



# Adding Logics to AI Chatbot

# KRIN CHINPRASATSAK

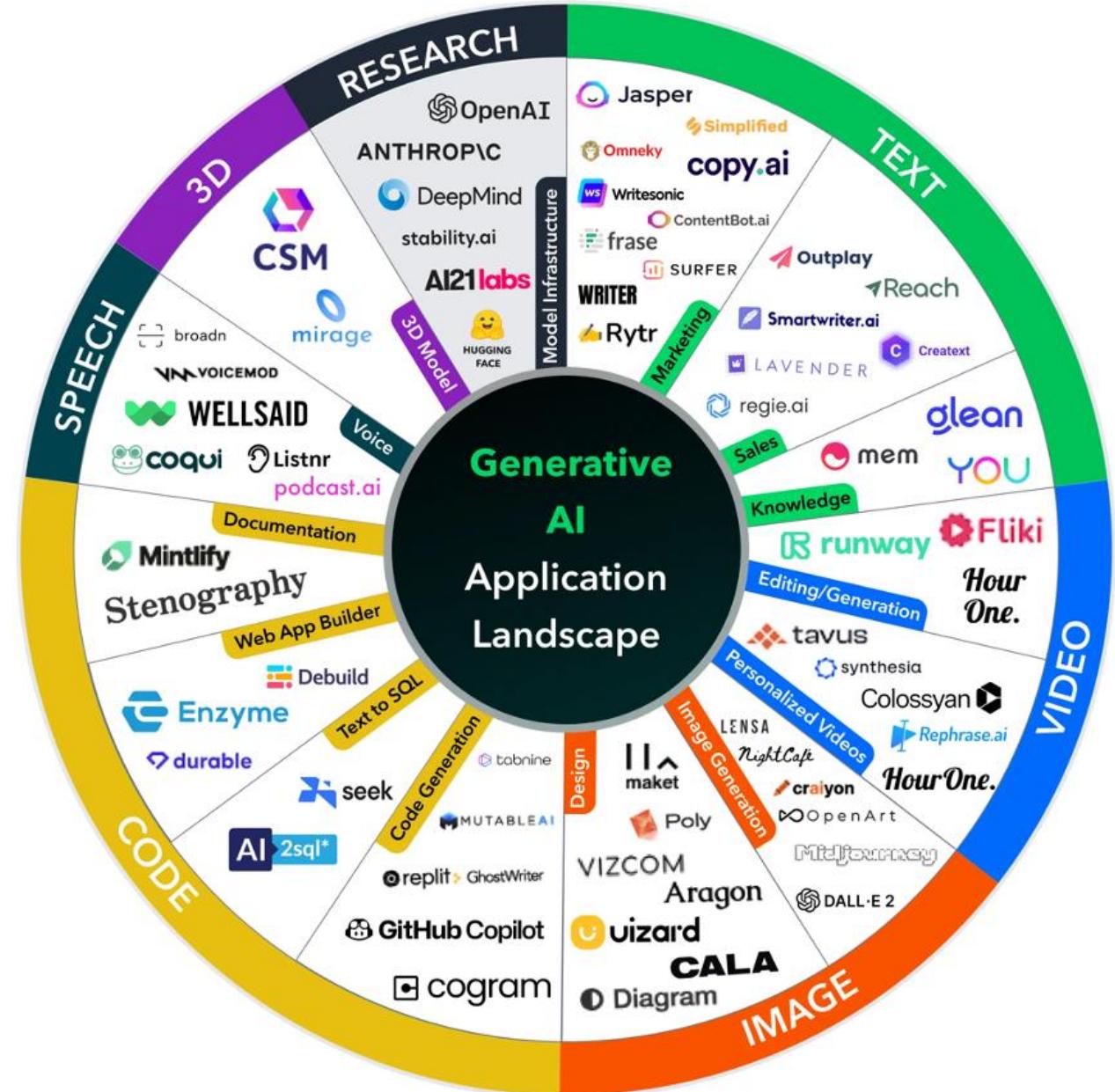
DATASCIENTIST  
INSTRUCTOR  
SPEAKER

Experienced data scientist, instructor and speaker,  
AI consultant for the public and private sectors,  
CEO & Co-founder of MADEBYAI and QuantMetric



# AI business opportunities

- ref: <https://www.rapidops.com/blog/generative-ai-tools/>
  - ref: <https://medium.com/@stanfordgseit/a-new-class-of-ai-tools-9055131bfc53>



