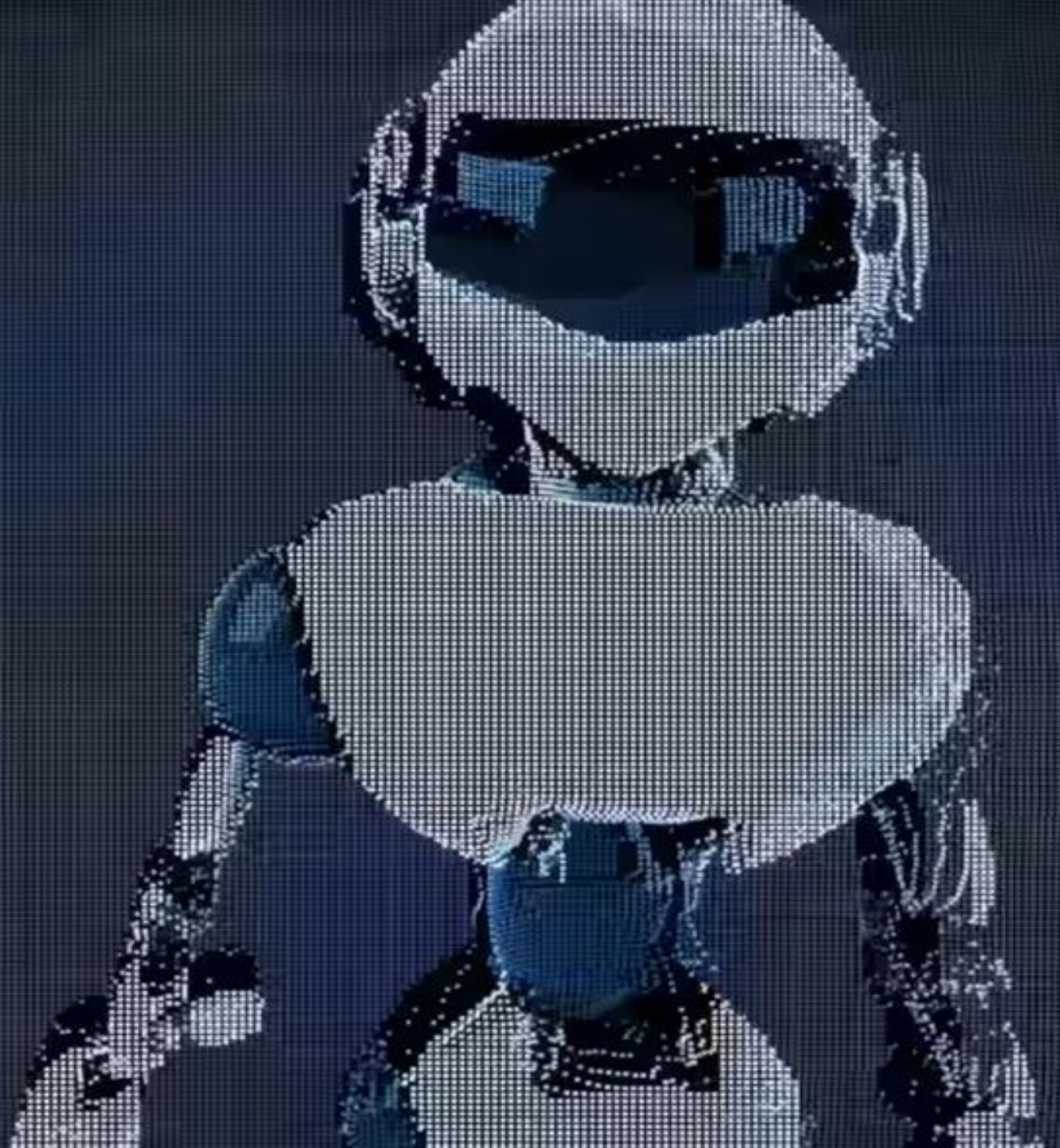
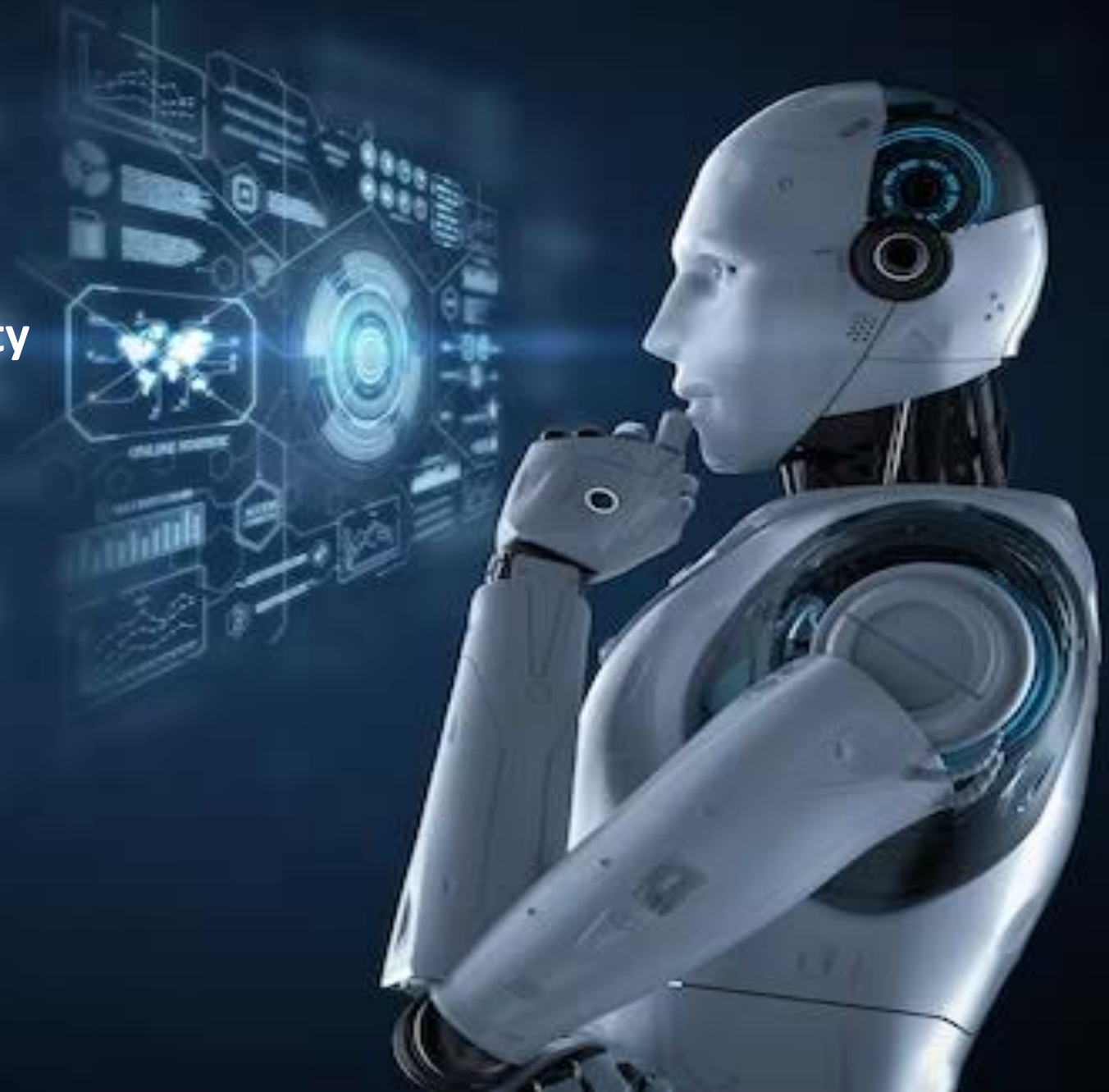


**Hello and Welcome**  
**I'd like to introduce you to Azure**  
**OpenAI**





**what sets Azure OpenAI apart  
from other chat Bots is its ability  
to understand context and  
provide relevant responses.**



# Generative Pretrained Transformer (GPT)

Hello and Welcome

- **Generates responses**
- **It is pretrained by humans**
- **Transforms input to meaningful output**





