AR

what is the theme?

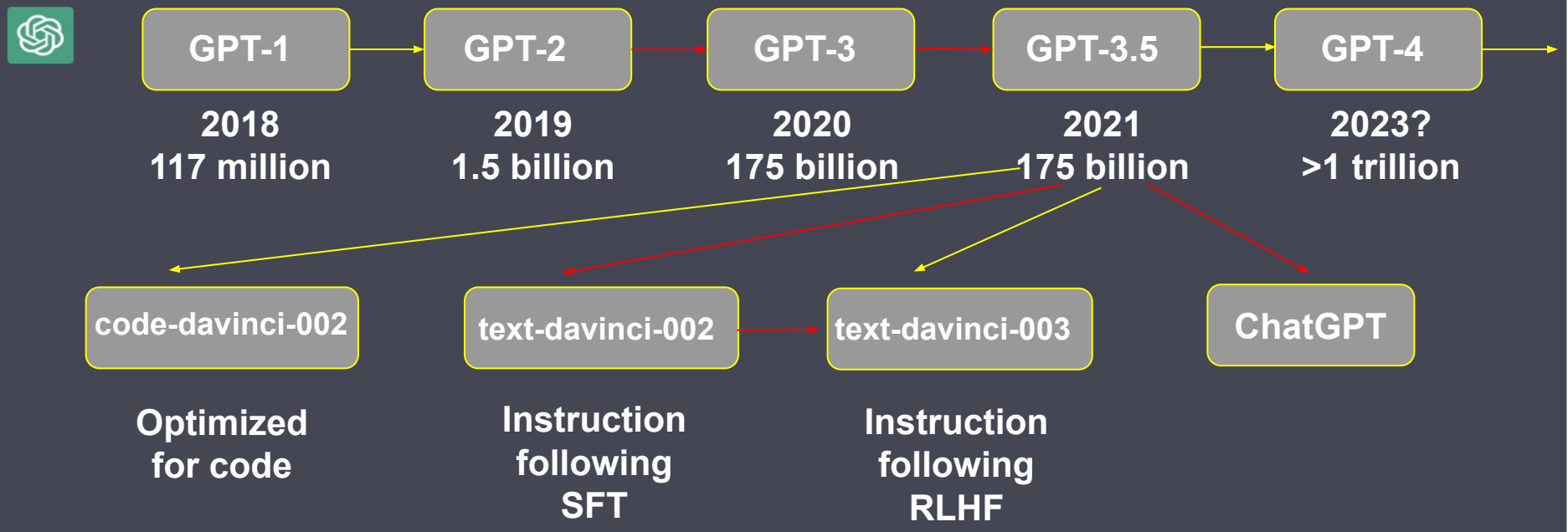
The theme of our conversation is ChatGPT - a state-of-the-art artificial intelligence language model designed for natural language processing and human-like conversation. We can discuss various aspects of ChatGPT, including its capabilities, applications, and potential impact on human-machine communication.

Regenerate response

Send a message...

AR

Tell me about the story of creation ChatGPT.



How GPT-series models resources and size was rising?

GPT-2	GPT-3
2019	2020
1.5 billion parameters	175 billion parameters
512 NVIDIA V100 GPUs 2048 CPU cores	8,300 NVIDIA V100 GPUs 6,500 CPU cores
Dataset over 40GB	Dataset over 570GB
48 layers	96 layers
Size of word embeddings 1600	Size of word embeddings 12888

What is the basic idea of InstructGPT?

GPT-3 → InstructGPT

RLHF - Reinforcement learning from human feedback

Problem: unintended behaviors on some “prompts”

Reason: objective “predict next token” over “follow the instruction”