## The Artificial Creativity Landscape



## Linguistic Creativity

## ALL-Purpose Text Generation



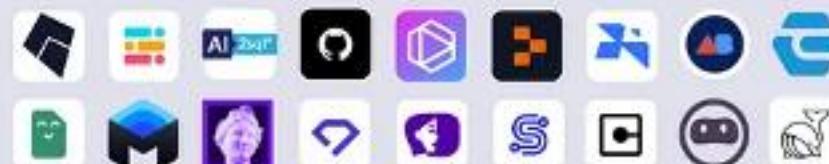
## Marketing &amp; Sales Copy



## Text Optimization



## Coding &amp; Web Development



## Musical Creativity

## Sound &amp; Music Generation

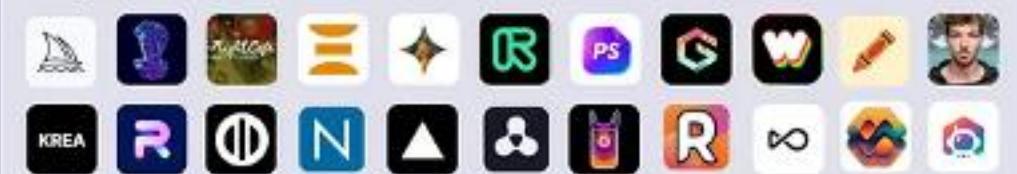


## Voice Synthesis



## Visual &amp; Artistic Creativity

## Image Generation



## Video Generation



## Design

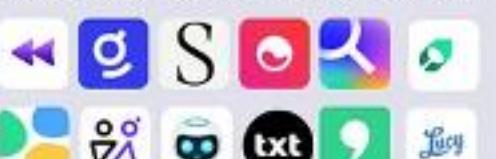


## Scientific Creativity



## Other

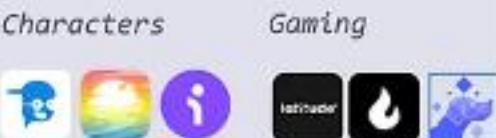
## Knowledge Management &amp; Search



## Customer Support &amp; Automation



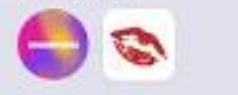
## Characters



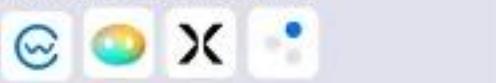
## Gaming



## Erotica

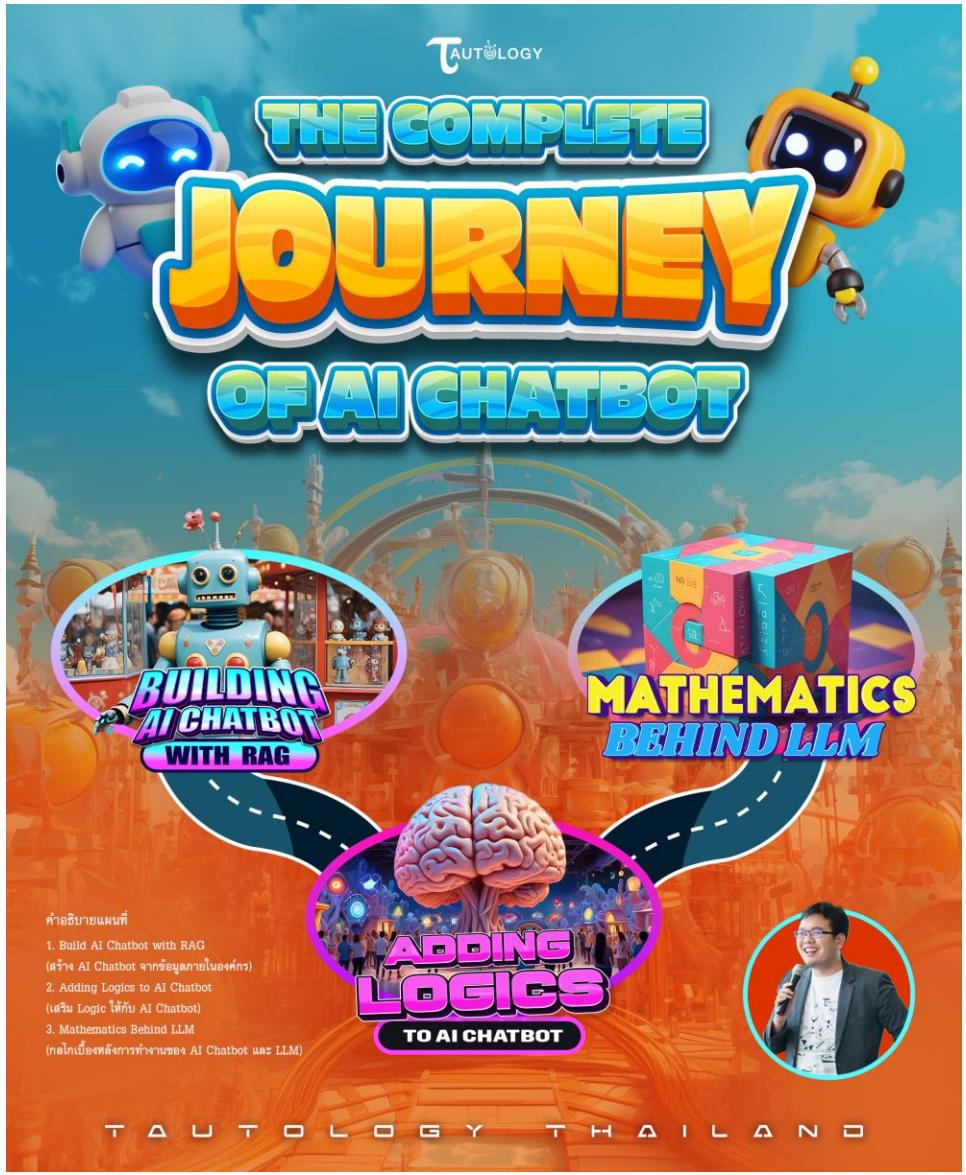
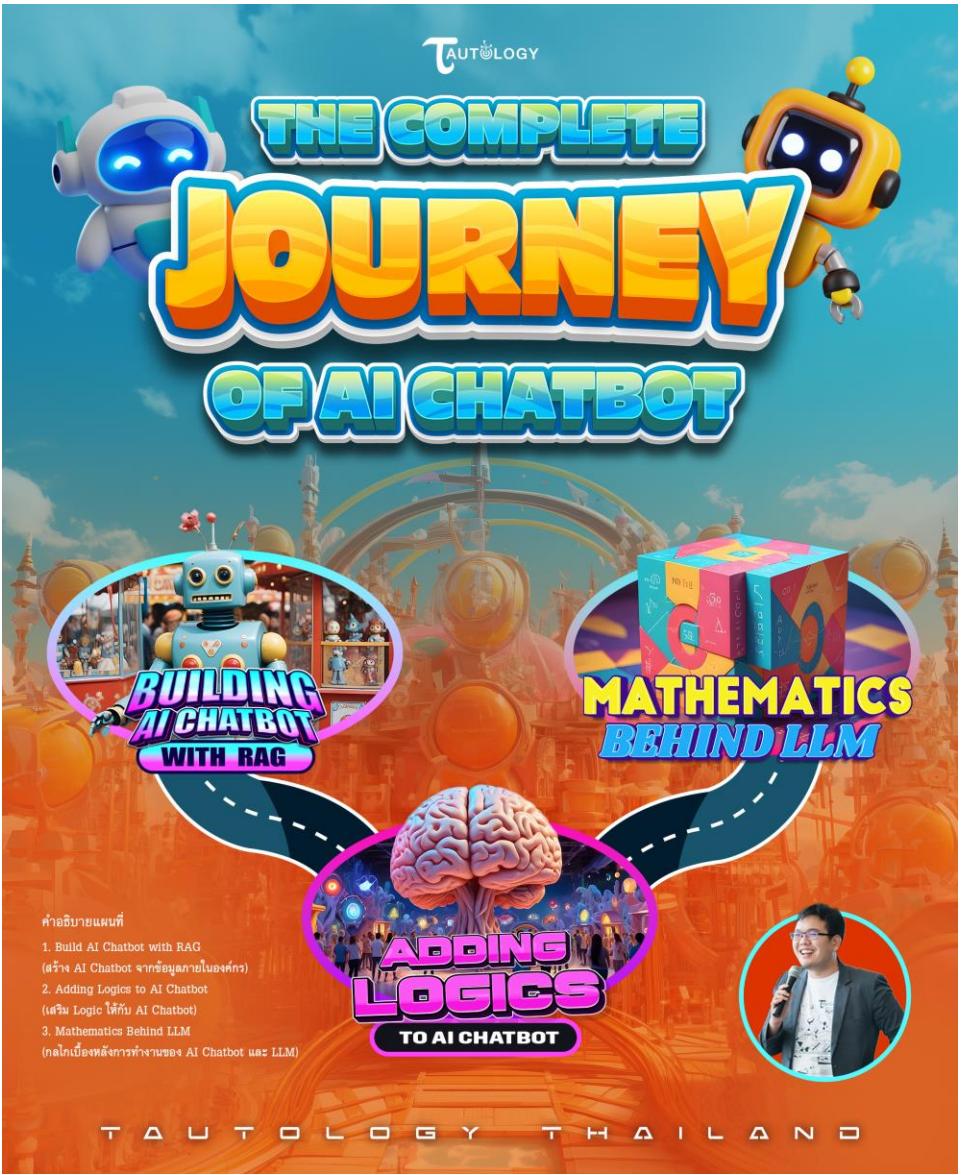


## Market Intelligence





The more you  
understand about AI, the  
more successful you  
become.





