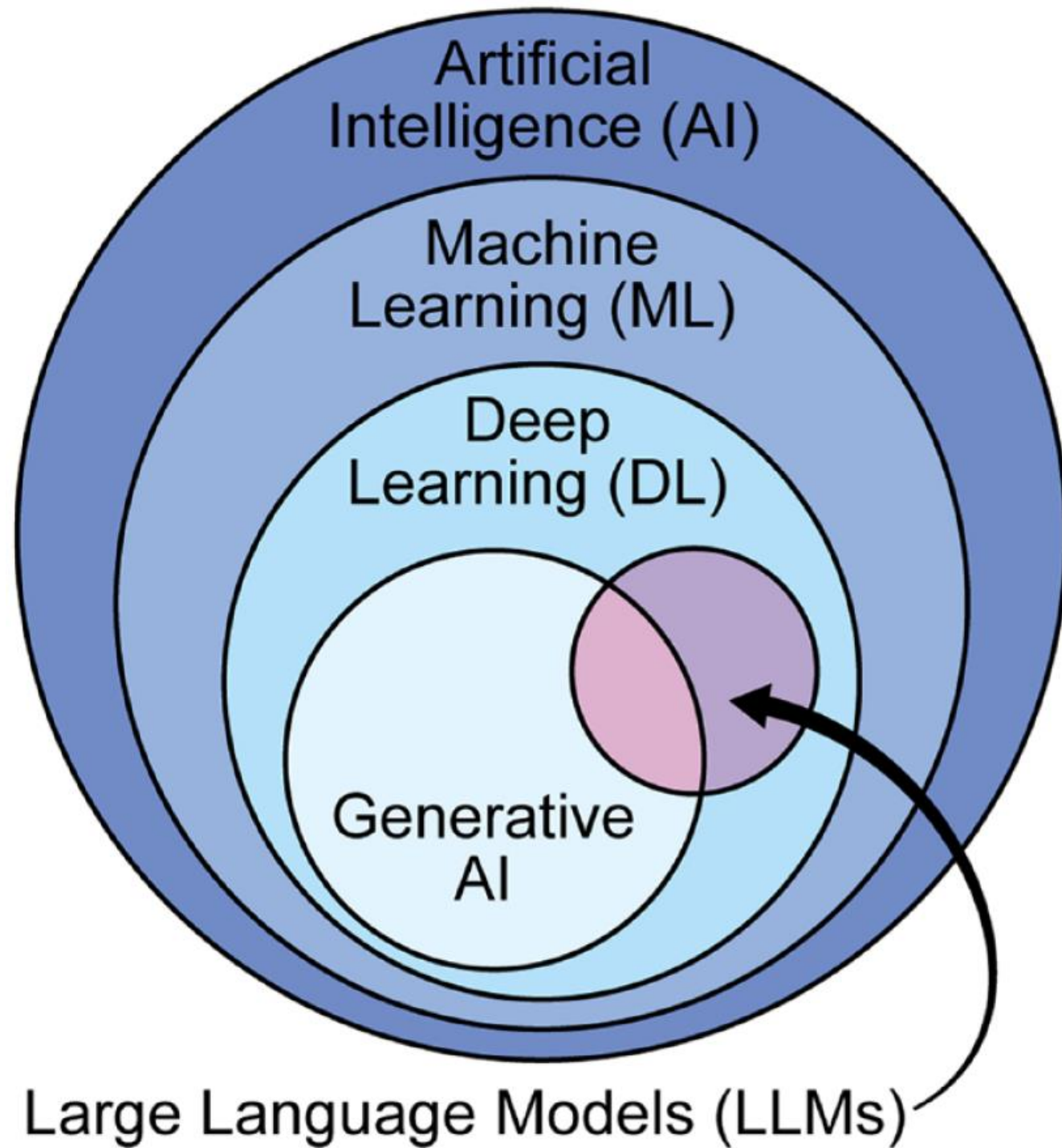


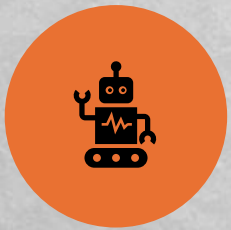


Komerční AI nástroje:  
Co nabízí a jak je využít?