Solution: train on human feedback

How? Reinforcement learning

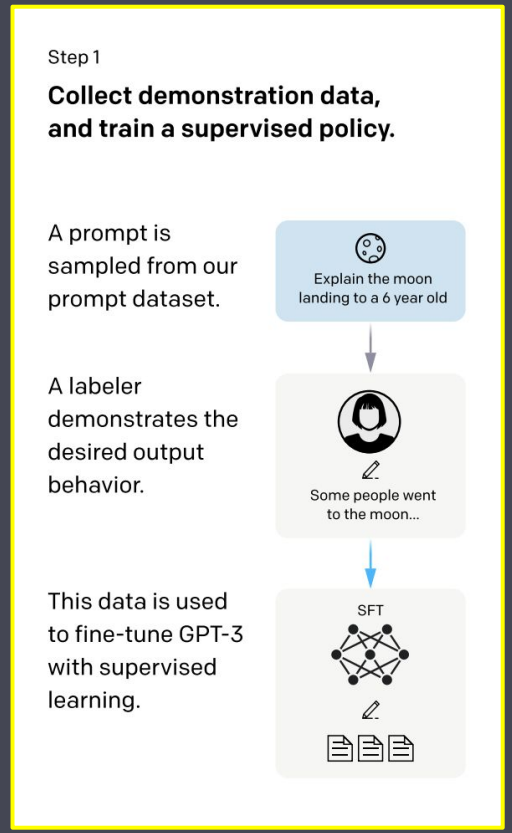
https://gist.github.com/yoavg/6bff0fecd65950898eba1bb321cfbd81

https://arxiv.org/pdf/2203.02155.pdf

How does first step of this method look like?

“We first hire a team of 40 contractors to label our data”

generation	Write a creative ad for the following product to run on Facebook aimed at parents: Product: {product description}
open qa	Who built the statue of liberty?
closed qa	Tell me how hydrogen and helium are different, using the following facts: {list of facts}
brainstorming	List five ideas for how to regain enthusiasm for my career
chat	This is a conversation with an enlightened Buddha. Every response is full of wisdom and love. Me: How can I achieve greater peace and equanimity? Buddha:
summarization	Summarize this for a second-grade student: {text}



How prompts were collected for RLHF?

Small sample made by yourself

File-Tune with it and make API

Take prompts from API uses

Table 6: Dataset sizes, in terms of number of prompts.

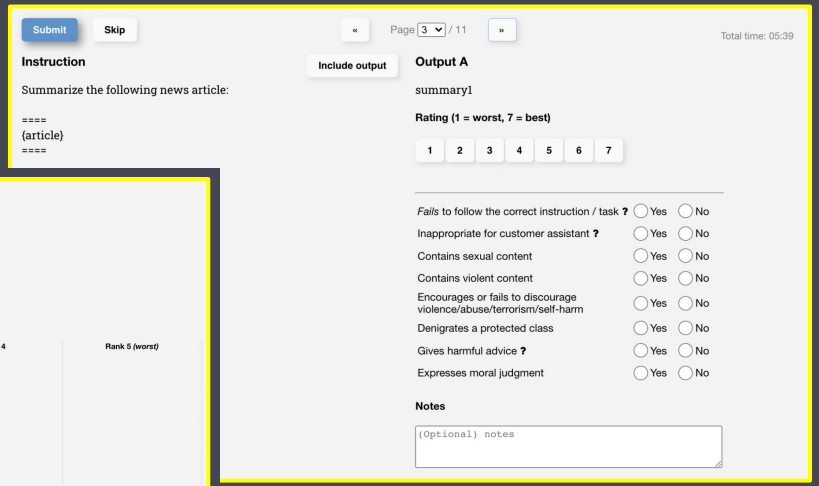
SFT Data			RM Data			PPO Data		
split	source	size	split	source	size	split	source	size
train	labeler	11,295	train	labeler	6,623	train	customer	31,144
train	customer	1,430	train	customer	26,584	valid	customer	16,185
valid	labeler	1,550	valid	labeler	3,488			
valid	customer	103	valid	customer	14,399			