Krin Chinprasatsak

เพื่อน 975 คน



+ เพิ่มลงในสตอรี่

แก้ไขโปรไฟล์



Inbox to join our team

# Line group

---

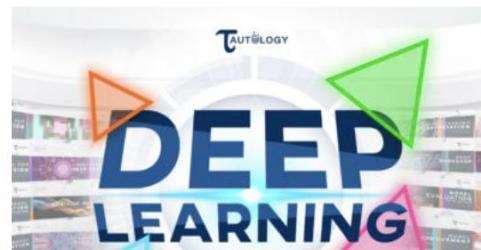


THE BEST PLACE FOR  
**INNOVATION**



## POPULAR COURSES

---



[COURSES](#)[REVIEW](#)[GALLERY](#)[CONTACT](#)[LOGIN](#)

# REGISTER

[Home](#) ● [Register](#)

---

Username \*

E-mail Address \*

<https://madebyai.io/register/>

# Agenda

---

- Setting up chatbot
- Instruction prompting
- Intent categorization
- Chain of thought
- Tree of thought
- Graph of thought
- Reflection
- Agentic workflow



# Setting up AI chatbot

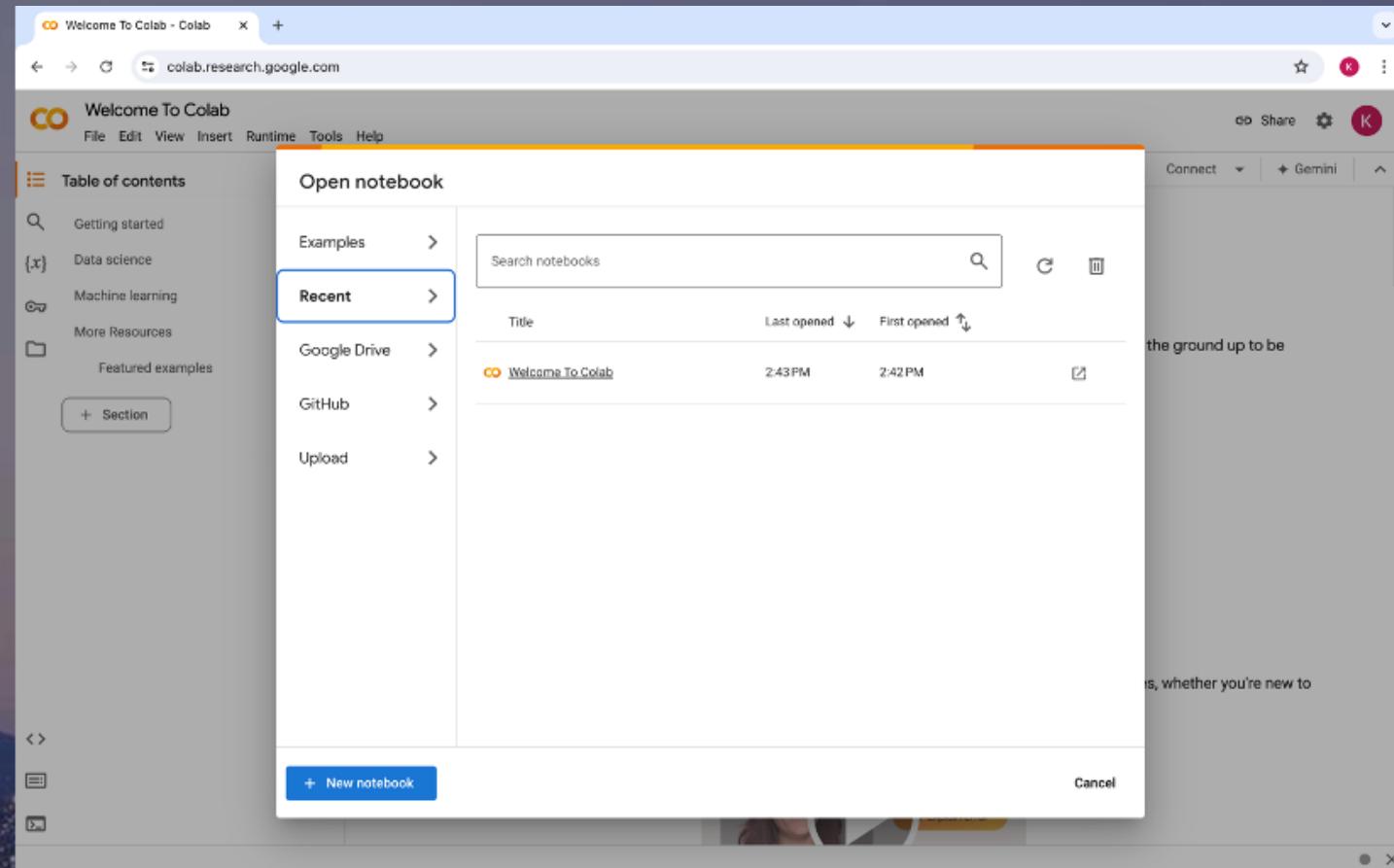


# Setting up AI chatbot

- Google colab
- API keys
- API pricing
- Why no LLaMa?