**OpenAI**

**Greg Brockman**

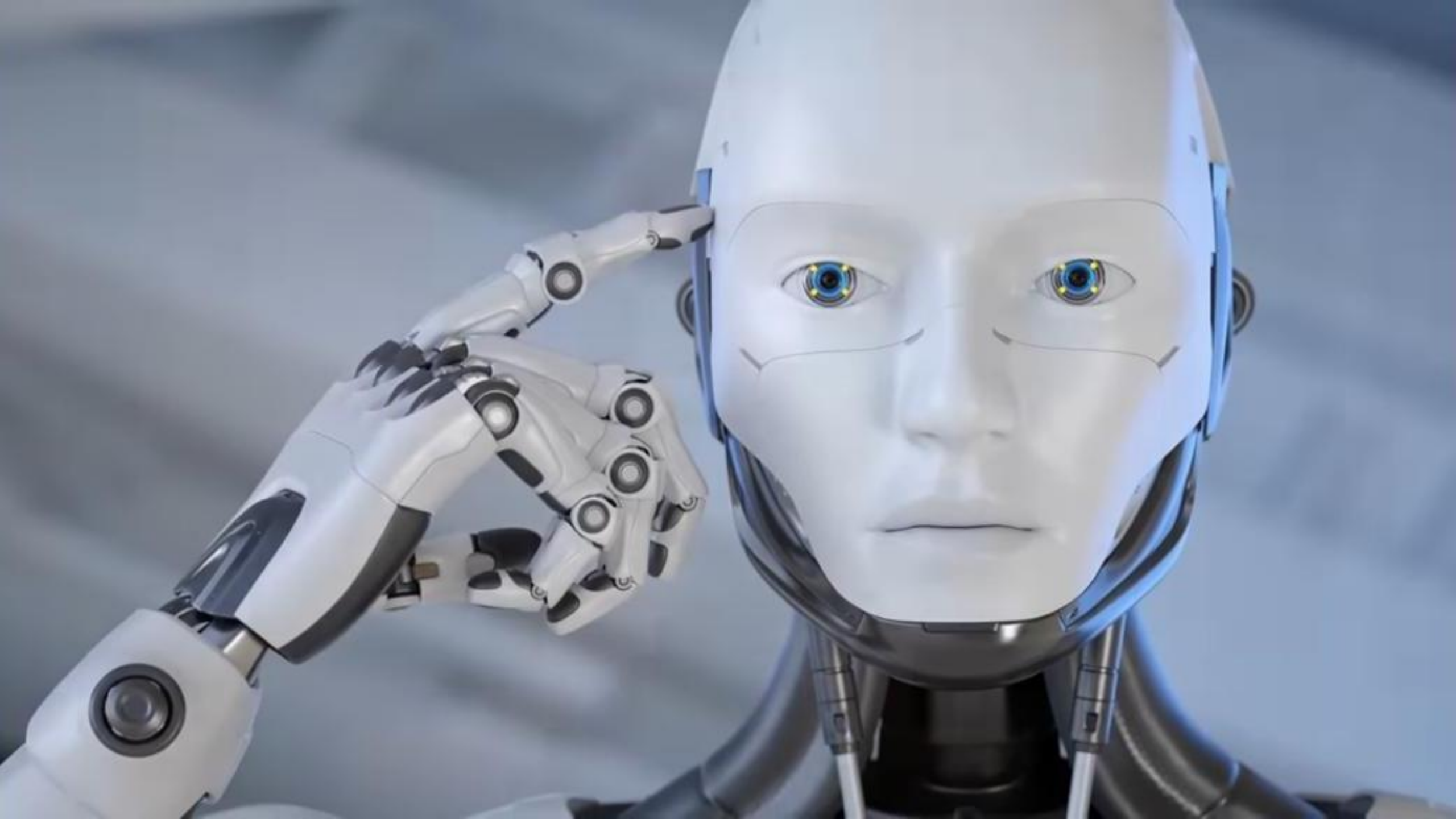
Co-founder & CTO

**Ilya Sutskever**

Co-founder & chief scientist

**Dario Amodei**

Research Director



A man in a white shirt and a lanyard is holding a blue folder and looking upwards. He is standing in front of a server rack with blue lights. The background is dark.

# Supervised learning and reinforcement learning



# ChatGPT



## Examples

"Explain quantum computing in simple terms" →

"Got any creative ideas for a 10 year old's birthday?" →

"How do I make an HTTP request in Javascript?" →



## Capabilities

Remembers what user said earlier in the conversation

Allows user to provide follow-up corrections

Trained to decline inappropriate requests



## Limitations

May occasionally generate incorrect information

May occasionally produce harmful instructions or biased content

Limited knowledge of world and events after 2021

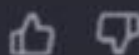
In two sentences, explain quantum mechanics in very simple terms



FI In two sentences, explain quantum mechanics in very simple terms



Quantum mechanics is a branch of physics that deals with the behavior of tiny particles like atoms and electrons. It tells us that these particles can act like both waves and particles, and can be in many different states at the same time.



**How did it come up with this?**



Fi In two sentences, explain quantum mechanics in very simple terms



Quantum mechanics is a branch of physics that deals with the behavior of tiny particles like atoms and electrons. It tells us that these particles can act like both waves and particles, and can

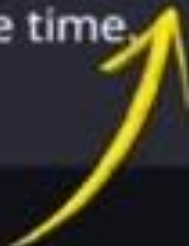
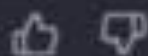


**Predicts what words, phrases and sentences are most associated with the input made**

FI In two sentences, explain quantum mechanics in very simple terms



Quantum mechanics is a branch of physics that deals with the behavior of tiny particles like atoms and electrons. It tells us that these particles can act like both waves and particles, and can be in many different states at the same time.

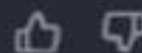


**Chooses words and sentences deemed most likely to be associated with the input**

FI In two sentences, explain quantum mechanics in very simple terms



Quantum mechanics is a branch of physics that deals with the behavior of tiny particles like atoms and electrons. It tells us that these particles can act like both waves and particles, and can be in many different states at the same time.



**Outputs words and sentences that it predicts will best answer your question, based on its training**



AI

In two sentences, explain quantum mechanics in very simple terms



Quantum mechanics is a branch of physics that deals with the behavior of tiny particles like atoms and electrons. It tells us that these particles can act like both waves and particles, and can be in many different states at the same time.

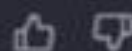


**Randomizes output so that the answer  
is not always the same**

< 2 / 2



Quantum mechanics is a branch of physics that studies the behavior of matter and energy at a very small scale, such as atoms and subatomic particles. It is characterized by phenomena such as superposition, entanglement, and wave-particle duality, which are not easily explained by classical physics.



Was this response better or worse?