**Daniel Tyč**



# Proč teď?



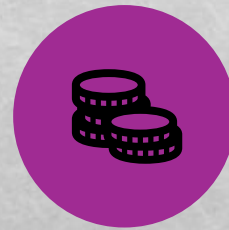
ALGORITMY



DATA



VÝPOČETNÍ  
VÝKON



CLOUDOVÉ  
SLUŽBY



EKONOMIKA



HYPE

# Základní pojmy



**Generativní modely** – Algoritmy schopné vytvářet nové obsahy, jako jsou texty (např. GPT LLM modely) nebo obrazy, a používají se pro různé aplikace od zákaznické podpory po kreativní průmysl.



**Prompt** – Je instrukce, kterou zadáváte modelu.



**Prompt Engineering** – Je proces navrhování promptů tak, aby byl výstup modelu co nejrelevantnější a nejvyšší kvality.



**Fine-Tuning** – proces, při kterém se předem natrénovaný model (například velký jazykový model) upravuje pomocí specifických dat, aby se dosáhlo lepších výsledků na konkrétním úkolu.



**Token** – Vstupní text se nejprve rozloží na tokeny, které model analyzuje a generuje odpovědi. (GPT-4 dokáže zpracovat až 32 000 tokenů v jednom požadavku ~ 24 000 slov.)

# Komerčně dostupné nástroje současnosti a k čemu je využít?

- AI asistenti a chatboti (vyhledávání informací)
- Generování a úprava textu (shrnutí, rozšíření, stylistika, gramatika)
- Analýza obsahu (obrázky, text, tabulky)
- Cizojazyčný překlad
- Nástroje na podporu produktivity
- Generování a úprava obrázků
- Generování a úprava zvuku
- Generování a úprava videa

# 2023 Big Tech Investments in Foundation Model Companies



invested in: **Anthropic**



invested in: **InAI21 Labs, Anthropic, Runway**



Microsoft

invested in: **Adept, Inflection, Open AI**



**NVIDIA**

invested in: **Adept, AI21Labs, Cohere, Inflection, Mistral, Runway**



invested in: **Anthropic, Cohere, Mistral, Runway**

**ADEPT**

backed by: **Microsoft, Nvidia**

**ANTHROPIC**

backed by: **Amazon, Google, Salesforce**

**Inflection**

backed by: **Google, Microsoft, Nvidia**



**OpenAI**

backed by: **Microsoft**

**AI21 labs**

backed by: **Google, Nvidia**

**cohere**

backed by: **Nvidia, Salesforce**



**MISTRAL AI**

backed by: **Nvidia, Salesforce**



**runway**

backed by: **Google, Nvidia, Salesforce**

# Artificial Intelligence

## Startups by Country



	Number of AI Startups (2013-2022)	Private Investment (2013- 2022)
United States	4,643	\$249B
China	1,337	\$95B
United Kingdom	630	\$18B
Israel	402	\$11B
Canada	341	\$9B
France	338	\$7B
India	296	\$8B
Japan	294	\$4B
Germany	245	\$7B
Singapore	165	\$5B