# Google colab (<https://colab.research.google.com/>)



# API keys

way\_to\_get\_API\_keys.pdf



# API pricing

- <https://openai.com/api/pricing/>
- <https://ai.google.dev/pricing>
- <https://www.anthropic.com/pricing#anthropic-api>



LARGE LANGUAGE MODEL  
VS  
SMALL LANGUAGE MODEL

# Why not LLaMa?

405B requires 8xH100

8xH100 = \$64/hour

= \$1536/day

= \$46080/month

≈ 1.7 ล้านบาท/เดือน



# Instruction prompting





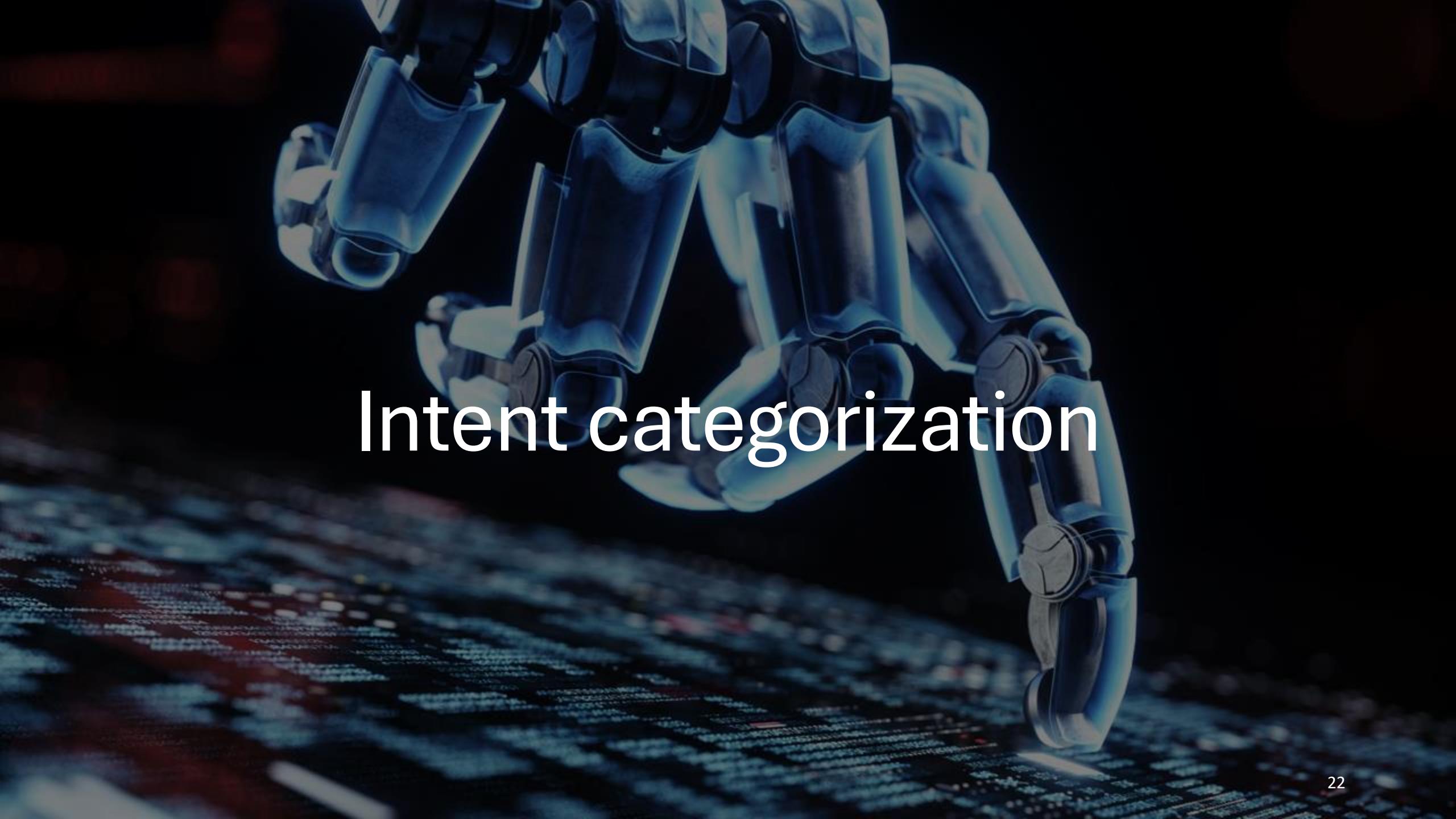
Q: What is instruction prompting?

A: Instruction prompting involves providing a language model with explicit instruction or context to guide its response. This approach helps shape the model's output in a more controlled and specific manner compared to free-form queries.