Better




Worse



Same



 Regenerate response





FI

In two sentences, explain quantum mechanics in very simple terms

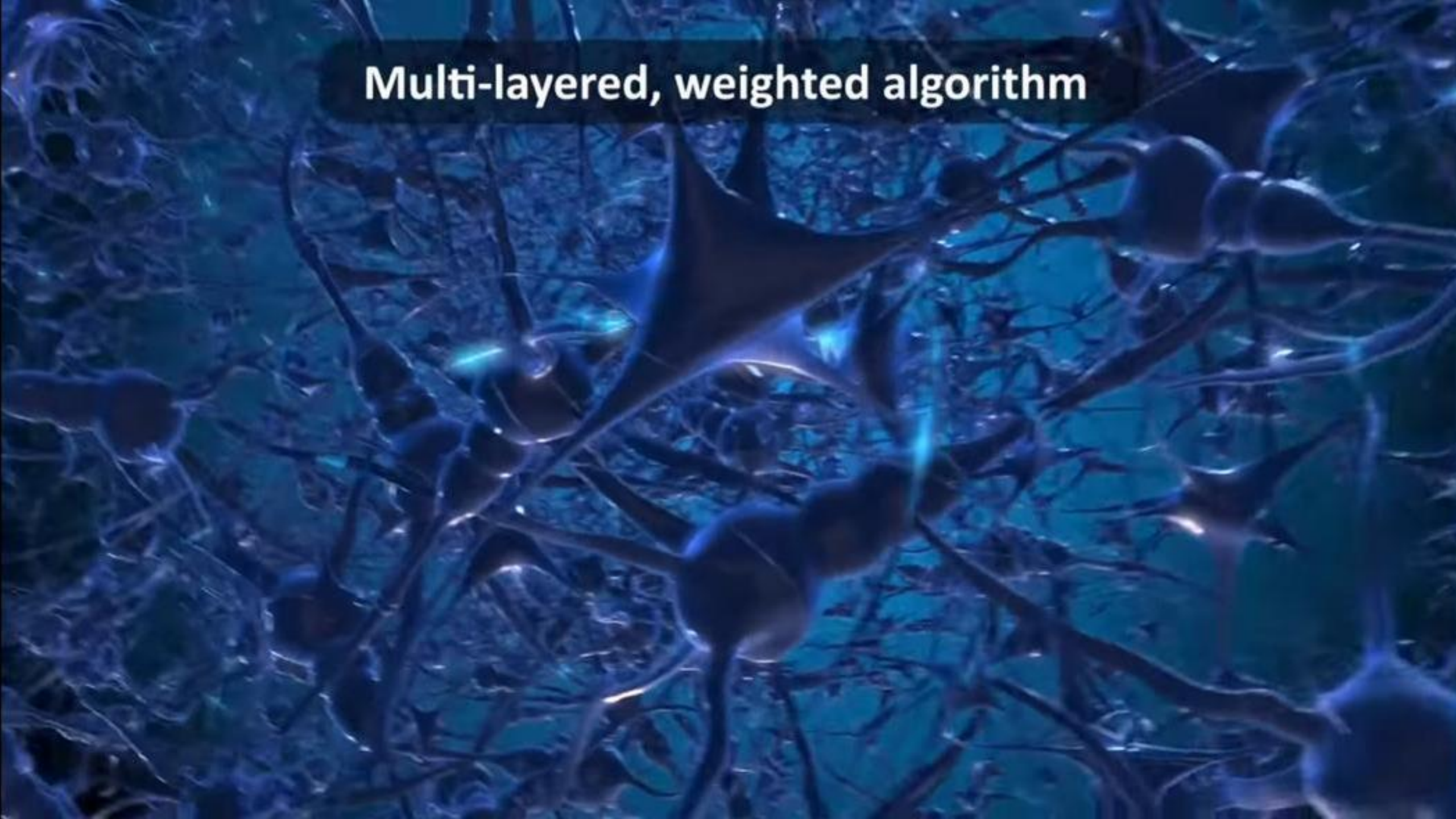


Quantum mechanics is a branch of physics that deals with the behavior of tiny particles like atoms and electrons. It tells us that these particles can act like both waves and particles, and can be in many different states at the same time.



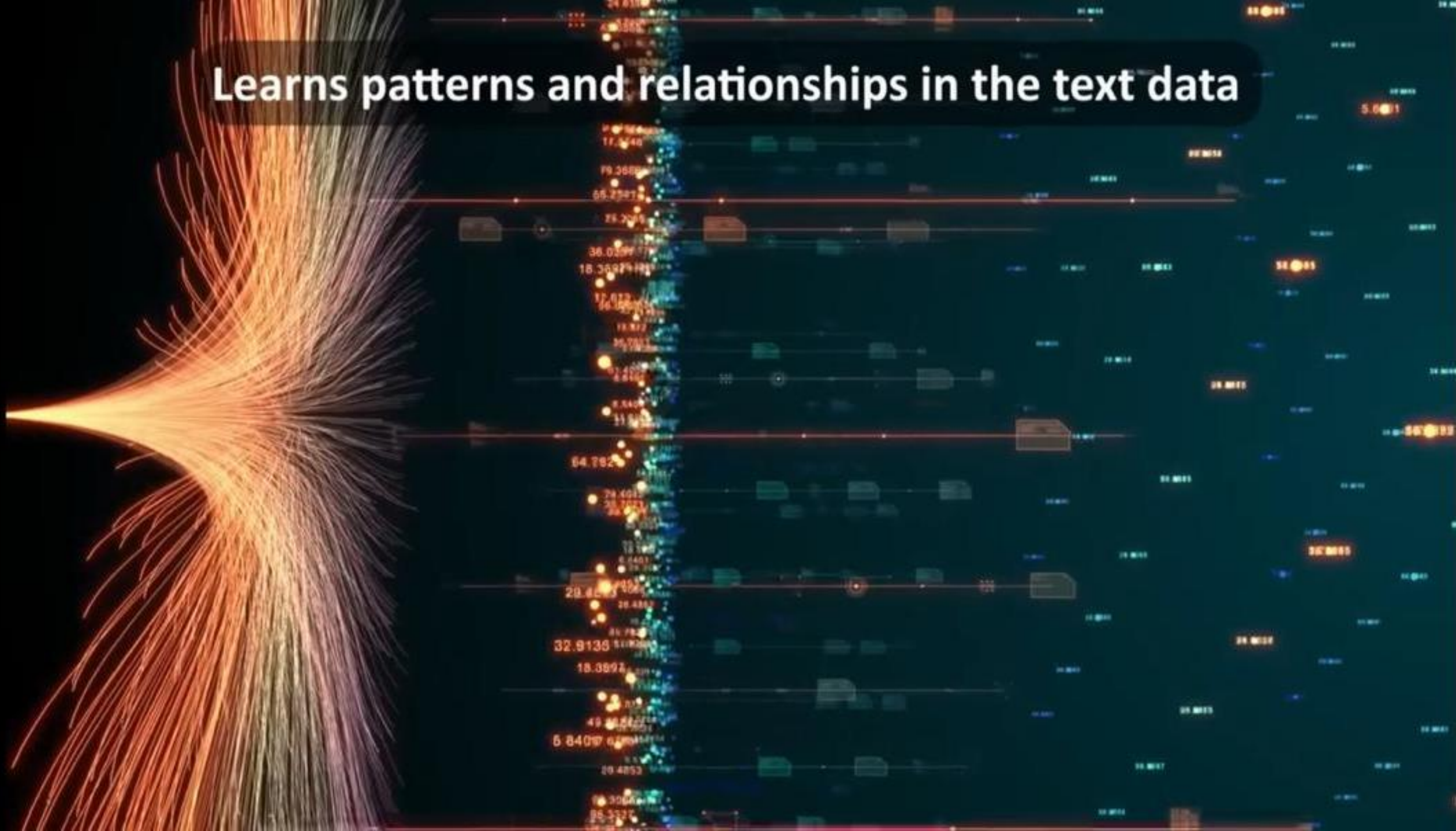
**Determines what words would most likely  
be expected after having learned how  
input compares to words written on millions  
of pages**

**Multi-layered, weighted algorithm**





Learns patterns and relationships in the text data



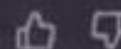


F1

In two sentences, explain quantum mechanics in very simple terms



Quantum mechanics is a branch of physics that deals with the behavior of tiny particles like atoms and electrons. It tells us that these particles can act like both waves and particles, and can be in many different states at the same time.



**It's not like the predictive text on your phone**



FI

In two sentences, explain quantum mechanics in very simple terms



Quantum mechanics is a branch of physics that deals with the behavior of tiny particles like atoms and electrons. It tells us that these particles can act like both waves and particles, and can be in many different states at the same time.

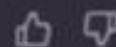




< 2 / 2



Quantum mechanics is a branch of physics that studies the behavior of matter and energy at a very small scale, such as atoms and subatomic particles. It is characterized by phenomena such as superposition, entanglement, and wave-particle duality, which are not easily explained by classical physics.



Was this response better or worse?



Better



Worse



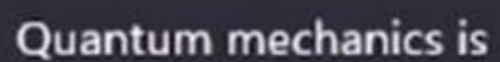
Same



**Predicts words, sentences and paragraphs**



Regenerate response




Quantum mechanics is

[ChatGPT Mar 14 Version](#). Free Research Preview. Our goal is to make AI systems more natural and safe to interact with. Your feedback will help.

the smallest scales, such as atoms, subatomic particles, and photons. It was developed in the early 20th century as a result of experimental observations that contradicted classical mechanics, which was the dominant physical theory at the time.

Quantum mechanics describes the behavior of particles in terms of wavefunctions, which are mathematical functions that describe the probability of finding a particle in a particular location or with a particular energy. The theory also introduces the concept of superposition, where a particle can exist in multiple states simultaneously, and the principle of uncertainty, which states that certain properties of particles, such as position and momentum, cannot be measured with absolute precision.

Quantum mechanics has many important applications, including in the development of technologies such as transistors, lasers, and nuclear power. It also plays a key role in understanding the behavior of complex systems, such as molecules and materials, and in the study of fundamental questions in physics, such as the nature of particles and the origins of the universe.


 Regenerate response

Send a message...



Quantum mechanics is

Calculates what word comes next  
and what fraction of the time



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**Looks for matches in  
context and meaning**

Quantum mechanics is

[ChatGPT Mar 14 Version](#) Free Research Preview. Our goal is to make AI systems more natural and safe to interact with. Your feedback will help.


