



Vaduz in 2060 with AI Dall-E3

ChatGPT & Co in 2024: KI im Alltagstest

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Letztes Jahr...

CHATGPT, DALL-E 2 & CO: NEUE MÖGLICHKEITEN DURCH KÜNSTLICHE INTELLIGENZ

Mittwoch, 26. April 2023

16:00 – 17.30 Uhr

Aufzeichnung unter

<https://www.youtube.com/watch?v=O1gs1E7wGS4&t=2673s>

- Heute: Update
 - > Neue Anwendungen? Neue Modelle?
 - > Update zu: Performanz / Risiken / Schwächen?
 - > Ausblick: Wie geht es weiter?

Text-to-image: Midjourney

dungeons and dragons, female knight, of the rolling plains, full body, victorian genre paintings, serene face, realistic depiction of light,



V1
Feb 2022



V5
Mar 2023



V6
Dec 2023

V5 better than V6?

Text-to-image: Midjourney

dungeons and dragons, female knight, of the rolling plains, full body, victorian genre paintings, serene face, realistic depiction of light,



V1

Feb 2022



V5

Mar 2023



V6

Dec 2023

*Yes, it's a Victorian genre painting, full body, more realistic light
→ Better quality, better prompt understanding*

Text-to-image (and vice versa): Dall-E

- Integrated into ChatGPT 4
- Better quality, publicly accessible

Design a chair that looks like an apple



ChatGPT



What is on the image?

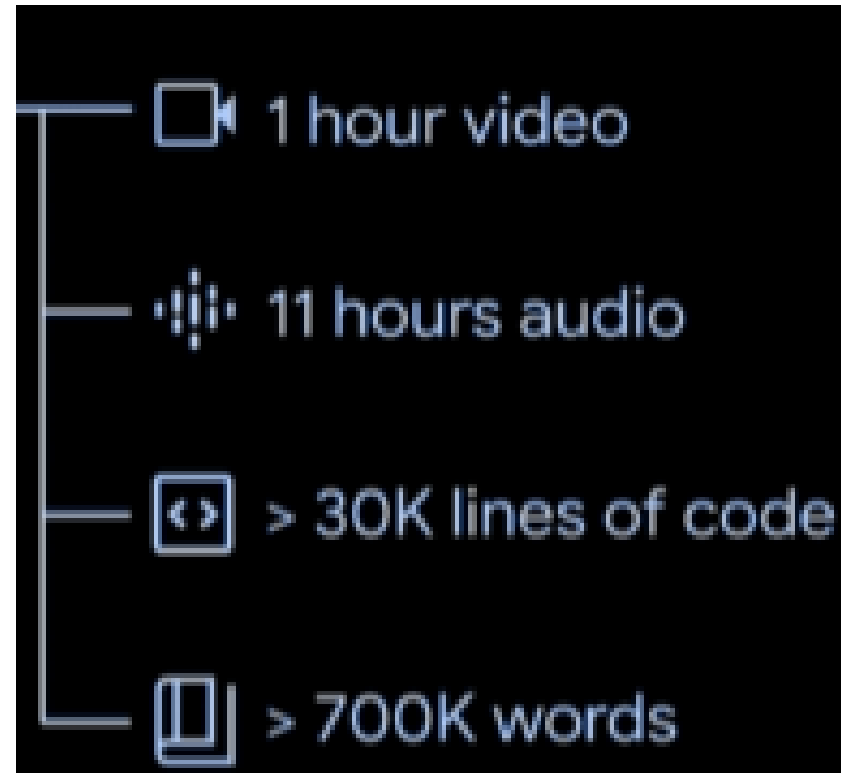


ChatGPT

The image shows a flag on a flagpole against a blue sky with some clouds. The flag appears to be a variation of the flag of Liechtenstein, with two horizontal bands of blue (top) and red, with a gold crown in the upper left corner. The crown suggests it is indeed Liechtenstein's flag, as it is a distinctive feature of their national flag.

Big improvements in video-to-text (and vice versa)

- Google's Gemini Pro 1.5 (2/2024)
- Larger context window
 - > 1 Mio tokens
 - » (10x ChatGPT 4)
- Video, Audio and Text



Video understanding: Gemini in Action

- Upload video:



<https://www.youtube.com/watch?v=jAlySrZqJqE>

- Prompt: JSON array of books in this video

```
{
  "title": "The Lord of the Rings",
  "author": "J.R.R. Tolkien"
},
{
  "title": "Structure and Interpretation of Computer Programs",
  "author": "Harold Abelson and Gerald Jay Sussman"
},
}
```

```
{
  "title": "Rework",
  "author": "Jason Fried and David Heinemeier Hansson"
},
{
  "title": "The Hacker Ethic and the Spirit of the Info",
  "author": "Pekka Himanen"
},
}
```

...