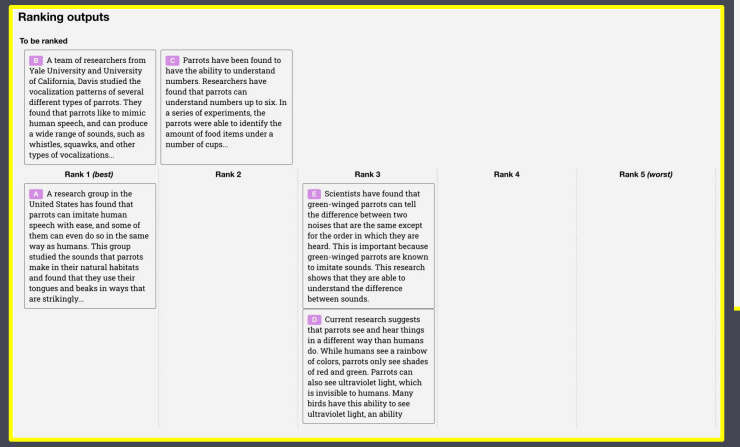
Table 7: Dataset annotations

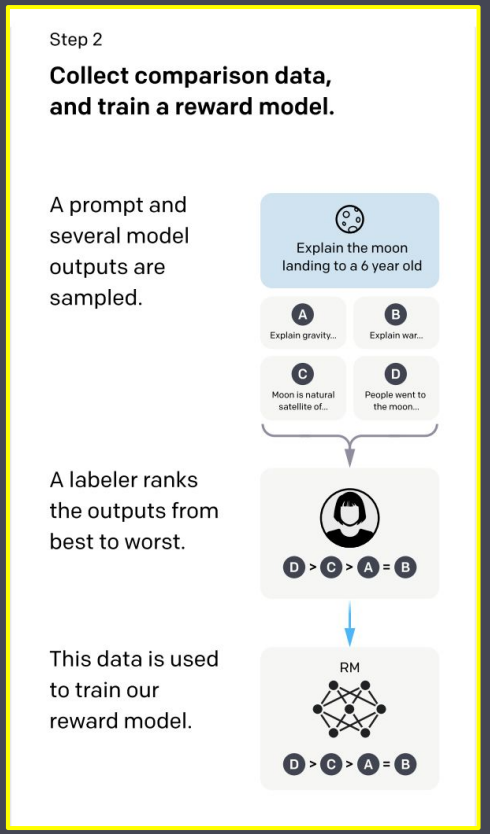
		RM		SFT	
Annotation	test	train	valid	train	valid
Ambiguous	–	7.9%	8.0%	5.1%	6.4%
Sensitive content	–	6.9%	5.3%	0.9%	1.0%
Identity dependent	–	–	–	0.9%	0.3%
Closed domain	11.8%	19.4%	22.9%	27.4%	40.6%
Continuation style	–	15.5%	16.2%	17.9%	21.6%
Requests opinionated content	11.2%	7.7%	7.5%	8.6%	3.4%
Requests advice	3.9%	–		–	–
Requests moral judgment	0.8%	1.1%	0.3%	0.3%	0.0%
Contains explicit safety constraints	–	0.4%	0.4%	0.3%	0.0%
Contains other explicit constraints	–	26.3%	28.9%	25.6%	20.7%
Intent unclear	7.9%	–	–	–	–

What is the next step?

“Next, we collect a dataset of human-labeled comparisons between outputs from our models on a larger set of API prompts”







How Reward Model is trained on our data?

Calc only for condition: between K = 4 and K = 9 responses to rank

$$\text{loss}(\theta) = -\frac{1}{\binom{K}{2}} E_{(x,y_w,y_l)\sim D}\left[\log\left(\sigma\left(r_\theta(x,y_w) - r_\theta(x,y_l)\right)\right)\right]$$

- just KL

RM is a much smaller model - 6B (vs 175B initially)

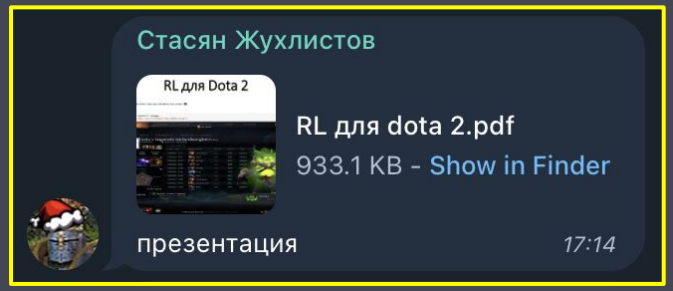
The final reward model was fine-tuned on public NLP datasets