Quantum mechanics is...	a	4.5%
Quantum mechanics is...	based	3.8%
Quantum mechanics is...	fundamentally	3.5%
Quantum mechanics is...	described	3.2%
Quantum mechanics is	many	0.7%

ChatGPT, Mar 14, Version 3.5 (Research) Preview. Our goal is to make AI systems more natural and safe to interact with. Your feedback will help.

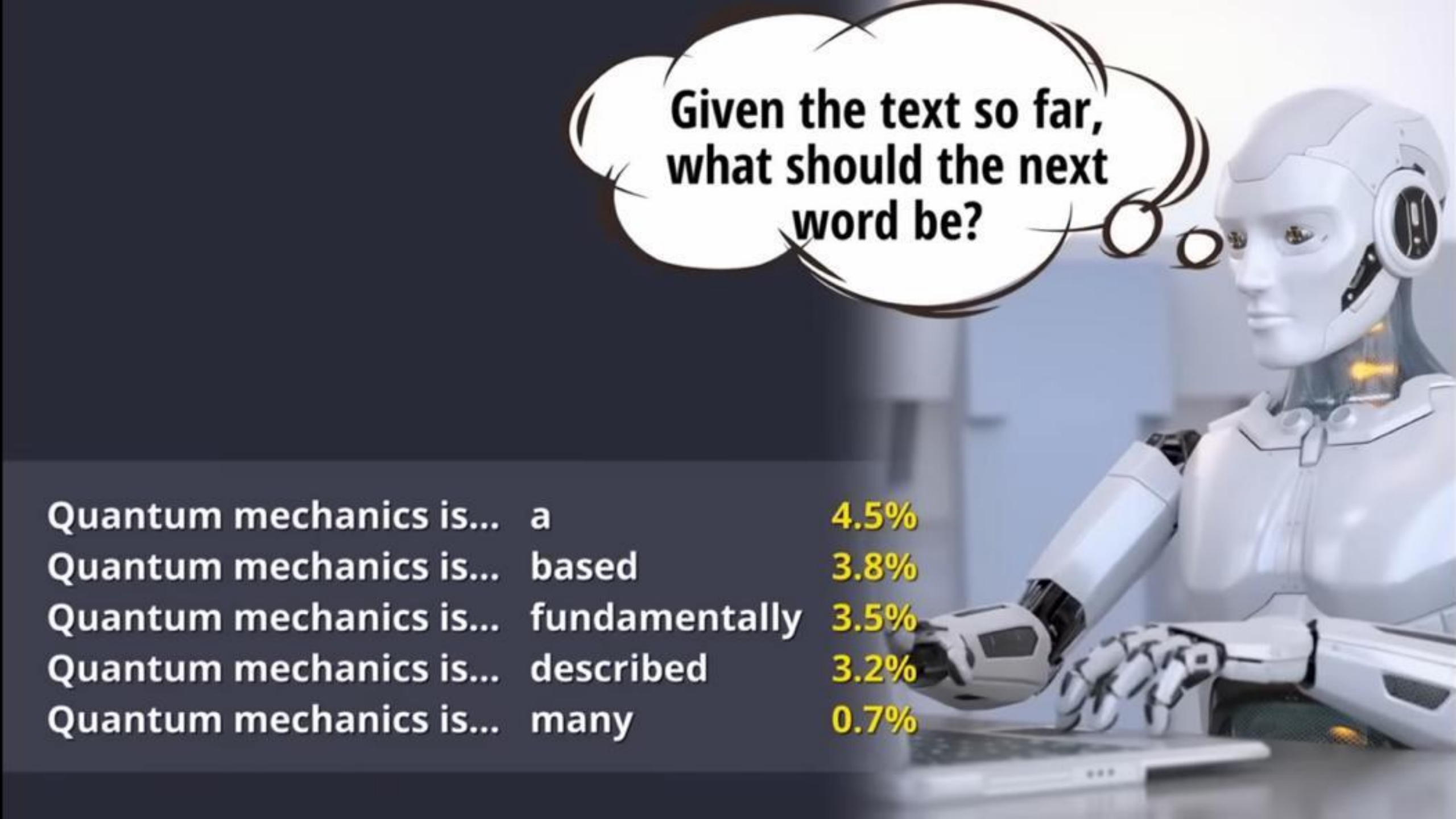


Quantum mechanics is

**a  
based  
fundamentally  
described  
many**



[ChatGPT Mar 14 Version](#). Free Research Preview. Our goal is to make AI systems more natural and safe to interact with. Your feedback will help.

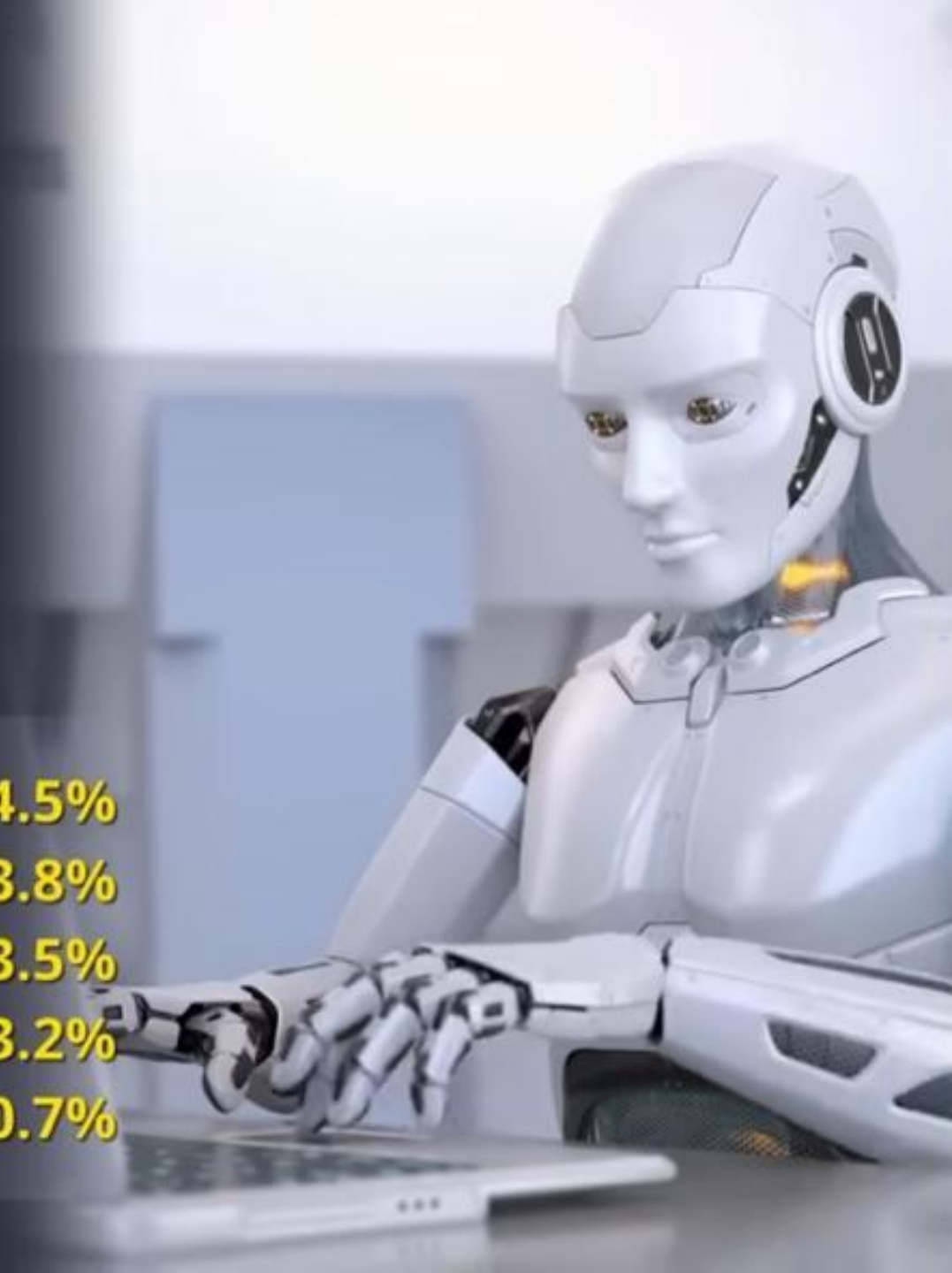


**Given the text so far,  
what should the next  
word be?**

Quantum mechanics is...	a	4.5%
Quantum mechanics is...	based	3.8%
Quantum mechanics is...	fundamentally	3.5%
Quantum mechanics is...	described	3.2%
Quantum mechanics is...	many	0.7%

Quantum mechanics is a branch of physics that deals with the behavior of tiny particles like atoms and electrons. It tells us that these particles can act like both waves and particles, and can be in many different states at the same time.