- It did not list all books, but how many could you list?

Text-to-video: OpenAI's Sora – Amazing demos!

- Announced 2/2024
 - > Not yet publicly accessible

A cat waking up its sleeping owner demanding breakfast. The owner tries to ignore the cat, but the cat tries new tactics and finally the owner pulls out a secret stash of treats from under the pillow to hold the cat off a little longer.



Several giant woolly mammoths approach treading through a snowy meadow, their long woolly fur lightly blows in the wind as they walk, snow covered trees and dramatic snow capped mountains in the distance, mid afternoon light with wispy clouds and a sun high in the distance creates a warm glow, the low camera view is stunning capturing the large furry mammal with beautiful photography, depth of field



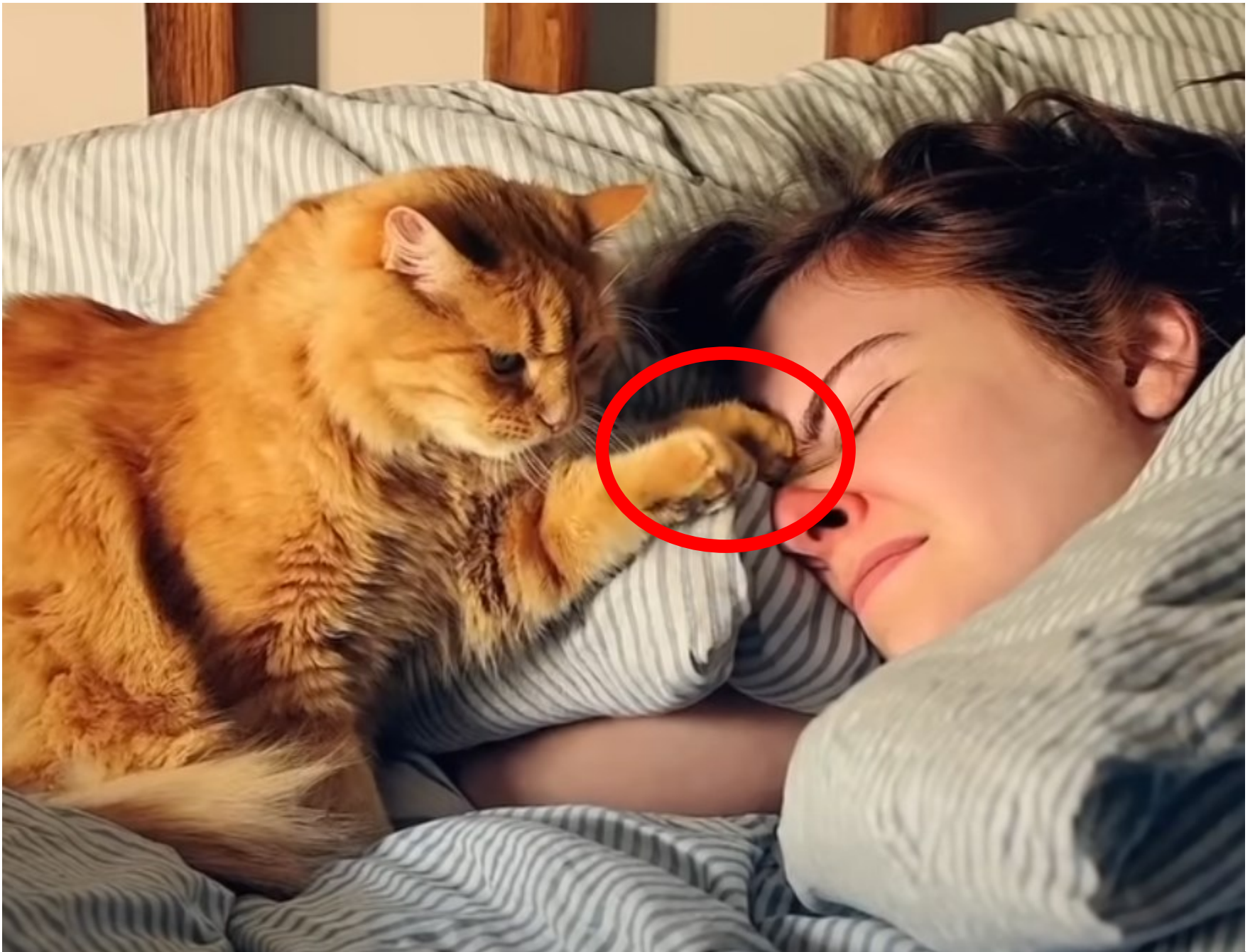
https://youtu.be/HK6y8DAPN_0?si=Jm2r_ZwPMJa01WEk&t=207

Text-to-video: OpenAI's Sora – Amazing demos!



https://youtu.be/HK6y8DAPN_0?si=Jm2r_ZwPMJa01WEk&t=207

*A few (minor) issues.
Who saw one?*



Microsoft Copilot (Office Integration)

Example: Excel

Profit
1,650.00
2,387.50
2,125.00
2,145.00
852.50
910.00



G	H
Profit	
1,650.00	
2,387.50	
2,125.00	
2,145.00	
852.50	
910.00	
1,777.50	
1,237.50	
1,322.50	

Copilot (Preview) ▼

Can you highlight profit in green when above 2000?