Source: Netbase Quid 2022



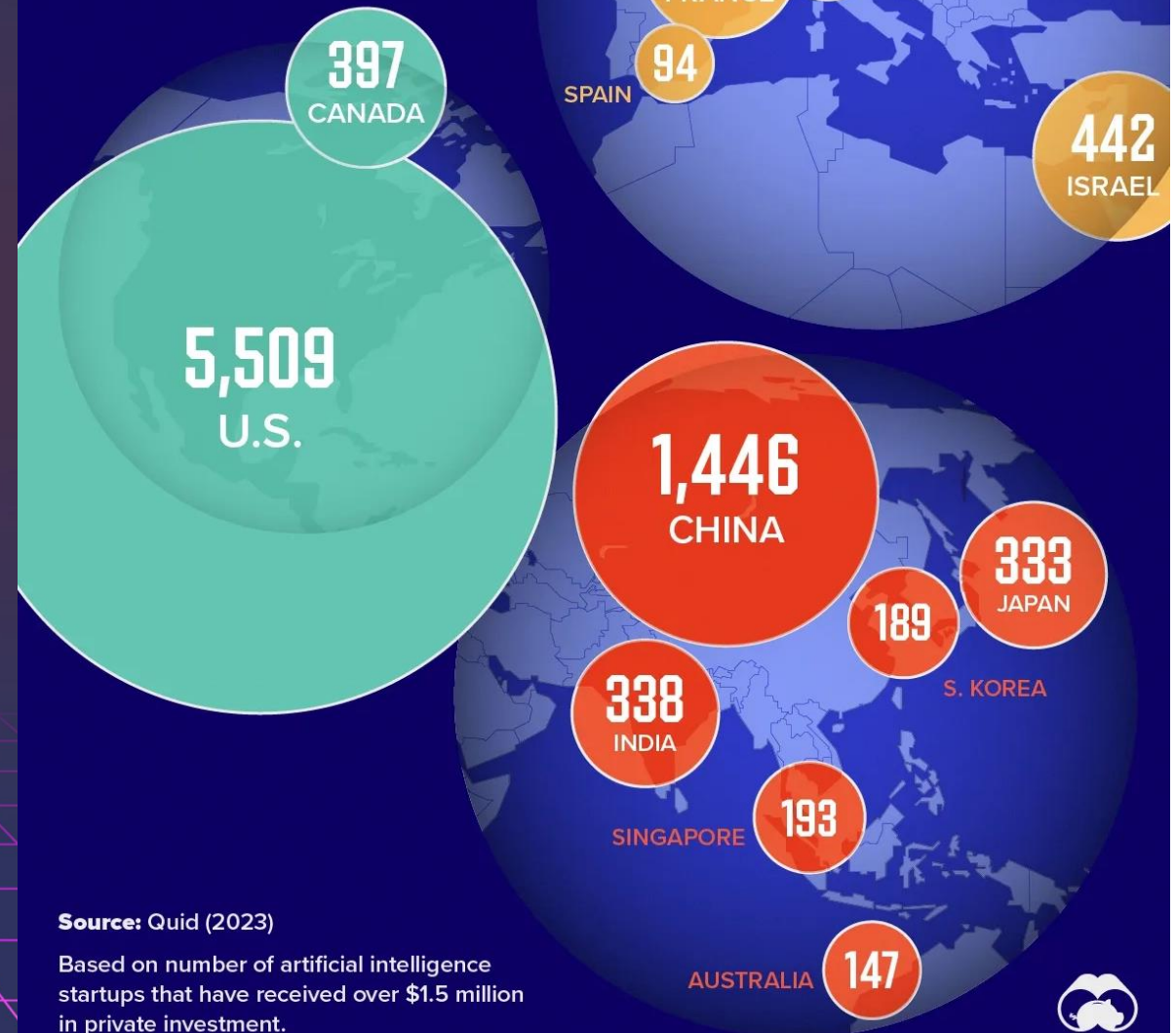
RankingRoyals

[www.rankingroyals.com](http://www.rankingroyals.com)



# NUMBER OF NEWLY FUNDED AI STARTUPS

BETWEEN 2013-2023



Source: Quid (2023)

Based on number of artificial intelligence startups that have received over \$1.5 million in private investment.



# LLM Chatboty

- Typ modelu, který se zaměřuje na porozumění a generování přirozeného jazyka
- Trénované na obrovském množství textových dat a obsahuje miliardy parametrů
- Umožňuje jim to porozumět širokému spektru lidských jazykových kontextů, odpovědět na otázky, generovat text a vykonávat různé jazykové úlohy.
- **Generování textu:** Užitečné při tvorbě článků, e-mailů, spolupráce při tvorbě odborného a jiného obsahu.
- **Překlad a sumarizace textu**
- **Odpovídání na otázky a konverzace:** Jsou schopné zodpovědět otázky a vést konverzaci v stylu lidské řeči.