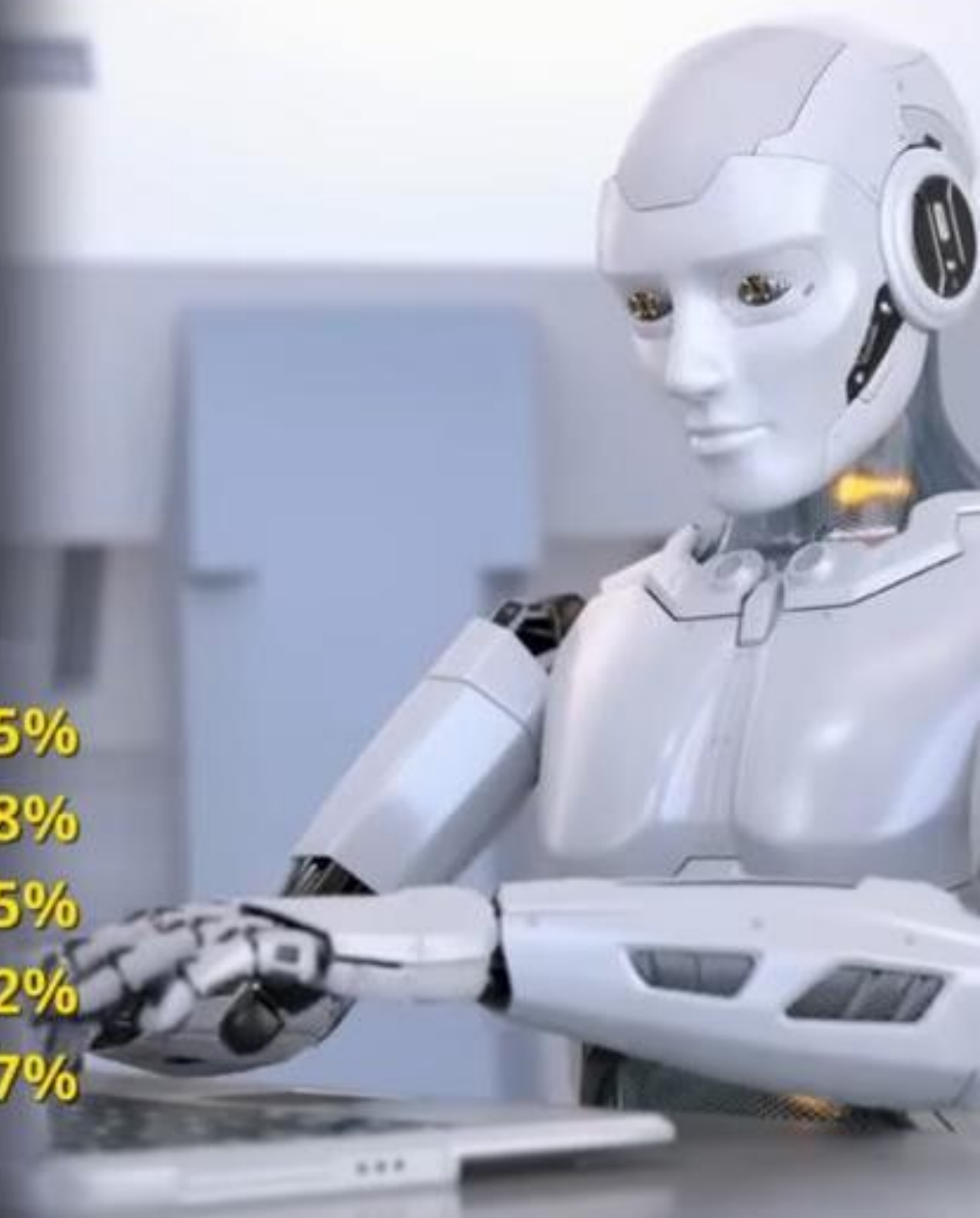
Quantum mechanics is... a	4.5%
Quantum mechanics is... based	3.8%
Quantum mechanics is... fundamentally	3.5%
Quantum mechanics is... described	3.2%
Quantum mechanics is... many	0.7%





Quantum mechanics is a branch of physics that deals with the behavior of tiny particles like atoms and electrons. It tells us that these particles can act like both waves and particles, and can be in many different states at the same time.

Quantum mechanics is...	<b>a</b>	4.5%
Quantum mechanics is...	based	3.8%
Quantum mechanics is...	fundamentally	3.5%
Quantum mechanics is...	described	3.2%
Quantum mechanics is...	many	0.7%



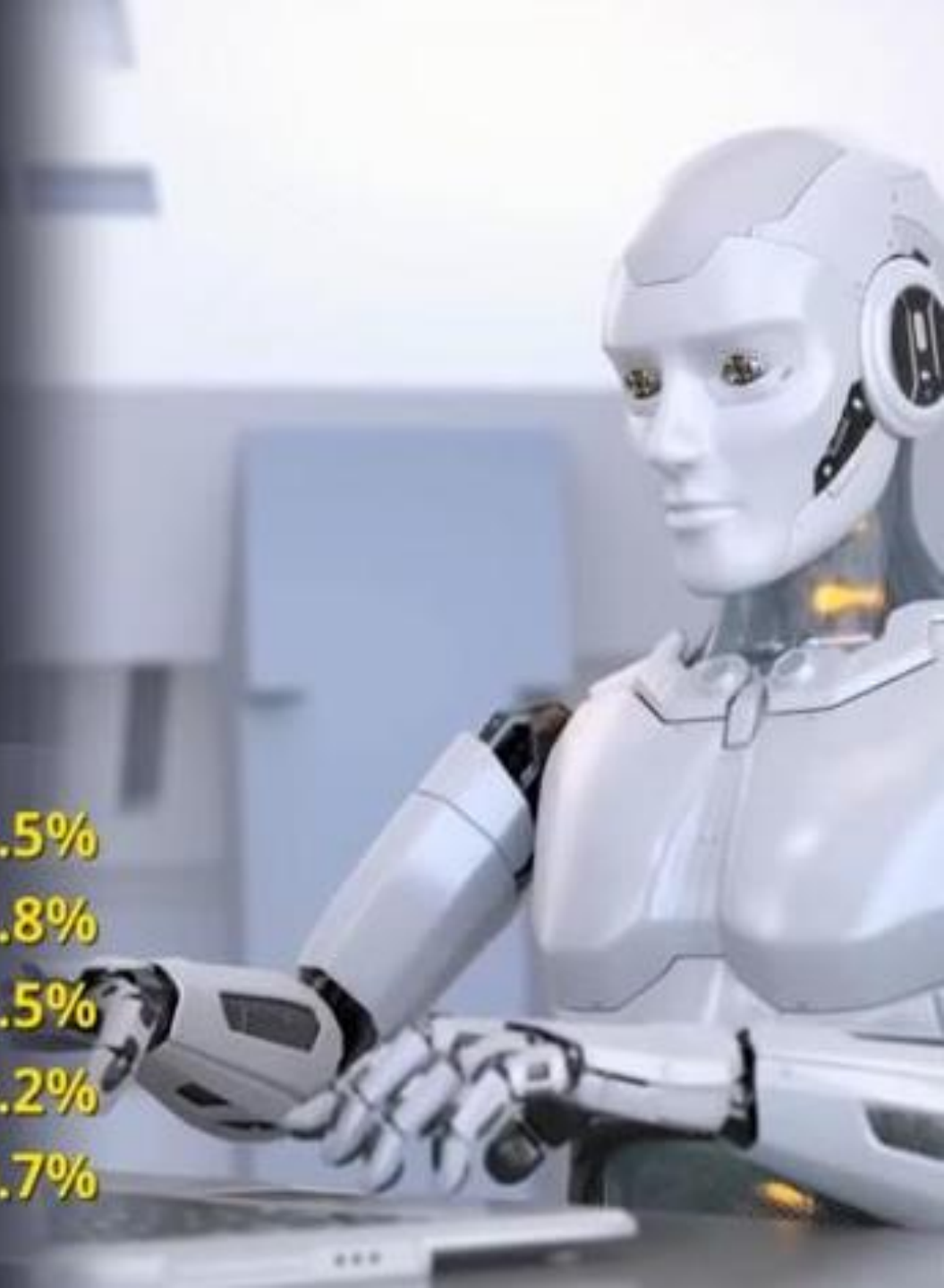
Quantum mechanics is a  
Quantum mechanics is a branch  
Quantum mechanics is a branch of  
Quantum mechanics is a branch of physics

Quantum mechanics is...	<b>a</b>	4.5%
Quantum mechanics is...	based	3.8%
Quantum mechanics is...	fundamentally	3.5%
Quantum mechanics is...	described	3.2%
Quantum mechanics is...	many	0.7%



Quantum mechanics is a branch of physics that deals with the behavior of particles on a very small scale, such as atoms and subatomic particles like electrons, protons, and photons.