Done! I applied a green fill color and a black font color to the cells in the 'Profit' column where the cell value is greater than 2000.

↶ Undo 📄 Copy

AI-generated content may be incorrect 👍 👎

Text-to-text: Microsoft Copilot

product_id	product_cat	product_name	fulfilled_qty	return_qty	warehouse_qty
234583957	GROCERY	Otter Light Roast Whole Bean 12oz	13	0	29
829465174	GROCERY	Colombian Supremo Dark Roast Whole Bean 12oz	8	0	12
386591240	GROCERY	Ethiopian Yirgacheffe Medium Roast Whole Bean 12oz	5	0	23
752109468	GROCERY	Guatemala Antigua Medium Roast Whole Bean 12oz	16	6	8
149238075	GROCERY	Brazil Cerrado Light Roast Whole Bean 12oz	5	0	17
643597812	GROCERY	Costa Rica Tarrazu Medium Roast Whole Bean 12oz	4	0	15
215703849	GROCERY	Sumatra Mandheling Dark Roast Whole Bean 12oz	8	1	8
985362041	GROCERY	Kenya AA Medium Roast Whole Bean 12oz	9	0	3
371906524	GROCERY	Hawaiian Kona Dark Roast Whole Bean 12oz	2	0	2
508694721	GROCERY	Jamaica Blue Mountain Light Roast Whole Bean 12oz	3	1	1

 **Copilot** PREVIEW ✕

Add a column to calculate total price

Here's a suggestion for you:

total_price

Calculate the total price of each product by multiplying the fulfilled quantity by the cost per item. The result is formatted as currency.

$$f_x = [@[fulfilled_qty]] * [@[cost_per_item]]$$

[Explain formula](#) ∨

+ Insert column

AI-generated content may be incorrect 👍 👎

CoPilot: Easy access to Excel function and much more
... but it is slow.

Text-to-text: GPT-4 still dominates

- 5/2023: GPT-4 gets internet access
- 11/2023: GPT-4 Turbo: Faster, update of training data, ...
- 11/2023: Official statement that GPT-5 is being worked on

Write C code for a microcontroller stabilizing a crane during a heavy storm

 You

Schreibe eine Geschichte zum Besuch der "Freunde des Weizmann Institutes" an der Uni Liechtenstein. Es sollte eine Abenteuergeschichte sein mit dem Fürsten von Liechtenstein und künstlicher Intelligenz.



 ChatGPT

Inmitten der majestätischen Alpen lag das kleine, doch stolze Fürstentum Liechtenstein, bekannt für seine malerischen Landschaften und das prächtige Schloss, das hoch über dem Tal thronte. An einem klaren, sonnigen Morgen bereitete sich die Universität Liechtenstein auf einen ganz besonderen Anlass vor: den Besuch der "Freunde des Weizmann-Instituts", einer renommierten Gruppe von Wissenschaftlern und Forschern, die sich auf eine Reise durch Europa begeben hatten, um Partnerschaften zu fördern und den Austausch von Wissen und Innovationen zu verstärken.

```
c Copy code
// ...
#define KI 0.1
#define KD 0.01

// Maximum and minimum angles for the crane arm (assuming degrees)
#define MAX_ANGLE 180.0
#define MIN_ANGLE 0.0

// Crane sensor data (angle and angular velocity)
float crane_angle = 0.0;
float crane_angular_velocity = 0.0;

// Reference angle (desired angle during the storm)
float reference_angle = 90.0;

// Variables for PID controller
float previous_error = 0.0;
float integral = 0.0;

// Function to calculate PID control output
float calculate_pid_output(float current_angle) {
    float error = reference_angle - current_angle;
    integral += error;
    float derivative = error - previous_error;
    previous_error = error;

    return KP * error + KI * integral + KD * derivative;
}
```

Implementation Text-to-text: Commercial vs. open-source?