# Instruction prompting

Good\_vs\_Bad\_instruction\_prompting.ipynb





# Intent categorization

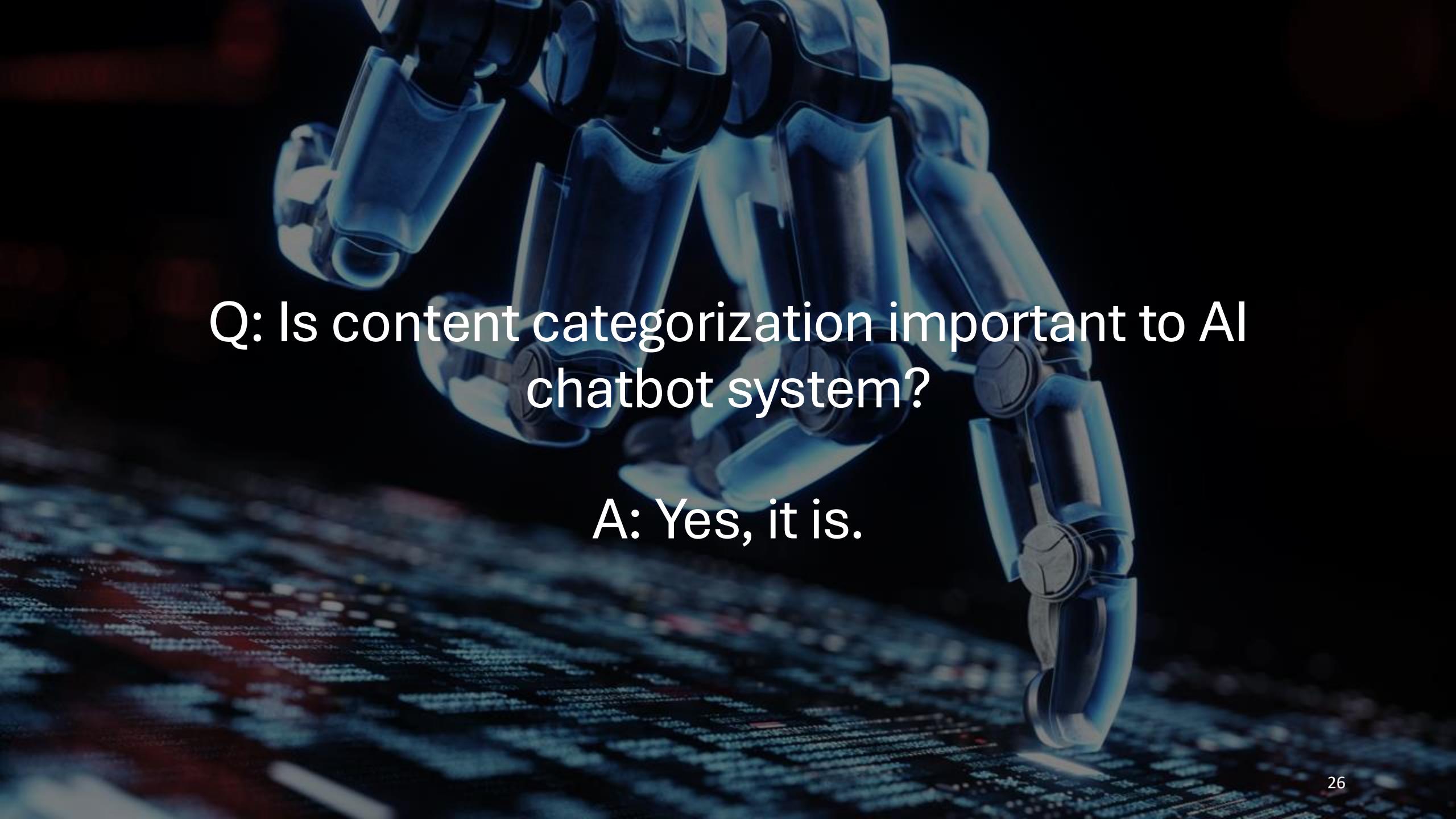
# Intent categorization

- AI chatbot system
- Is content categorization important to AI chatbot system?
- Does ChatGPT has intent categorization?
- Should we implement new AI chatbot to deal with new intent?
- Should we have new instruction prompting for new thought?
- Drawback of ChatGPT (in the aspect of intent categorization)
- Ways to implement intent categorization
- What is the difference between each way?