Quantum mechanics is... a	4.5%
Quantum mechanics is... based	3.8%
Quantum mechanics is... <b>fundamentally</b>	3.5%
Quantum mechanics is... described	3.2%
Quantum mechanics is... many	0.7%





Quantum mechanics is fundamentally  
Quantum mechanics is fundamentally a  
Quantum mechanics is fundamentally a probabilistic  
Quantum mechanics is fundamentally a probabilistic theory■

Quantum mechanics is... a	4.5%
Quantum mechanics is... based	3.8%
Quantum mechanics is... <b>fundamentally</b>	3.5%
Quantum mechanics is... described	3.2%
Quantum mechanics is... many	0.7%



# Both are correct



Quantum mechanics is fundamentally a probabilistic theory. It describes the behavior of particles and systems in terms of probabilities rather than deterministically predicting their behavior



Quantum mechanics is a branch of physics that deals with the behavior of particles on a very small scale, such as atoms and subatomic particles like electrons, protons, and photons.



Input: Quantum mechanics is

Potential output: Quantum mechanics is a

Quantum mechanics is based

Quantum mechanics is fundamentally

Quantum mechanics is described

Quantum mechanics is many

## **Model works at sentence and paragraph level in addition to word level**

Quantum mechanics is

Quantum mechanics is a branch of physics that deals with the behavior of particles on a very small scale.



## **Model works at sentence and paragraph level in addition to word level**

Quantum mechanics is

Quantum mechanics is fundamentally a probabilistic theory.  
It describes the behavior of particles and systems in  
terms of probabilities rather than deterministically  
predicting their behavior

Quantum mechanics is

Quantum mechanics is a branch of physics that deals with the behavior of particles on a very small scale.

**The model is choosing the best response step by step**

Quantum mechanics is

Quantum mechanics is fundamentally a probabilistic theory.  
It describes the behavior of particles and systems in  
terms of probabilities rather than deterministically  
predicting their behavior

**The model is choosing the best response step by step**



Explain how quantum mechanics works according to the Schrodinger Equation

Explain how quantum mechanics works

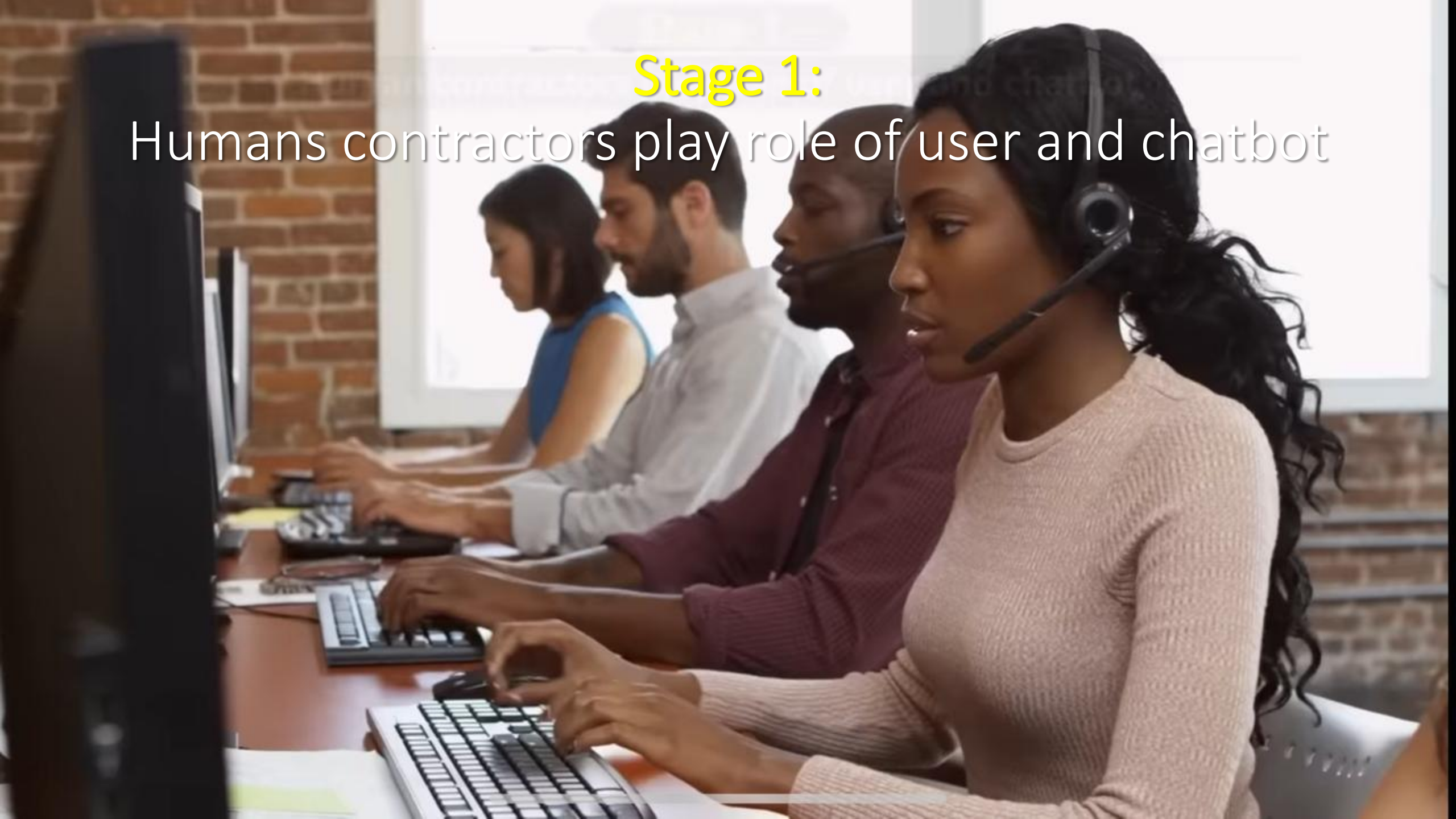
...

[ChatGPT Mar 14 Version](#). Free Research Preview. Our goal is to make AI systems more natural and safe to interact with. Your feedback will help us improve.

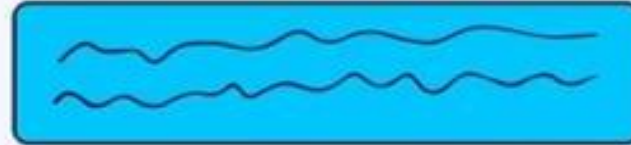


## Stage 1:

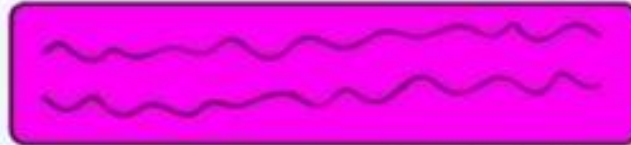
Humans contractors play role of user and chatbot



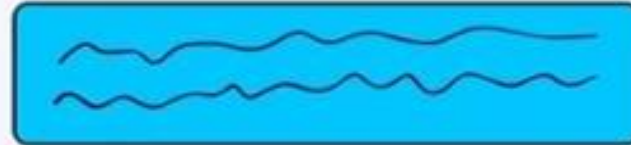
# Thread history of mock conversations is entered into the model



User AB



Ideal Chatbot



User AB



ChatGPT Model

I like cows.



M

I heard they go to college.

Cows go to college?



M

I heard that a cow went to Harvard.

What did the cow study?



M

Bovine sciences.

Do horses ever go to Harvard?