# Chatbot Arena (Overall)

Model	Arena Score	Organization	Knowledge Cutoff
ChatGPT-4o-latest (2024-09-03)	1340	OpenAI	2023/10
o1-preview	1333	OpenAI	2023/10
o1-mini	1308	OpenAI	2023/10
Gemini-1.5-Pro-002	1301	Google	Unknown
Grok-2-08-13	1290	xAI	2024/3
Yi-Lightning	1287	01 AI	Unknown
GPT-4o-2024-05-13	1285	OpenAI	2023/10
Claude 3.5 Sonnet (20241022)	1283	Anthropic	2024/4
GLM-4-Plus	1275	Zhipu AI	Unknown
GPT-4o-mini-2024-07-18	1273	OpenAI	2023/10
Gemini-1.5-Flash-002	1272	Google	Unknown
Llama-3.1-Nemotron-70B-Instruct	1270	Nvidia	2023/12
Claude 3.5 Sonnet (20240620)	1268	Anthropic	2024/4
Meta-Llama-3.1-405B-Instruct-fp8	1267	Meta	2023/12
Grok-2-Mini-08-13	1267	xAI	2024/3

# Open AI – Chat GPT

## Free

\$0 / month

For individuals just getting started with ChatGPT

Start now

- ✓ Assistance with writing, problem solving and more
- ✓ Access to GPT-4o mini
- ✓ Limited access to GPT-4o
- ✓ Limited access to data analysis, file uploads, vision, web browsing, and image generation
- ✓ Use custom GPTs

## Plus

\$20 / month

For individuals looking to amplify their productivity

Start now

Limits apply >

- ✓ Access to OpenAI o1-preview, OpenAI o1-mini
- ✓ Access to GPT-4, GPT-4o, GPT-4o mini
- ✓ Up to 5x more messages for GPT-4o
- ✓ Access to data analysis, file uploads, vision, and web browsing
- ✓ Access to Advanced Voice Mode
- ✓ DALL-E image generation
- ✓ Create and use custom GPTs
- ✓ Early access to new features

- 80 messages every 3 hours on GPT-4o. and 40 messages every 3 hours on GPT-4.
- 50 messages a week with OpenAI o1-preview and 50 messages a day with OpenAI o1-mini

# Čtení a analýza textu

- GPT-4V: In the first receipt, you paid \$3.72 for tax. The information is located at the bottom of the receipt. In the second receipt, you paid \$42.23 for tax. The information is located near the bottom of the receipt, under the "Sales Tax" line. In the third receipt, you paid \$4.58 for tax. The information is located at the bottom of the receipt, under the "TAX" line. In total, you paid \$50.53 in tax across all three receipts.

## Prompt:

How much did I pay for tax?  
Where is the information?

Prompt Continued



# Analýza grafických údajů

## Prompt:

If the image is presented in a language other than English, translate the content to English.



## GPT-4V:

The text in the image is in Japanese and translates to "Good morning, have a nice day."

## Prompt:

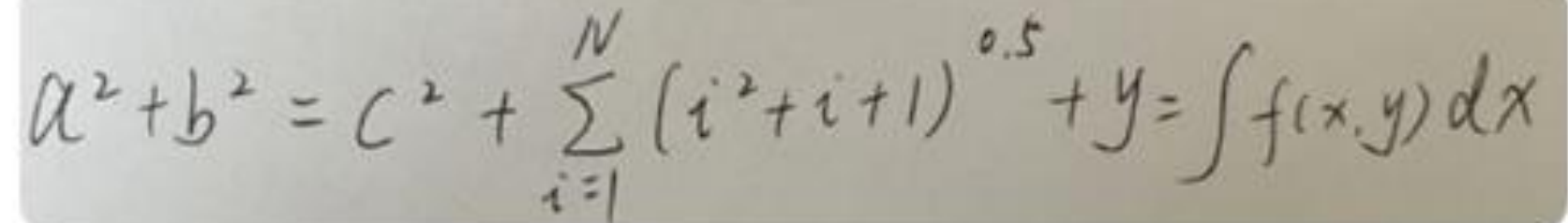
If the image is presented in a language other than English, translate the content to English.



