would have human-like sensory apparatus. To be human is to experience the world and understand it, to learn to understand through sense experience. An AGI system would not be trained on subatomic particles stored in microscopic electron traps inside semiconductor chips smaller than a postage stamp.

It would be trained on the world. And via human-like sensory apparatus. We have eyes. We see and react to linguistic shapes, and are taught what they mean. We sense and react to many other types of thing. ChatGPT has none of this.

A system with human-like sensory apparatus would no longer be ChatGPT. But that doesn't mean ChatGPT has nothing to offer. It entails the relational connective, the core structure of LLM networks. Organic brains also comprise relational connectives. The challenge is to understand their fundamental semantic role.

The main problem

Once sensory apparatus is added, there is a diabolical problem, one Turing was unable to solve (he suggested telepathy to avoid it). How do we come to understand the world by way of sensory apparatus?

ESP, extra- (non-) sensory perception is one way of avoiding this problem. But even if Turing was right in saying, "the statistical evidence, at least for telepathy, is overwhelming ... thinking is just the kind of phenomenon where E.S.P. may be especially relevant." The fact remains that human intelligence is fundamentally a product of sense perception, and of learning to understand the world by way of it.

So how do we come to understand the world? I think there is a place to start. This is the causal interface from outer to inner. The core sensory process is the key – transduction. Understanding the world is a matter of semantics. The place to start is to try to work out the semantics of sensory transduction.

I thought I knew the answer at one level of description, and started AI research because of that. The task was to try to discover the answer at another level, the one where the concepts used also apply to configuring computers.

This is the big problem. The only way the inner (the brain) could come to know the outer (the environment) is if something survives the process of sensory transduction. Something has to travel from outer to inner. But the particles which impact the outward-facing sensory

surface don't survive. They stay on the outside. The sensor isn't a portal. To these particles (and their inherent properties) transduction is a barrier. But *something* must pass through the sensor. So what is it?

Computation operates on particles ("symbols"). Computation can't explain the semantics of transduction. Computation can't process the "thing" that survives transduction because computation processes only particles, and they stay on the outside.

Turing saw machines as computations. Because computation can't explain knowledge acquisition via sensory apparatus, it can't explain intelligence. So Turing said that the idea of a thinking machine (of an intelligent machine) "is too meaningless to deserve discussion".

This (I argue) is why he proposed telepathy. Telepathy is knowledge acquisition without the intercession of senses. Telepathy avoids the senses. It's extra (non) sensory. Computation can explain telepathy – there's no barrier to transit. But there is a barrier in sense perception. In short, concepts of computation are inadequate for understanding intelligence (as Searle in 1980 so clearly showed).

The Turing test is very relevant to ChatGPT. In Turing's 1950 description of the test he says "The ideal arrangement is to have a teleprinter communicating between the two rooms". One of the two rooms contains the constants, a human and a computer.

Turing recommends a type of computer contestant: a 1950s machine with added speed and memory, and an appropriate program. The annual Loebner Prize Competition held from 1991 to 2019 realized the Turing test and used many such computer contestants.

Turing's description of his test avoids drawing attention to what he didn't understand, sense perception. His test setup has "a teleprinter communicating between the two rooms". That is, a *single* teleprinter. Just one: "a teleprinter". But two rooms requires two teleprinters. One per room.

So with two teleprinters, what happens in the contestants' room? The judge's questions print out on the paper in back of the contestants' teleprinter. The human sees the shapes of the printed text. The human understands the meaning of the shapes. The human understands the questions, and hence is in a position to answer them.

(This is what the judge is trying to find out – whether the constant has a human-like understanding of the judge's text questions.)

Now for the computer contestant. Just as the human does, the computer sees the shapes of the judge's text questions print out on the paper in back of the contestants' teleprinter.

But *Whoa!*

The computer contestant has no eyes. Neither did any of the machines in the Loebner Prize Competition. Neither does ChatGPT. So how could any of these machines understand

the printed shapes? The computer contestant can't see the shapes. It can't understand what prints out. And since it can't understand the questions, it can't answer them.

Turing's computer contestant and all the others are wired into the judge's terminal. For ChatGPT, into the users' devices via telecoms. All the computers get is electrons. Turing's recommended machine, the Loebner computers, and ChatGPT get clocked electrical current.

That's the trouble when considering teleprinter communication between two rooms. Saying "a teleprinter" avoids questioning what actually happens between two teleprinters.

That, along with his recommendation of telepathy and statement that the idea of machine intelligence is meaningless (thinking is the main process of human intelligence), is what I believe amounts to reasonably good evidence that Turing was unable to solve the big problem – how we come to understand the world.

Searle's Chinese room argument still is rebutted. The big problem still hasn't been solved. ChatGPT doesn't solve it. LLM theory doesn't solve it. Resources should be directed away from LLMs toward solving the big problem. Solution will help mitigate climate change.

Conclusion

There seems arguments for and against the above conclusions about ChatGPT and LLM theory. But it also seems hard to ignore the proposition that the 2023 ChatGPT bubble was in part based on known falsehoods. I think the popular understanding of ChatGPT was in part a manipulation by experts in analyzing, promoting and investing in tech startups.

When experts said they were surprised by the viral popularity of ChatGPT, I think it unlikely. They almost certainly had a good estimation of the likely public response, an expectation based on years of tech startup prediction and in understanding what it takes for an IT startup or product to be successful.

Did OpenAI intentionally mislead the public including investors about the potentiality of ChatGPT? Yes. But even though ChatGPT and the LLM technology underpinning it is inherently unintelligent, it's still remarkable and useful. This is hard to deny.

But there seems a larger question. Resources are pouring into LLM development. As the elites, those who really run the planet, accelerate selling their beach-front properties, they should reflect on how useful AGI could be in mitigating climate change.