M

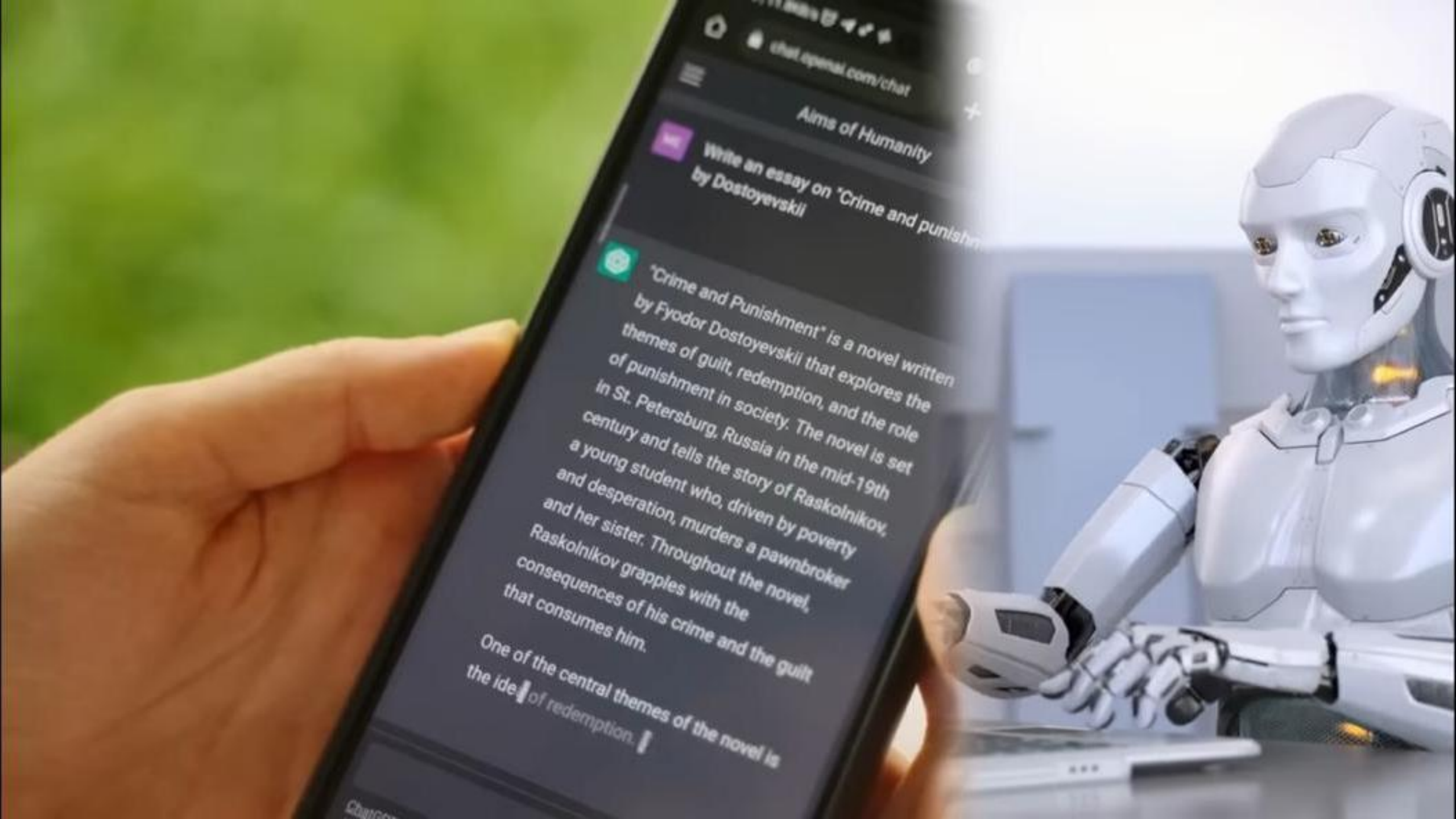
Horses go to Hayvard.



That's a pretty good joke, I feel like you led me into it.







chat.openai.com/chat

Aims of Humanity

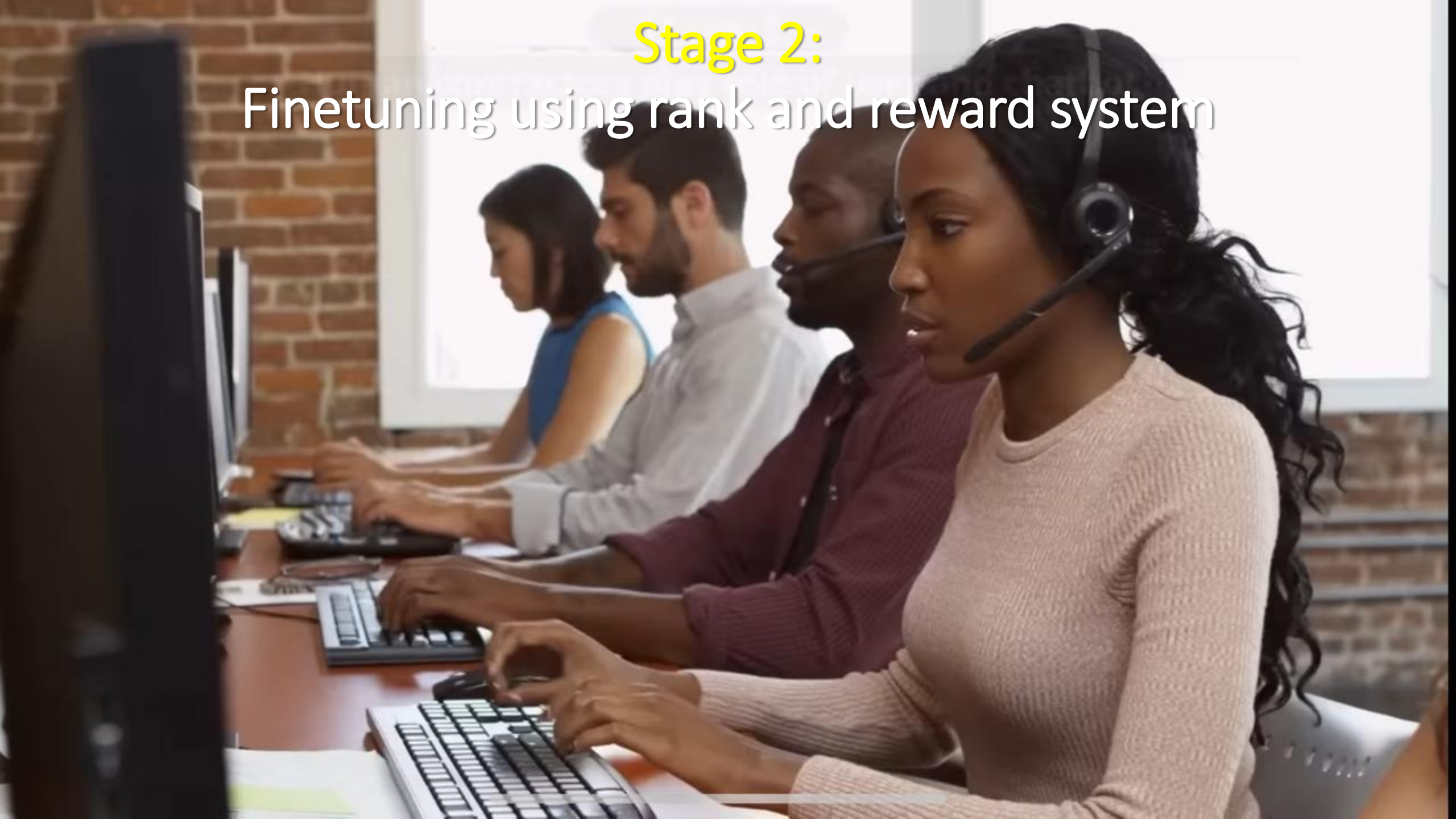
Write an essay on "Crime and punishment" by Dostoyevskii

"Crime and Punishment" is a novel written by Fyodor Dostoyevskii that explores the themes of guilt, redemption, and the role of punishment in society. The novel is set in St. Petersburg, Russia in the mid-19th century and tells the story of Raskolnikov, a young student who, driven by poverty and desperation, murders a pawnbroker and her sister. Throughout the novel, Raskolnikov grapples with the consequences of his crime and the guilt that consumes him.

One of the central themes of the novel is the idea of redemption.