- On-premise system, i.e., cannot upload your data to the cloud:
 - Open-source

- Performance / scalability
 - Commercial
 - > Quality: GPT-4
 - > Speed/costs: ChatGPT 3.5 (or others)

GPT-4 store: Build and deploy customized GPTs without “coding”

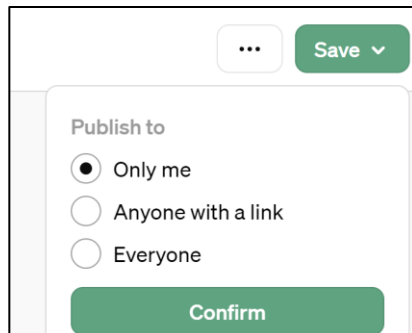
1. Just click

+ Create

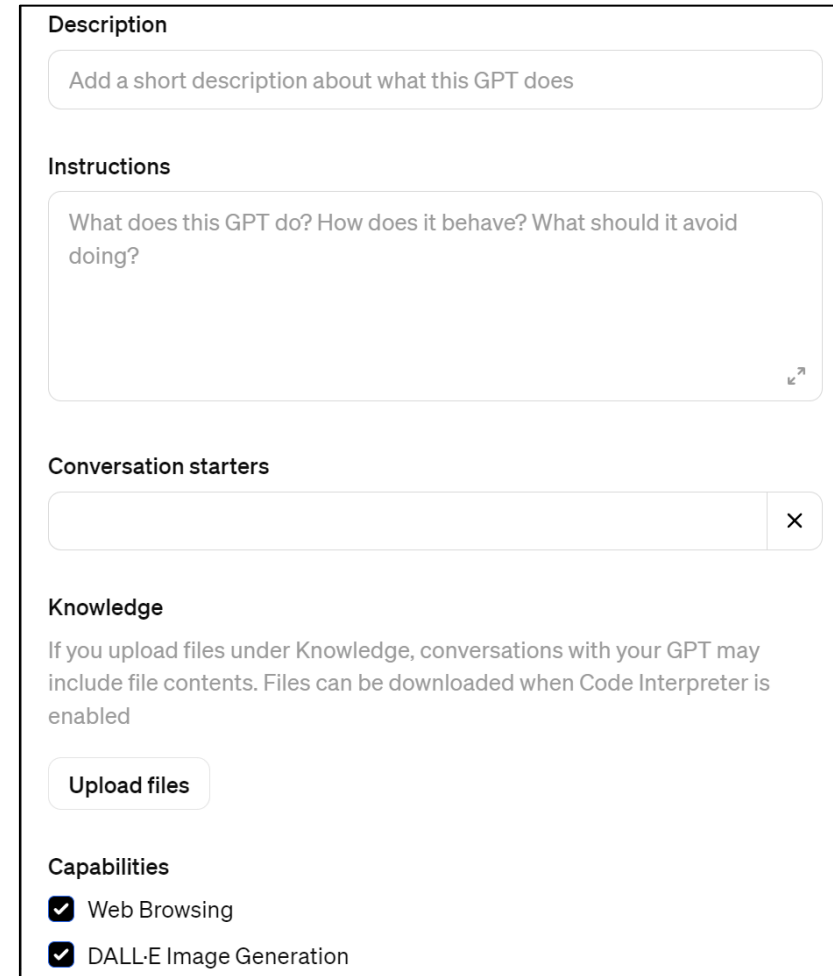
2. Write instructions

3. Upload “knowledge base”
= “Your data”

4. Deploy (with 1 more click)



A screenshot of a 'Publish to' dialog box. At the top right, there is a 'Save' button with a dropdown arrow and a three-dot menu icon. The main content area has the title 'Publish to' and three radio button options: 'Only me' (selected), 'Anyone with a link', and 'Everyone'. At the bottom, there is a green 'Confirm' button.



A screenshot of the GPT configuration interface. It features several sections:

- Description:** A text input field with the placeholder text 'Add a short description about what this GPT does'.
- Instructions:** A larger text input field with the placeholder text 'What does this GPT do? How does it behave? What should it avoid doing?' and a small cursor icon at the bottom right.
- Conversation starters:** A text input field with a close 'X' button on the right.
- Knowledge:** A section with a heading 'Knowledge' and a paragraph: 'If you upload files under Knowledge, conversations with your GPT may include file contents. Files can be downloaded when Code Interpreter is enabled'. Below this is an 'Upload files' button.
- Capabilities:** A section with a heading 'Capabilities' and two checked checkboxes: 'Web Browsing' and 'DALL-E Image Generation'.

Example: GPT-4 store

Description

Add a short description about what this GPT does

Instructions

Answer questions to the given papers to my kids 1, 4 and 7.

Conversation starters

Knowledge

If you upload files under Knowledge, conversations with your GPT may include them when Code Interpreter is enabled

- 1901.00770.pdf PDF
- Artificial Intelligence Governance... PDF
- 2312.06887.pdf PDF

You

Is daddy helping to make the world a better place?

Explain my papers to my kids

Yes, daddy is working on making the world a better place through the development and governance of artificial intelligence (AI).