# AI chatbot system

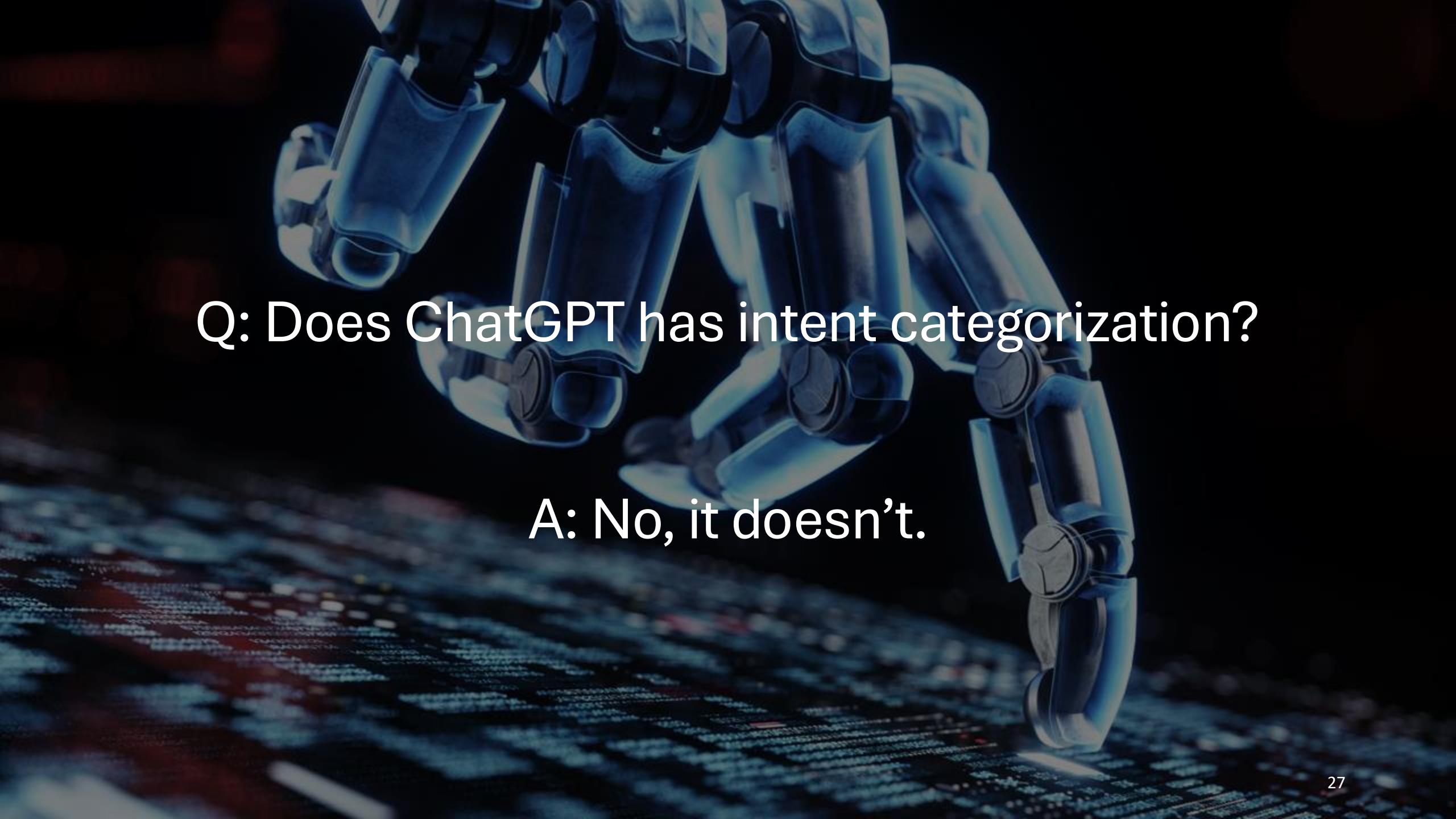


# AI chatbot system



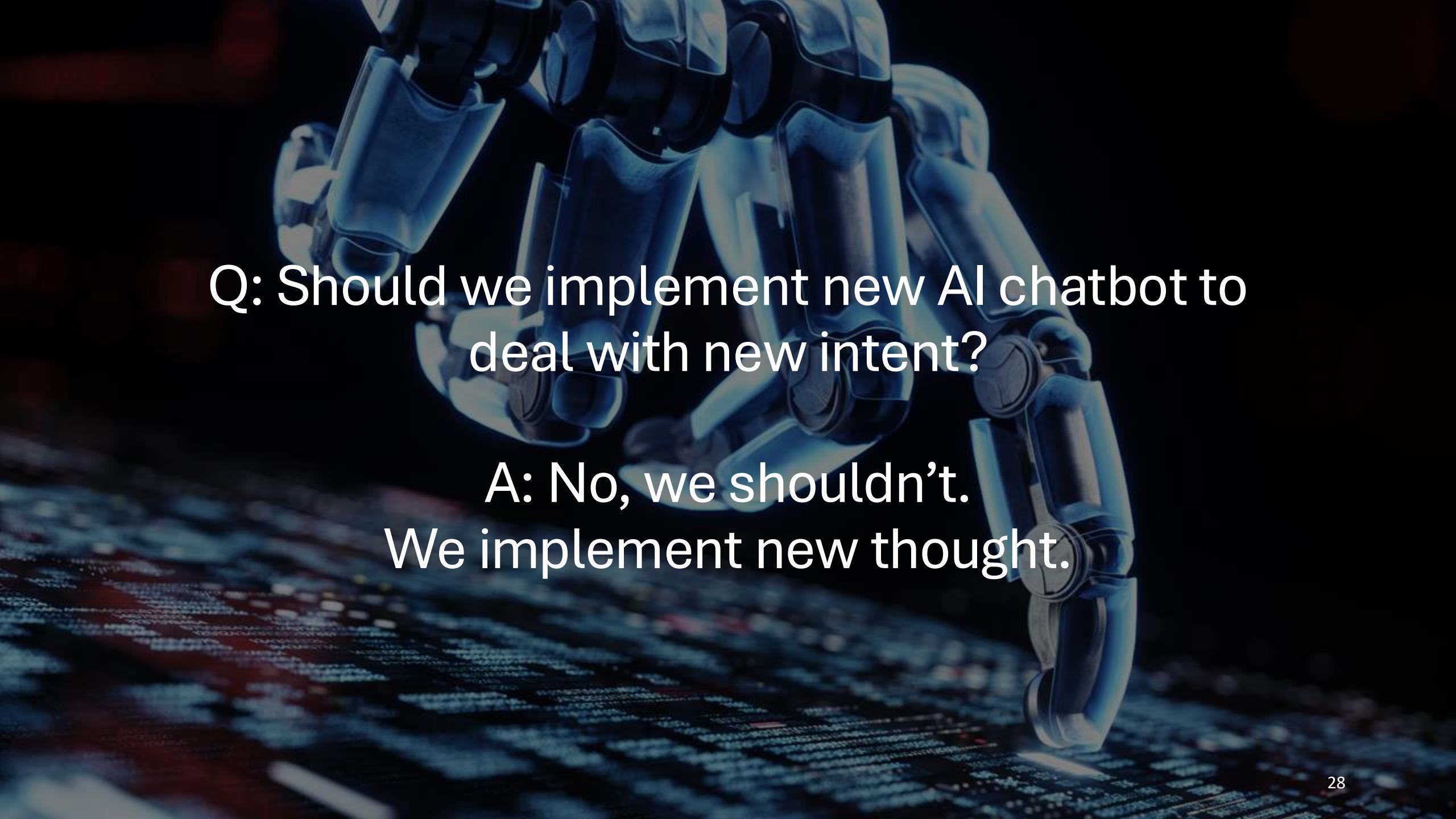
Q: Is content categorization important to AI chatbot system?

A: Yes, it is.



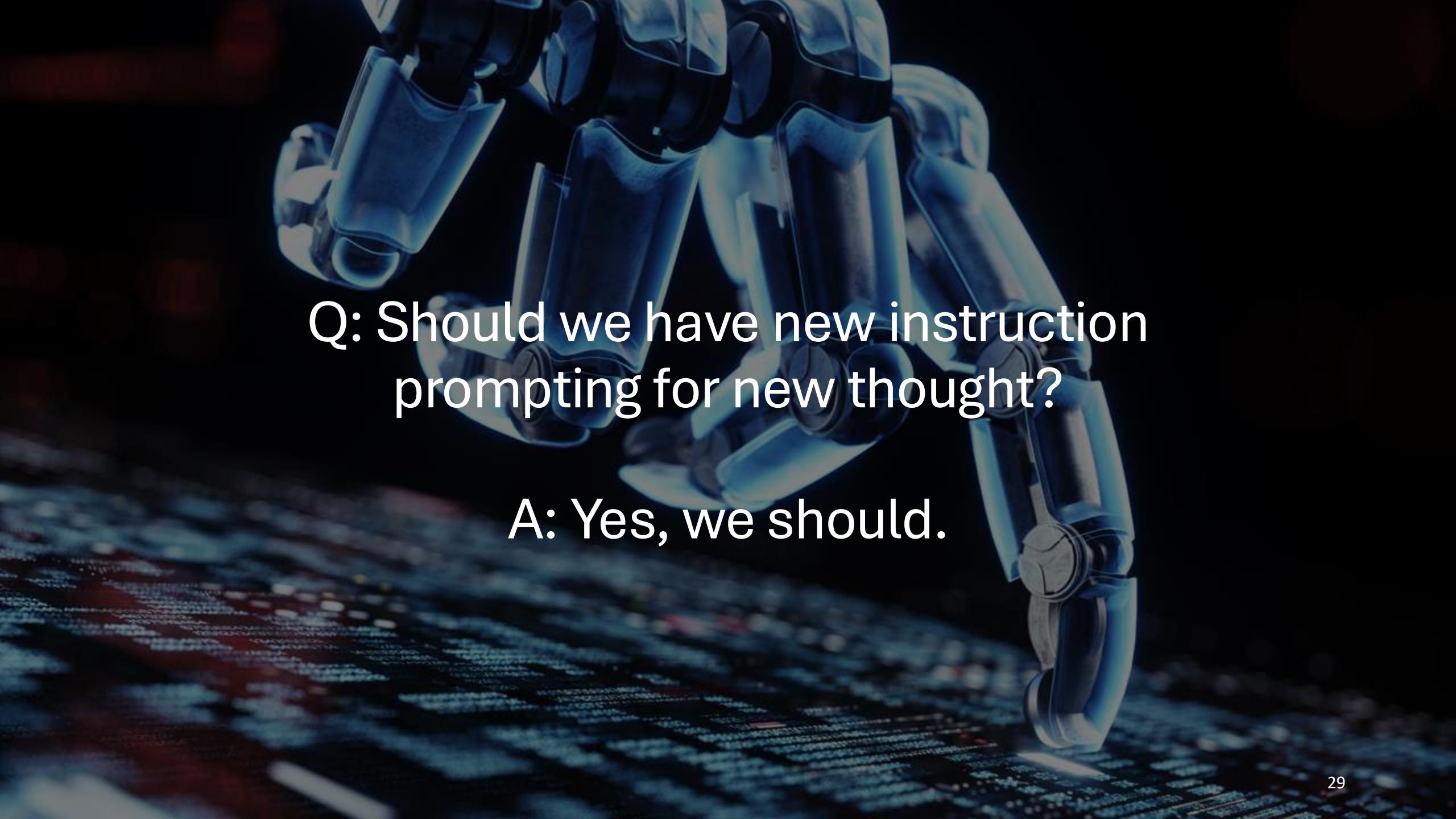
Q: Does ChatGPT has intent categorization?

A: No, it doesn't.