## Stage 2: Finetuning using rank and reward system





## Describe an atom

- A) It's the smallest part of a substance made of electrons, neutrons, and protons. **0.95**
- B) It's a basic chemical element **0.37**
- C) It's an object made of subatomic particles **0.48**
- D) It's a ticketing service **0.12**

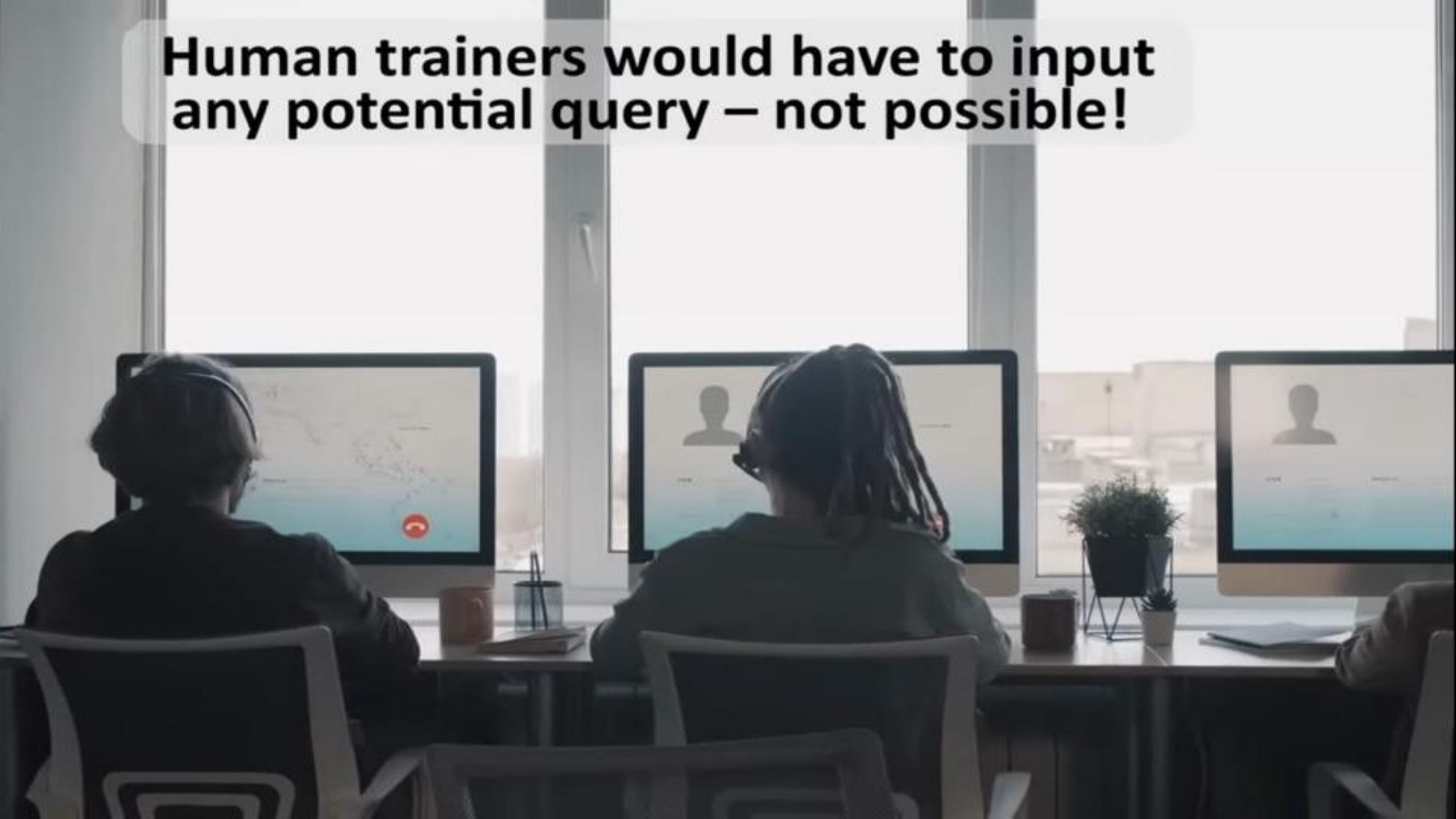
Teaches ChatGPT to evaluate  
what the best output is  
likely to be

**A > C > B > D**



**ChatGPT Model**

**Human trainers would have to input  
any potential query – not possible!**





# ChatGPT



## Examples

"Explain quantum computing in simple terms" →

"Got any creative ideas for a 10 year old's birthday?" →

"How do I make an HTTP request in Javascript?" →



## Capabilities

Remembers what user said earlier in the conversation

Allows user to provide follow-up corrections

Trained to decline inappropriate requests



## Limitations

May occasionally generate incorrect information

May occasionally produce harmful instructions or biased content

Limited knowledge of world and events after 2021

Write a short story about bread



## Stage 3: Reinforcement learning



## Unsupervised learning based on the human-taught ranking system





# Unsupervised learning based on the human-taught ranking system





**Unsupervised learning allows the  
model to learn patterns from  
much more data and many  
more subjects**

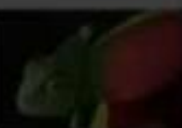
Home Find a

Job search

Welcome to  
Visit our site  
Show other content

Sectors

- Accounting & Finance
- Asset Management
- Capital Markets
- Commodities
- Compliance & Legal
- Consultancy
- Corporate Banking
- Credit
- Debt / Fixed Income
- Derivatives
- Equities
- FX & Money Markets

Company search  
Find companies by

Bloomberg

paying bank

After a period of transition with new leadership, the bank is now looking for a new CEO to lead the bank through the next phase of its growth.

Senior Director to pay 200m in 2010/11 and 2011/12

Senior Director to pay 200m in 2010/11 and 2011/12

Senior Director to pay 200m in 2010/11 and 2011/12

What Credit Downgrade? Cantor Says It Will Keep Rising

With a new credit rating, Cantor says it will keep rising. The bank is now looking for a new CEO to lead the bank through the next phase of its growth.

This way, the human training  
can be scaled to much larger dataset

Select Region

Search

Related to strategy and finance, industry and financial sector. Here, for example, you will find a wide range of opportunities, or the main

Partners  
10,000  
2010

management of the research management team

Partners  
10,000 range  
into their retail banking group



# 45 terabytes of data

## GET STARTED

[Introduction](#)[Quickstart](#)[Libraries](#)[Models](#)[Overview](#)[GPT-4](#)[GPT-3.5](#)[DALL·E](#)[Whisper](#)[Embeddings](#)[Moderation](#)[GPT-3](#)[Tutorials](#)[Data usage policies](#)[Usage policies](#)[Embeddings](#)

A set of models that can convert text into a numerical form

[Moderation](#)

A fine-tuned model that can detect whether text may be sensitive or unsafe

[GPT-3](#)

A set of models that can understand and generate natural language

[Codex](#) Deprecated

A set of models that can understand and generate code, including translating natural language to code

We have also published open source models including [Point-E](#), [Whisper](#), [Jukebox](#), and [CLIP](#).

Visit our [model index for researchers](#) to learn more about which models have been featured in our research papers and the differences between model series like InstructGPT and GPT-3.5.

## GPT-4

Limited beta

GPT-4 is a large multimodal model (accepting text inputs and emitting text outputs today, with image inputs coming in the future) that can solve difficult problems with greater accuracy than any of our previous models, thanks to its broader general knowledge and advanced reasoning capabilities. Like `gpt-3.5-turbo`, GPT-4 is optimized for chat but works well for traditional completions tasks. Learn how to use GPT-4 in our [chat guide](#).





**Each terabyte equivalent to about 83 million pages!**



community. She decided to use her bread-baking skills to feed her neighbors.

Maria woke up early every day to begin baking loaves of bread. She worked tirelessly, kneading the dough and carefully watching the rising process. Her hands became covered in flour, and her apron became stained with the evidence of her hard work.

As the smell of fresh bread wafted through the village, the people's spirits lifted. They would line up outside Maria's small bakery, eager to get their hands on a warm, fresh loaf. Maria's bread became a staple of their daily diets, and soon, the village began to thrive again.

Years passed, and Maria became known ■

☐ Stop generating

Send a message...

..

We've created GPT-4, the latest milestone in OpenAI's effort in scaling up deep learning. GPT-4 is a large multimodal model (accepting image and text inputs, emitting text outputs) that, while less capable than GPT-3.5 in many real-world scenarios, exhibits human-level performance on various professional and academic benchmarks.

March 14, 2023

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[View system card ↗](#)

[Try on ChatGPT Plus ↗](#)

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[Rewatch demo livestream ↗](#)

[Contribute to OpenAI Evals ↗](#)

[Language](#), [GPT-4](#), [Milestone](#), [Publication](#)