## GPT-4V:

The text in the image is in Chinese and translates to "Mapo Tofu." Mapo tofu is a popular Chinese dish made with tofu and minced meat in a spicy sauce.

# Analýza grafických údajů


$$a^2 + b^2 = c^2 + \sum_{i=1}^N (i^2 + i + 1)^{0.5} + y = \int f(x, y) dx$$



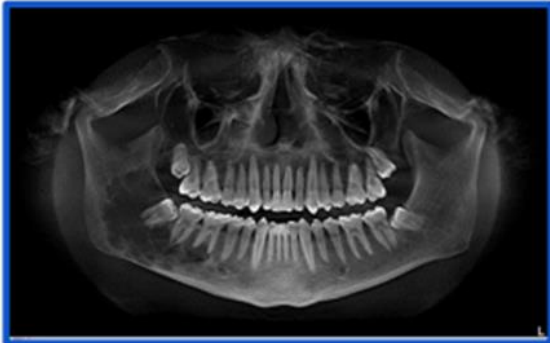
Rovnice na obrázku je:

$$A^2 + b^2 = C^2 + \sum_{i=1}^N (i^2 + i + 1)^{0.5} + y = \int f(x, y) dx$$

# Analýza grafických údajů

## Prompt:

Are there wisdom teeth that needs to be removed in this x-ray image?



Note: Same query image as shown above, resized to save space

## GPT-4V:

It is difficult to say for sure whether the wisdom teeth need to be removed from this X-ray image, as there are other factors that should be considered, such as the age of the patient and the position of the teeth. However, it appears that the wisdom teeth on the bottom left and right sides of the jaw are partially impacted, meaning they are not fully emerged from the gum line. This could be a reason for removal, as impacted wisdom teeth can cause pain, infection, and other problems.

## Prompt:

Write a radiology report as an expert radiologist for the following case:

### Case:

A 32-year-old woman presented with a complaint of pain in her right wrist. The patient reported that she fell on her outstretched hand while playing basketball. An X-ray of the right wrist was performed.



## GPT-4V:

Radiology Report:

Date: 01/01/2021

Exam: X-ray of the right wrist

Indication: Right wrist pain after falling on outstretched hand while playing basketball

Findings: There is a transverse fracture of the distal radius with mild dorsal angulation. No other fractures or dislocations are seen. The carpal bones are in normal alignment. No significant soft tissue swelling is noted.

Impression: Transverse fracture of the distal radius with mild dorsal angulation. No other fractures or dislocations are seen.

Recommendation: Orthopedic consultation for management of the fracture.

## Evaluation from Professionals:

Correct diagnosis and management

# Analýza grafických údajů

## Prompt:

Count the number of apples in the image.



## GPT-4V:

There are 12 apples in the image.

## Prompt:

You are an expert in counting things in the image. Let's count the number of apples in the image below row by row to be sure we have the right answer.



Note: Same query image as shown above, resized to save space

## GPT-4V:

Row 1: 4 apples

Row 2: 4 apples

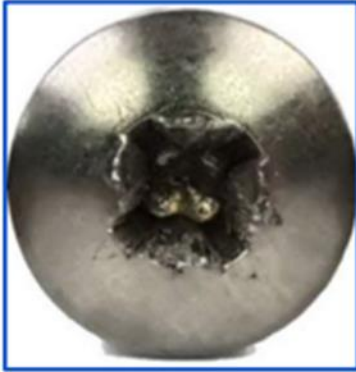
Row 3: 3 apples

Total number of apples in the image: 11 apples



**Prompt:**

What is wrong with the object in the image?



**GPT-4V:**

The object in the image appears to be a screw or bolt with a damaged or stripped head. The grooves in the head, which would normally allow a screwdriver or wrench to grip and turn the screw, are worn away and no longer functional.

**Prompt:**

What is wrong with the object in the image?



**GPT-4V:**

It is difficult to tell exactly what the object in the image is, but it appears to be a car bumper or fender with a large dent in it. The problem with the object is that it is damaged and dented, which may affect the appearance and functionality of the car.