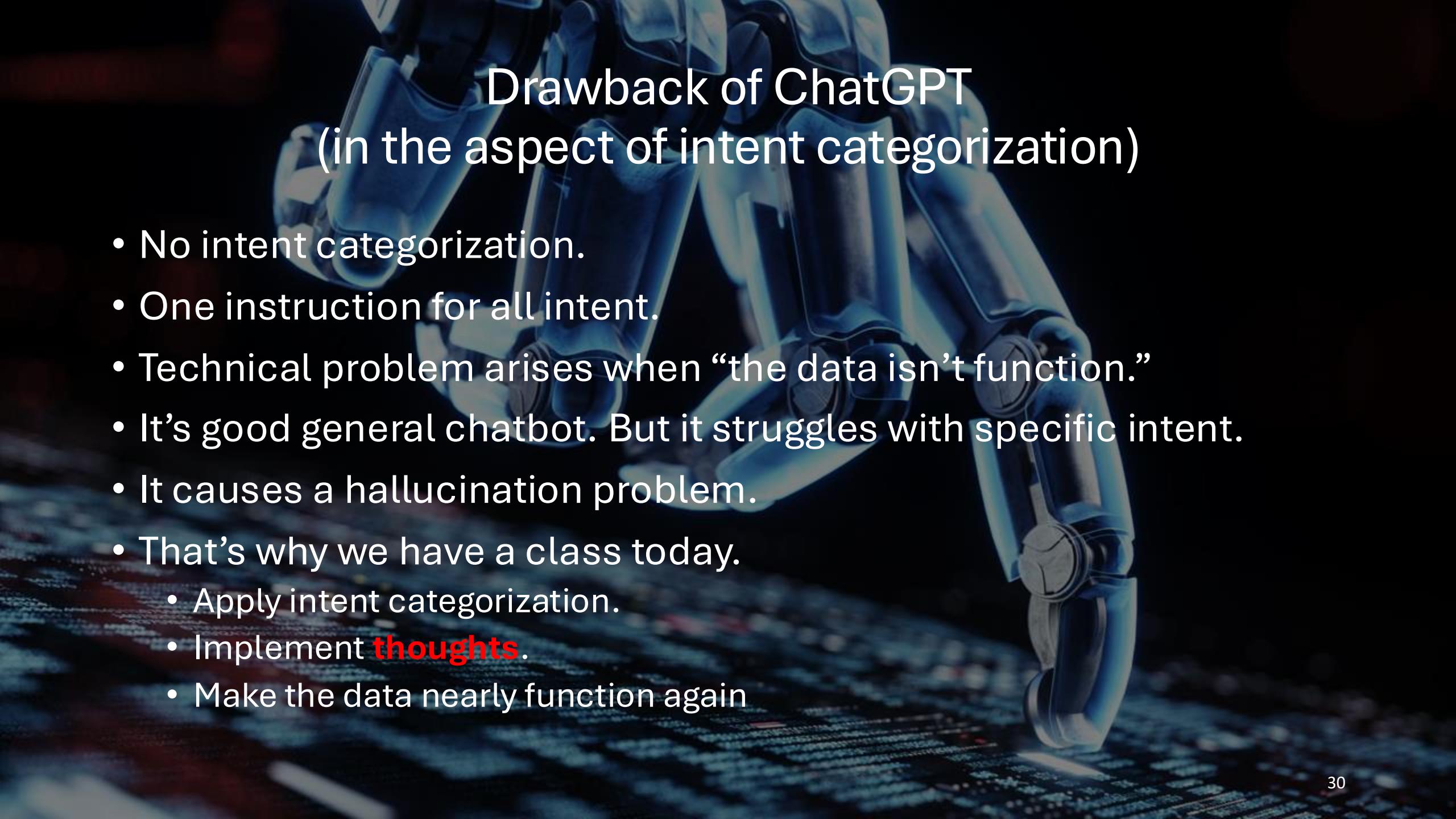
Q: Should we implement new AI chatbot to deal with new intent?

A: No, we shouldn't.  
We implement new thought.



Q: Should we have new instruction  
prompting for new thought?

A: Yes, we should.



# Drawback of ChatGPT (in the aspect of intent categorization)

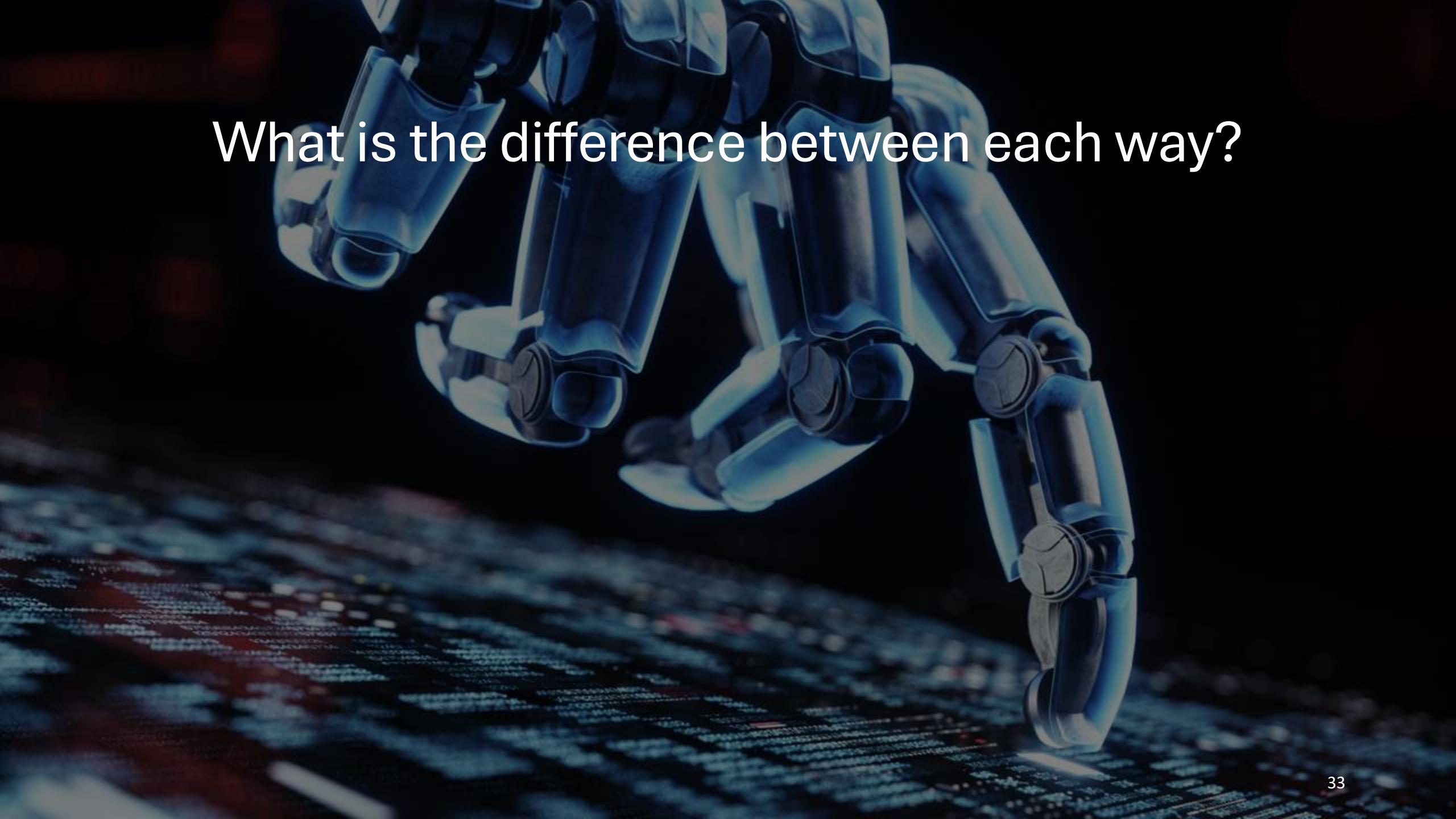
- No intent categorization.
- One instruction for all intent.
- Technical problem arises when “the data isn’t function.”
- It’s good general chatbot. But it struggles with specific intent.
- It causes a hallucination problem.
- That’s why we have a class today.
  - Apply intent categorization.
  - Implement **thoughts**.
  - Make the data nearly function again