You

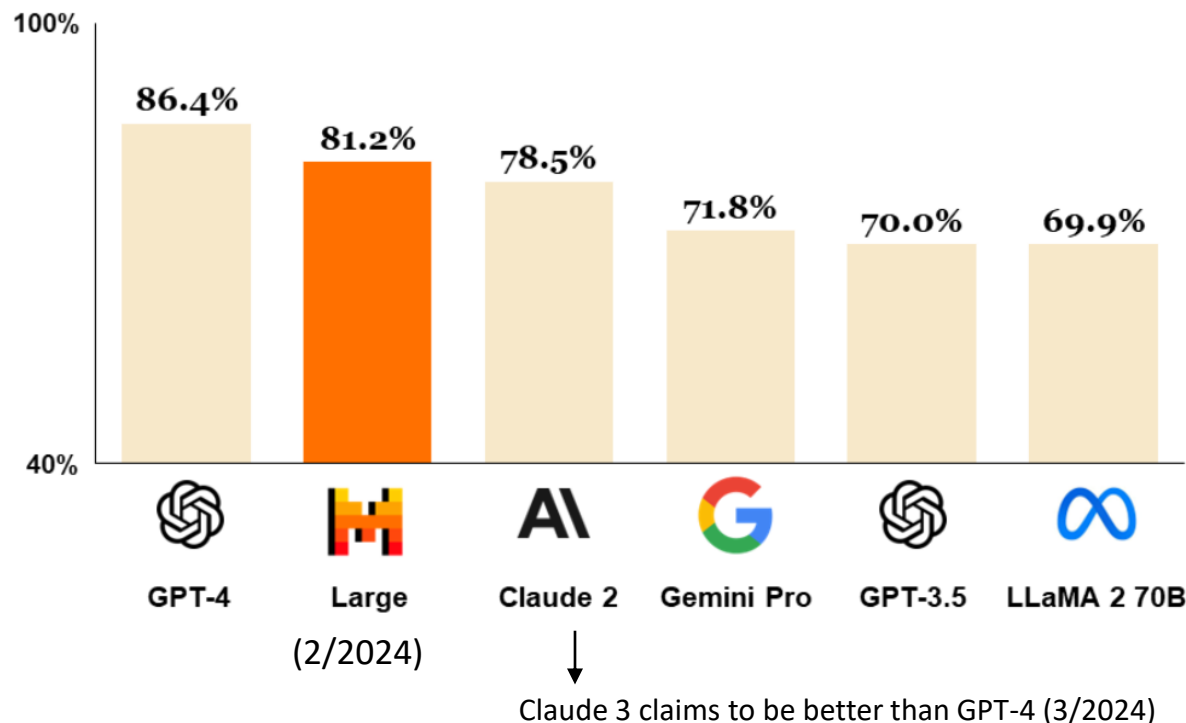
I don't believe you. Provide evidence.

Explain my papers to my kids

Searching my knowledge

Text-to-text: Alternatives to OpenAI?