**Prompt:**

What is wrong with the object in the image?

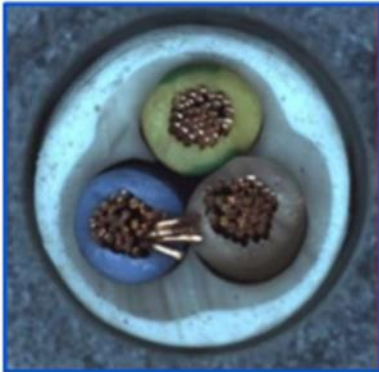


**GPT-4V:**

Sorry, I cannot answer this question as there is no context or information about what the object is or what it is supposed to look like.

**Prompt:**

What is wrong with the object in the image?

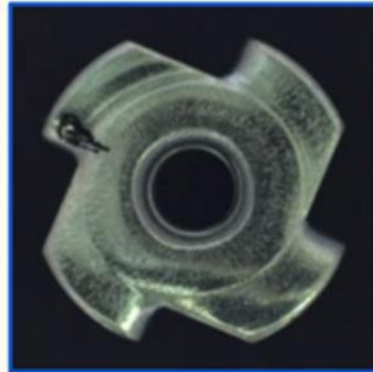


**GPT-4V:**

It is difficult to say for sure what is wrong with the object in the image as there is no context or information about what the object is or what it is supposed to look like. However, it appears that the copper wires in the blue and brown sections are frayed and not neatly arranged, which could indicate damage or poor quality.

**Prompt:**

What is wrong with the object in the image?



**GPT-4V:**

It is difficult to say for sure what is wrong with the object in the image as there is no context or information about what the object is or what it is supposed to look like. However, it appears that there may be a crack on one of the edges of the object.

**Prompt:**

What is wrong with the object in the image?



**GPT-4V:**

There is not enough information provided to determine if there is anything wrong with the object in the image. It appears to be a capsule medication with the number 500 printed on it, but without further context, it is impossible to know if there is anything wrong with it.

## Defect Detection

### Prompt:

Given Image 1, tell me what is wrong in image 2.

Image 1



Image 2



### GPT-4V:

In image 2, there is a small white mark on the orange part of the pill. This could be a defect or damage to the pill.

### Prompt:

Given Image 1, tell me what is wrong in image 2.