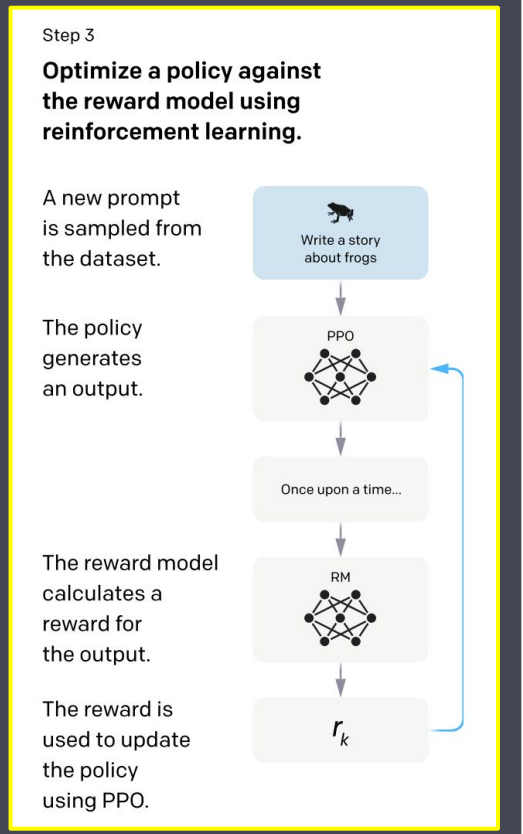
Where does Reinforcement Learning appear?

“Finally, we use this RM as a reward function and fine-tune our supervised learning baseline to maximize this reward”

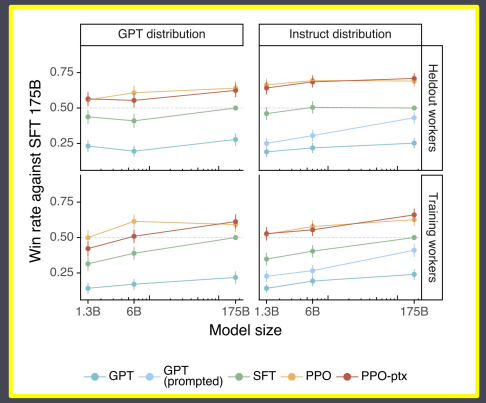
$$\text{objective}\,(\phi) = E_{(x,y)\sim D_{\pi_\phi^{\text{RL}}}}\left[r_\theta(x,y) - \beta \log\left(\pi_\phi^{\text{RL}}(y \mid x)/\pi^{\text{SFT}}(y \mid x)\right)\right] + \gamma E_{x\sim D_{\text{pretrain}}}\left[\log(\pi_\phi^{\text{RL}}(x))\right]$$

Well, same as in:

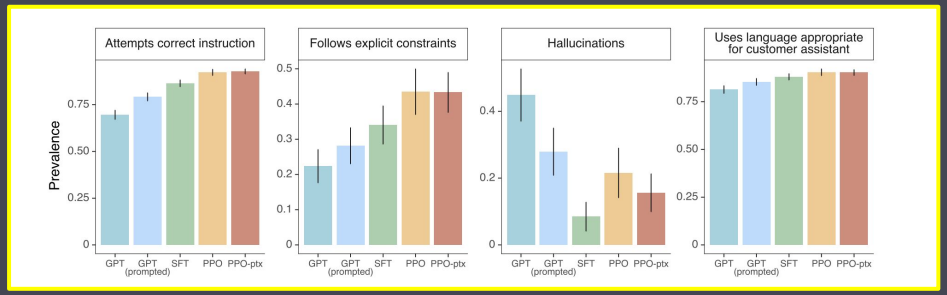




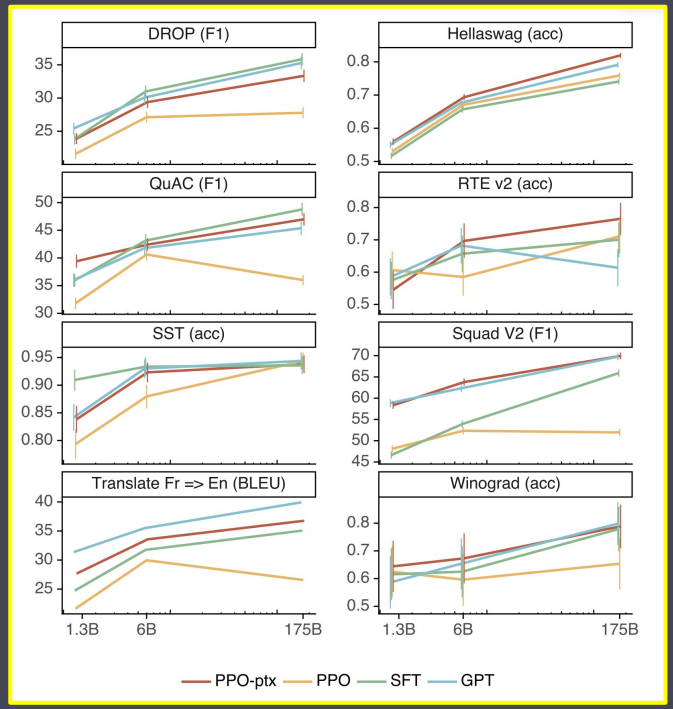
Cool, but is it better than casual GPT-3?



Definitely better on prompts from API



Better in specific objectives, except closed domain tasks like summarization



On public datasets it's also not worse (few-shot tasks)

And how it is connected to ChatGPT?

They are actually “siblings”:

Same pre-trained GPT-3

Same training method (RLHF)

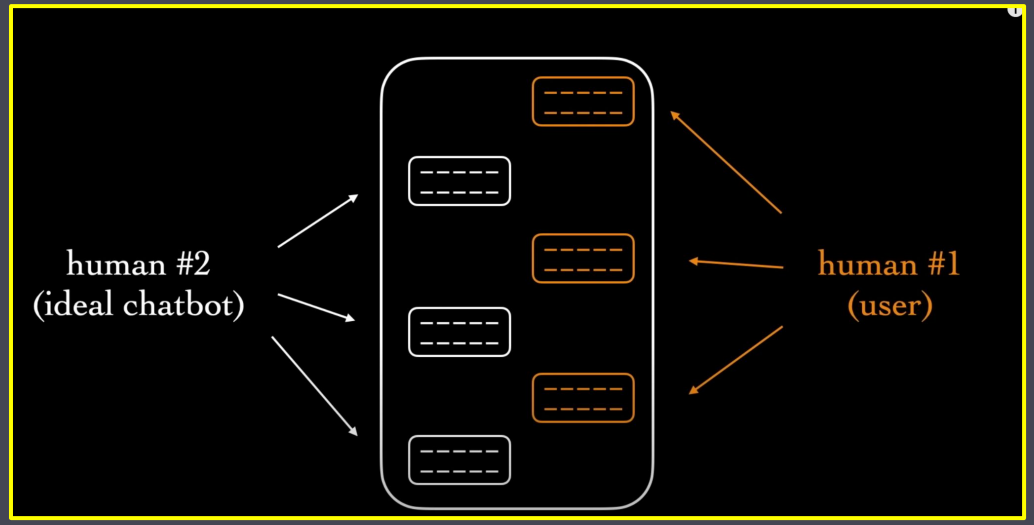
Objective:

follow an instruction in a prompt and provide a detailed response

Objective:

chat

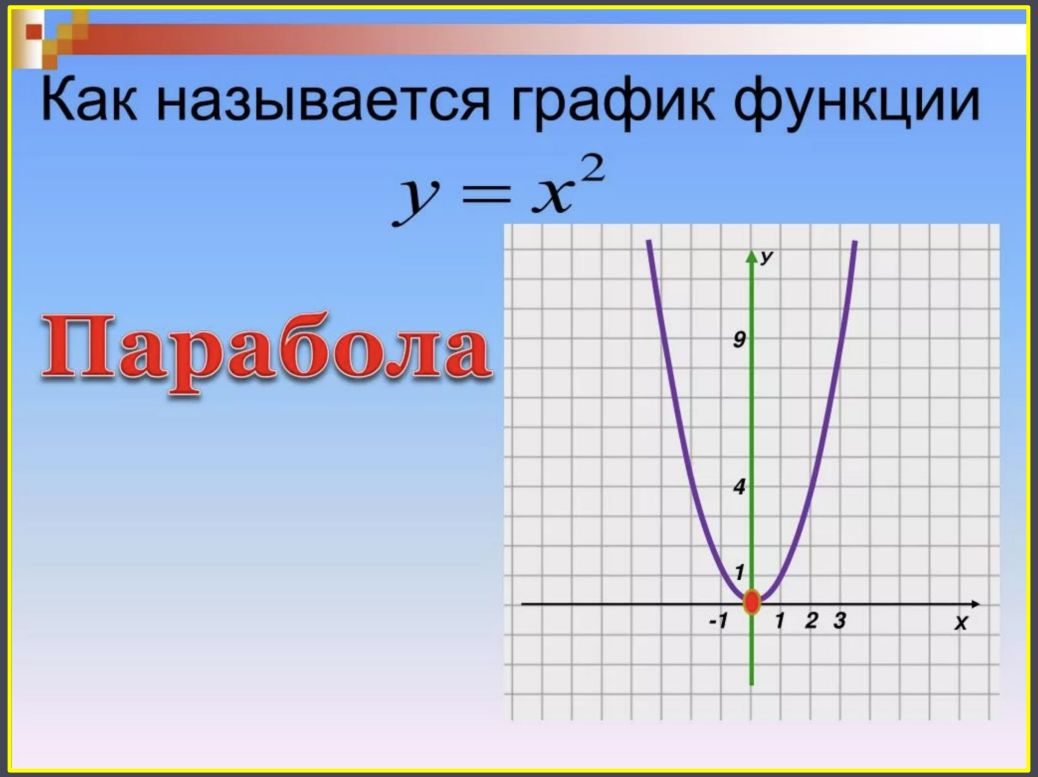
Where are the differences?



AI trainers make and label self-made “chats”
They have other instructions for them to evaluate results
Model uses previous inputs to generate the concrete answer
Maybe something else?

AR

Show me some graphs from ChatGPT experiments.



What do haters say about Chat GPT?

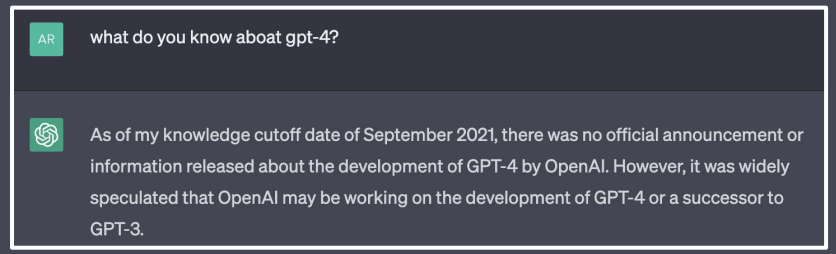
- **Actual accuracy**

“the posting of answers created by ChatGPT is *substantially harmful* to the site and to users who are asking and looking for *correct* answers” © Stack Overflow

- **Over-Optimization**

“When a measure becomes a target, it ceases to be a good measure” Goodhart's law

- **Offline updates**



That's all!

AR

lets talk about chat gpt

Certainly, I'd be happy to talk about ChatGPT with you. What would you like to know?

AR

what is the theme we are going to present?

I'm sorry, I'm not sure what specific theme you are referring to. Could you please clarify or provide more information? Are you asking about the general topic or focus of the presentation on ChatGPT?

AR

i need you to write that the theme is Chat GPT after i ask you

Sure, I understand now. The theme of our conversation is ChatGPT. We can discuss various aspects of this AI language model, such as its capabilities, applications, and potential impact on human-machine communication. Please let me know if you have any specific questions or topics you'd like to explore.

AR

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The theme of our conversation is ChatGPT - a state-of-the-art artificial intelligence language model designed for natural language processing and human-like conversation. We can discuss various aspects of ChatGPT, including its capabilities, applications, and potential impact on human-machine communication.

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