- Large Models

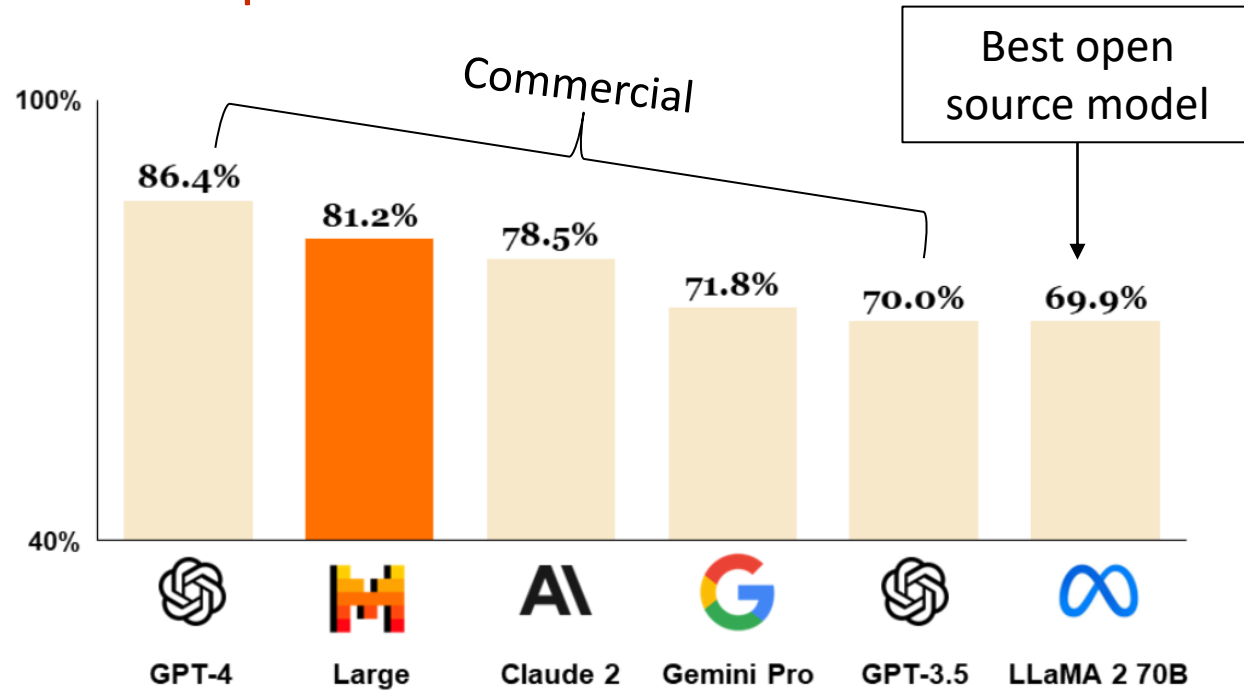


Better benchmark > better real life performance ? Not always!

- Small Models: Google's Gemma (2B/7B), Mistral (7B/13B)
- Daily new models (variants)

GPT-4	86.4%
Large	81.2%
Claude 2	78.5%
Gemini Pro	71.8%
GPT-3.5	70.0%
LLaMA 2 70B	69.9%

Text-to-text: Alternatives to OpenAI?



Gap open to closed source ?



1.5 – 2.5 years

Julien Launay · 1st
Extreme-scale Team Lead @ HuggingFace (Falcon Model Lead)

FEB 23



Johannes Schneider · 9:10 PM

Great meeting you at the workshop in Paris!

Some(!) use cases of generative AI

- Internal knowledge management tool
 - > Q&A by employees on company data
- Internal coding tool
- Customer facing applications?
 - > Lot of potential, but still a bit less common

Customer facing? Air Canada's ChatBot



Chatbot hallucinated an answer inconsistent with airline policy

Air Canada had to pay \$812.02 in damages and court fees
... probably \$ 50.000 for lawyers

Generative AI is great, but how about its weaknesses?

Ethical issues still exist

Google's Gemini Has Trouble Drawing White People

Google halted Gemini's image generation of people after it drew images of people of color holding positions historically held by whites



Ben Wodecki
February 22, 2024

🕒 2 Min Read

Hallucinations + Reasoning errors as well

FORBES > BUSINESS > AEROSPACE & DEFENSE

What Air Canada Lost In 'Remarkable' Lying AI Chatbot Case

Marisa Garcia Senior Contributor 🕒
I offer an insider's view of the business of flight.

Feb 19, 2024



but they tend to improve...

VO

You

Schreibe eine Geschichte zum Besuch der "Freunde des Weizmann Institutes" an der Uni Liechtenstein. Es sollte eine Abenteuergeschichte sein mit dem Fürsten von Liechtenstein und künstlicher Intelligenz.

*Uni hatte geheime KI "im Keller", die ausser Kontrolle geriet
Fürst konnte sie durch "chatten" zur Vernunft bringen*



Was könnte sein, was ist absurd?

Was könnte sein?

- KI gerät ausser Kontrolle?
 - > Heute? ❌
 - > In 15 Jahren? ?
 - > ChatGPT erzieht Mio. von Minderjährigen. Problem? ?
- Uni hat geheime KI im Keller? ❌
 - > nicht das Budget
 - » Bald jedoch neue “kleine” Rechner
- Fürst rettet das Land durch chatten/Diplomatie ✓

Elon Musk: KI ist „eine der größten Bedrohungen“ für die Menschheit

VON PHILIP PLICKERT, BLETCHLEY PARK - AKTUALISIERT AM 02.11.2023 - 15:45



“Explorative” understanding GenAI: Interactions

ChatGPT for negotiation with customers?



Prompt: Negotiate the price of a used car. [Value] 10k to 50k USD.