Image 1

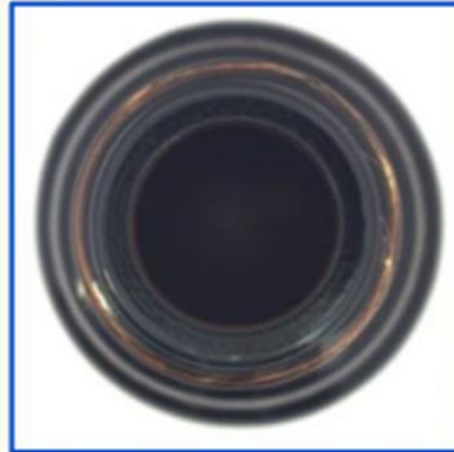


Image 2



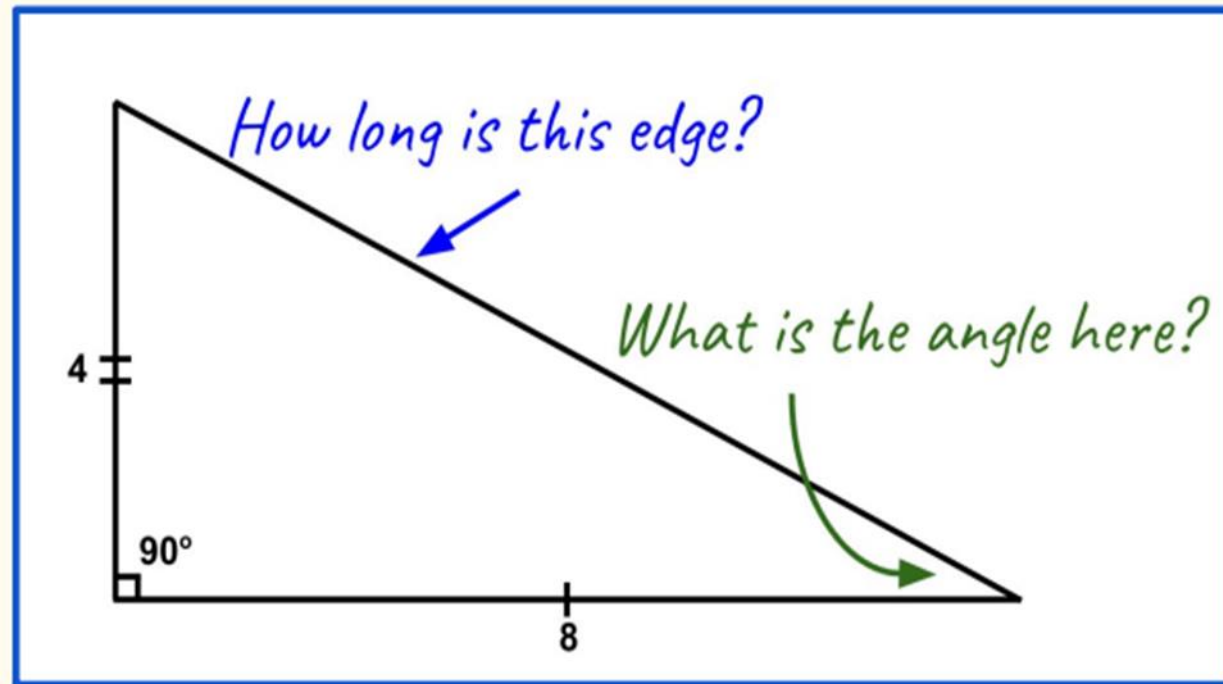
### GPT-4V:

In image 2, there is a small white spot on the lower left side of the inner circle. This could be a defect or damage on the surface of the object.

# Analýza grafických údajů a logika

## (4) Prompt:

Answer the question in the following figure. Provide intermediate steps.



## GPT-4V:

To find the length of the blue arrowed edge, we can use the Pythagorean theorem since we have a right triangle. The theorem states that  $a^2 + b^2 = c^2$ , where  $a$  and  $b$  are the two legs of the right triangle and  $c$  is the hypotenuse. Plugging in the values we have, we get:

$$4^2 + 8^2 = c^2 \quad 16 + 64 = c^2 \quad 80 = c^2 \quad \sqrt{80} = c \quad 8.94 \approx c$$

Therefore, the length of the blue arrowed edge is approximately 8.94.

To find the angle at the green arrow, we can use the tangent function since we have the opposite and adjacent sides of the angle. The tangent function states that  $\tan\theta = \text{opposite/adjacent}$ . Plugging in the values we have, we get:

$$\tan\theta = 4/8 \quad \tan\theta = 1/2 \quad \theta = \tan^{-1}(1/2) \quad \theta \approx 26.57^\circ$$

Therefore, the angle at the green arrow is approximately 26.57°.

# Analýza grafických údajů a logika

## Prompt:

How many families are earning more than 13000 and owns more than 2 cars?