# Way to implement intent categorization

- Supervised Learning
- Natural Language Understanding (NLU)
  - create intent categorizer with thought and apply instruction prompting
- LLM + RAG

# Way to implement intent categorization

- Intent\_Categorization\_NLU\_ChatGPT.ipynb
- Intent\_Categorization\_NLU\_Gemini.ipynb
- Intent\_Categorization\_NLU\_Claude.ipynb
- Intent\_Categorization\_RAG\_ChatGPT.ipynb
- Intent\_Categorization\_RAG\_Gemini.ipynb
- Intent\_Categorization\_RAG\_Claude.ipynb



What is the difference between each way?



Chain of thought

# Chain of thought

COT\_ChatGPT.ipynb

COT\_Gemini.ipynb

COT\_Claude.ipynb

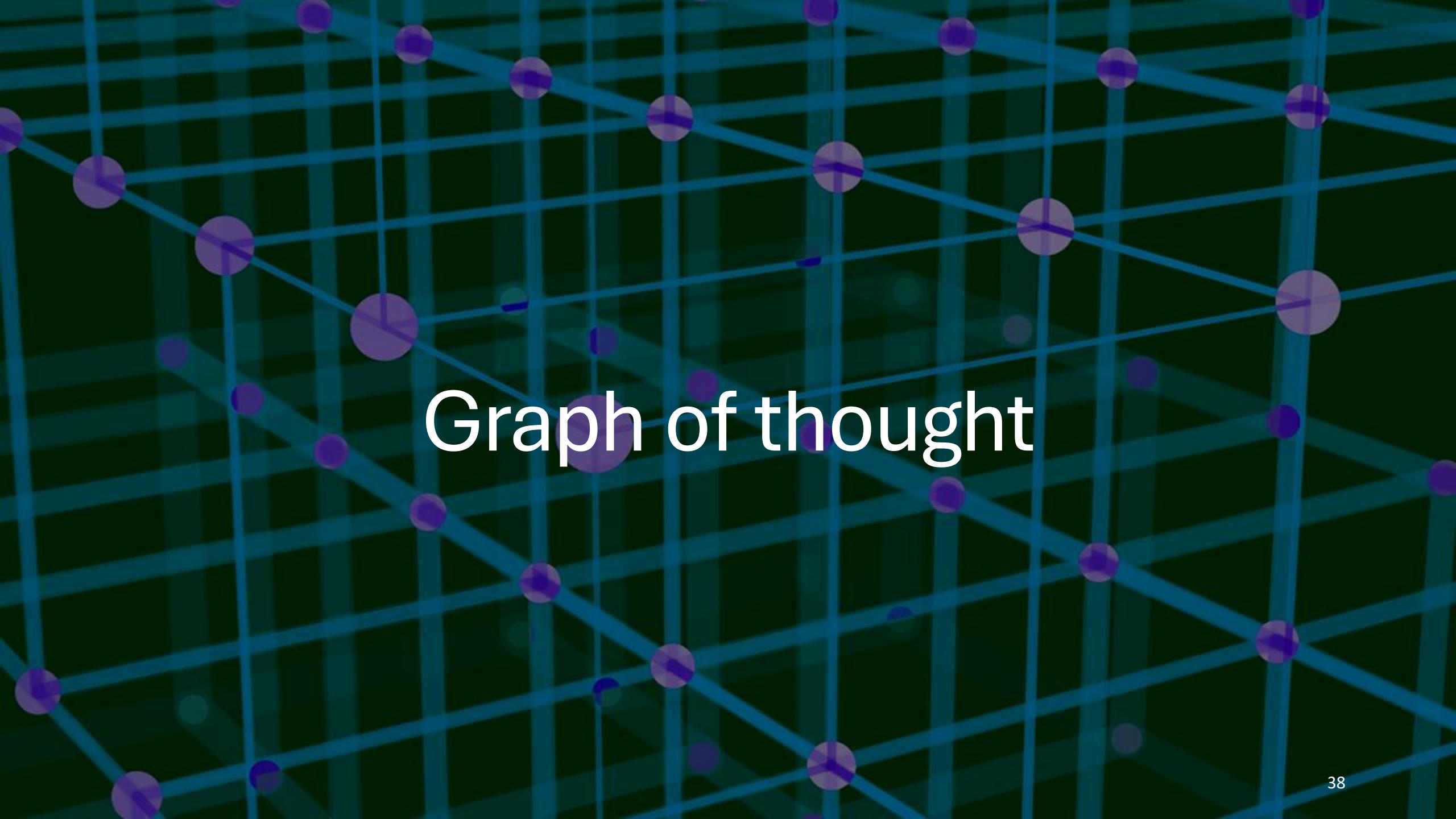


Tree of thought



# Tree of thought

TOT\_ChatGPT.ipynb  
TOT\_Gemini.ipynb  
TOT\_Claude.ipynb



Graph of thought



Reflection

# Reflection

Reflection\_ChatGPT.ipynb

Reflection\_Gemini.ipynb

Reflection\_Claude.ipynb

# Agentic workflow

# Agentic workflow

Agentic\_workflow\_ChatGPT.ipynb

Agentic\_workflow\_Gemini.ipynb

Agentic\_workflow\_Claude.ipynb



THANK YOU