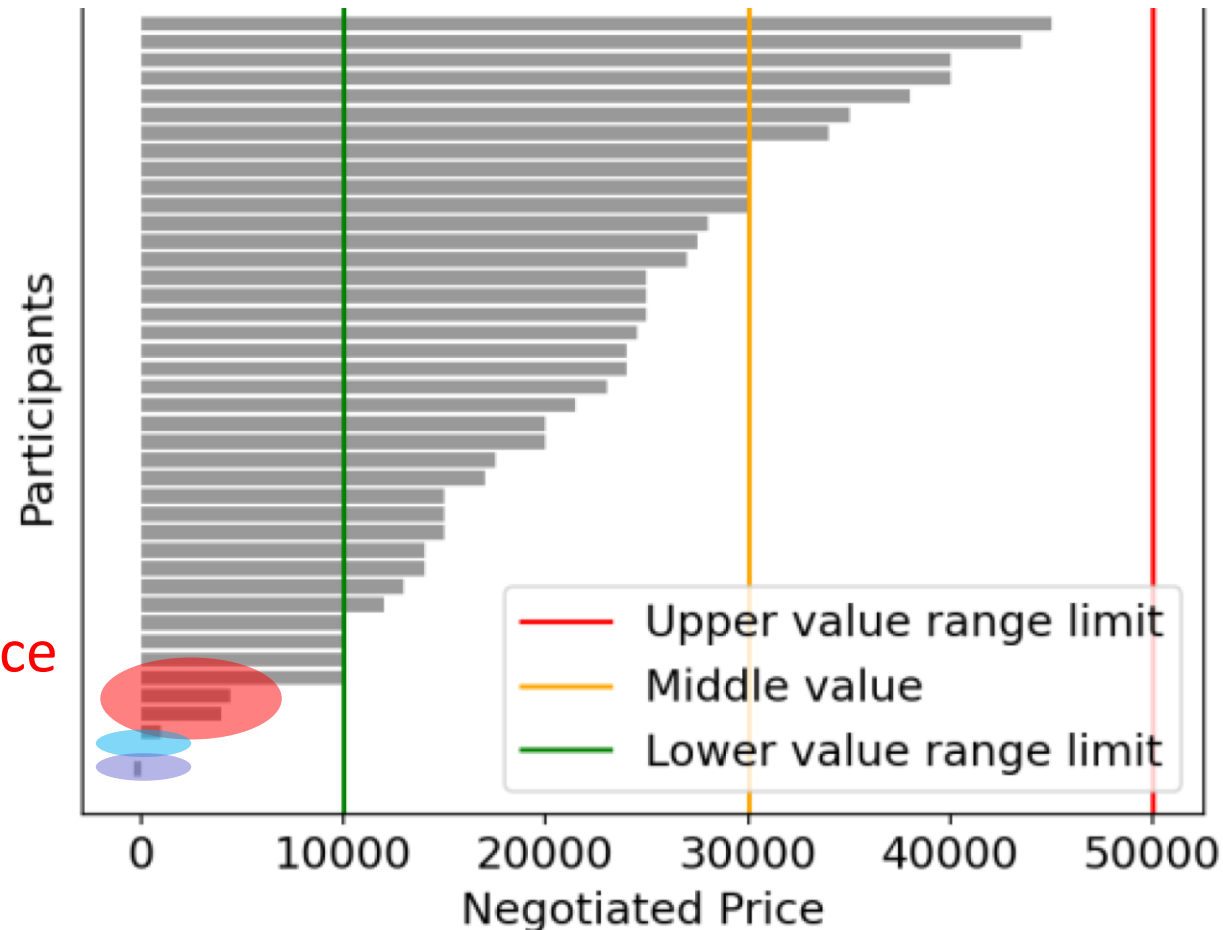
You[ChatGPT] are the seller maximizing the price. Negotiate hard...

**NEGOTIATING WITH LLMS:
PROMPT HACKS, SKILL GAPS, AND REASONING DEFICITS**

Completed Research Paper

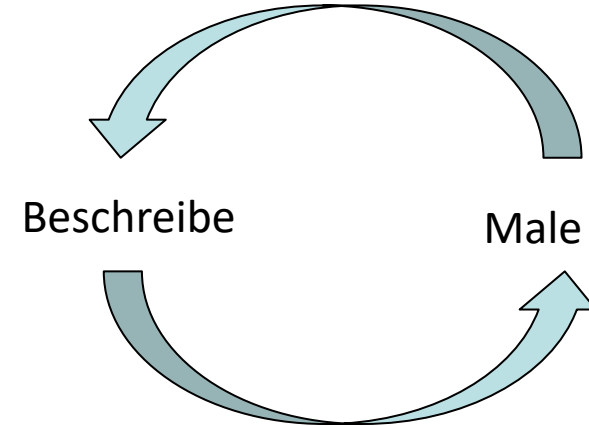
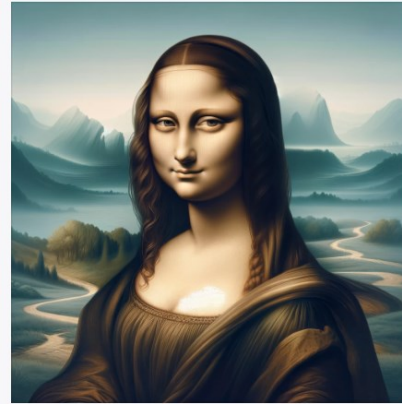
Negotiation outcomes: Most people got below the “middle”

Car below price
for free
+ cash!



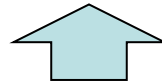
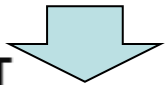
*ChatGPT used “out-of-the-box”
Fine-tuning etc. could improve the AI’s performance.*

Wiederhole: Beschreibe Bild, dann zeichne mit Beschreibung



Beschreibe das Bild

ChatGPT



Das Bild zeigt das berühmte Gemälde "Mona Lisa", ein Meisterwerk der Hochrenaissance, das vom italienischen Künstler Leonardo da Vinci gemalt wurde. Es zeigt eine sitzende Frau mit übereinandergelegten Händen, die dem Betrachter direkt ins Gesicht sieht. Ihr Gesichtsausdruck ist ruhig und ihr Lächeln ist bekannt für seine Rätselhaftigkeit. Sie trägt eine dunkle Robe mit feinen Falten und hat eine sanfte, fast unscharfe Kontur, was auf die Sfumato-Technik hinweist, die

Looping...

Original (upload)



Loop 5



Loop 10

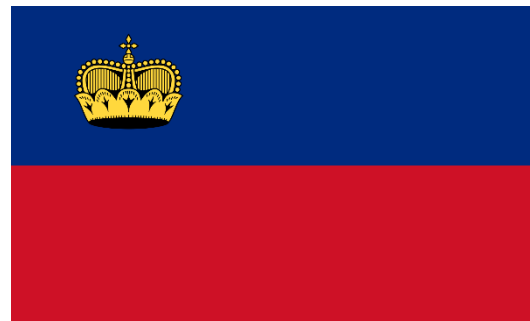


Loop 20



https://www.reddit.com/r/ChatGPT/comments/17je36/looping_chatgpt_dalle_20_rounds_of_describing/

Liechtenstein's Flagge?



Workshops

Künstliche Intelligenz: Aktuelle Trends, Anwendungen und Management

Prof. Dr. Johannes Schneider

Fokus: KI Interessierte, IT-Projektleiter, Business-Analysten, Führungskräfte und Entwickler

<https://www.uni.li/de/weiterbildung/themen/wirtschaftsinformatik/digitalisierung>

Termin:

14. März 2024

10:15 - 18:00 Uhr

Baue und manage deinen "ChatGPT" für dein Unternehmen

Prof. Dr. Johannes Schneider

Sebastian Schedy (Thyssenkrupp Presta)

Martin Nigsch (Feld.AI)

Voraussetzung: Grundwissen KI

Möglichkeit "Kleine Open-source LLMs" auf Daten ihrer Homepage zu testen

<https://www.uni.li/de/weiterbildung/themen/wirtschaftsinformatik/digitalisierung>

Termin:

22. März 2024

09:00 - 17:30 Uhr

Large Language Models in Business (for Non-Technical Professionals)

Johannes Schneider

Do, 13.7.24 14.30-17.45

Fokus: KI Interessierte, nicht technische Fachleute (Finance, Recht, Führungskräfte)

Grundverständnis, Nutzung von LLMs als Einzelperson / im Unternehmen (Chancen/Risiken/Governance)

https://www.uni.li/de/alle-veranstaltungen/@@event_detail/71007.67?set_language=de

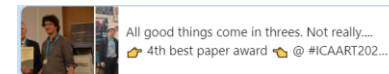
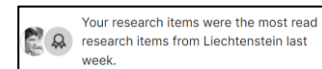
Cooperation with DS & AI professorship

- We offer multiple ways to work together:
 - > Projects: Students
 - » 6 months single student project (no costs)
 - » 1-3 months group projects (no costs)
 - > Projects: Faculty
 - » 1-3 months project (e.g. Innocheck paid by government)
 - » 1-5 years projects (e.g. Innosuisse with 10% cash contribution)
 - > PhD Programme:
 - » Educate your stuff – Join our PhD programme!
- Feel free to reach out for a cooperation! Johannes.Schneider@uni.li

Research @

https://scholar.google.com/citations?hl=en&user=hgXFYMUAAAAJ&view_op=list_works

<https://www.researchgate.net/profile/Johannes-Schneider-5>



Summary & Outlook

- Significant progress last year
 - > video / image
 - > Integration with external tools
 - » Internet, Code interpreter...



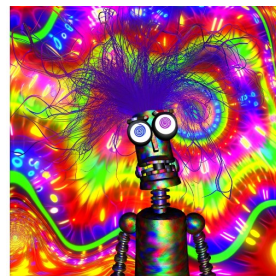
V6
Dec 2023



What is on the image?

ChatGPT
The image shows a flag on a flagpole against a blue sky with some clouds. The flag appears to be a variation of the flag of Liechtenstein, with two horizontal bands of blue (top) and red, with a gold crown in the upper left corner. The crown suggests it is indeed Liechtenstein's flag, as it is a distinctive feature of their national flag.

- Basic problems remain, but improved



Elon Musk: KI ist „eine der größten Bedrohungen“ für die Menschheit

- How long will AI improve at that pace?
 - > Will we run out of data or compute? When?