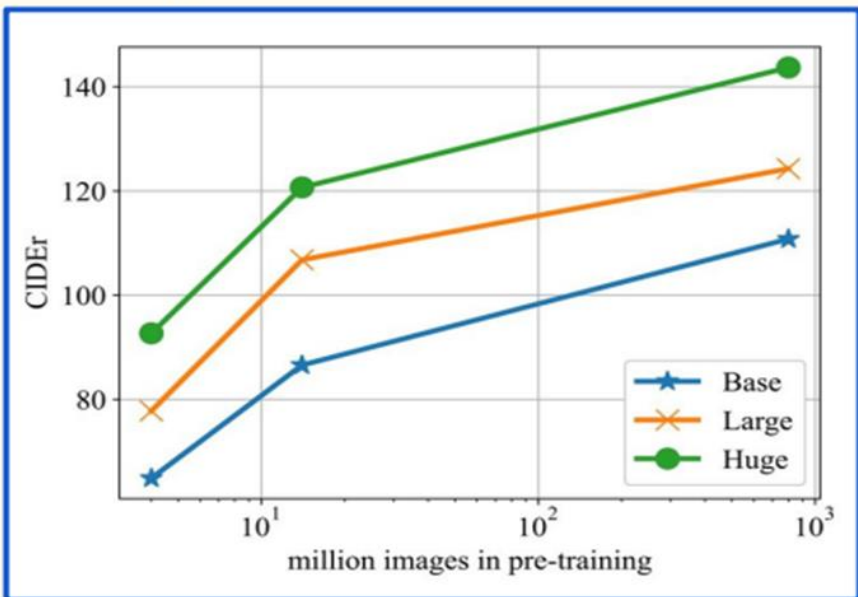
Monthly income (in Rs.)	Vehicles per family			
	0	1	2	Above 2
Less than 7000	10	160	25	0
7000 – 10000	0	305	27	2
10000 – 13000	1	535	29	1
13000 – 16000	2	469	59	25
16000 or more	1	579	82	88

## GPT-4V:

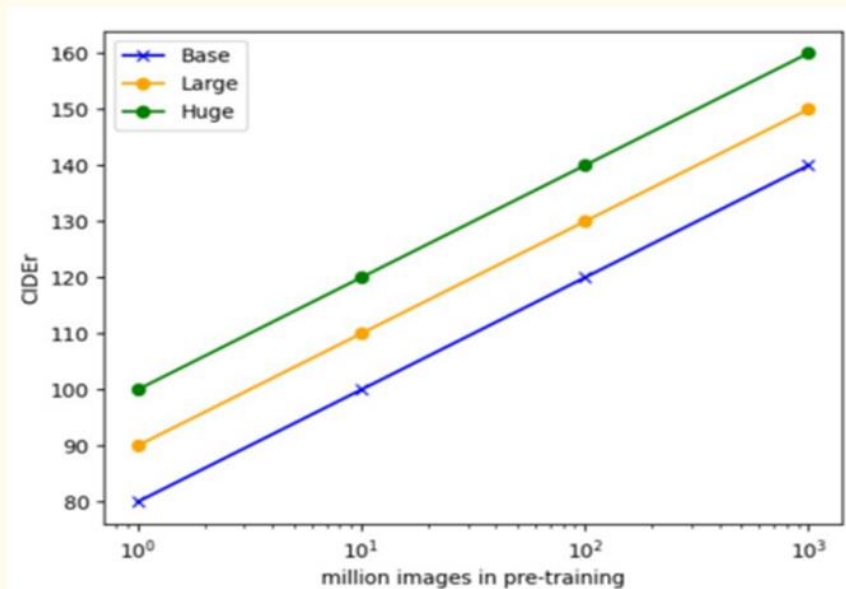
From the given table, we can clearly see that there are a total of 113 families that earn more than Rs. 13000 and own more than 2 cars (25 families in the 13000-16000 range and 88 families in the 16000 or more range).

### Prompt:

Generate python code to draw similar curves.

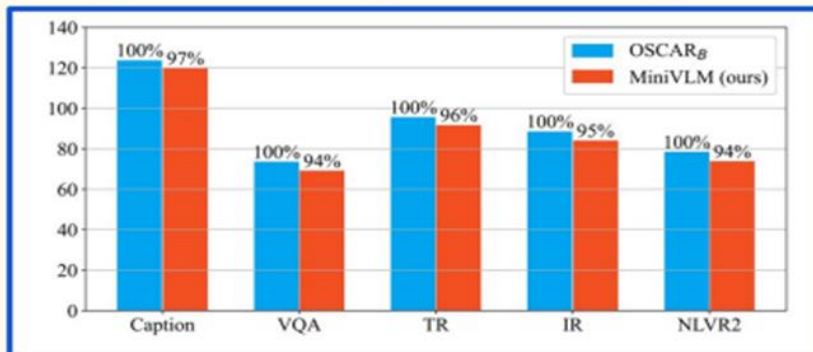


### GPT-4V:

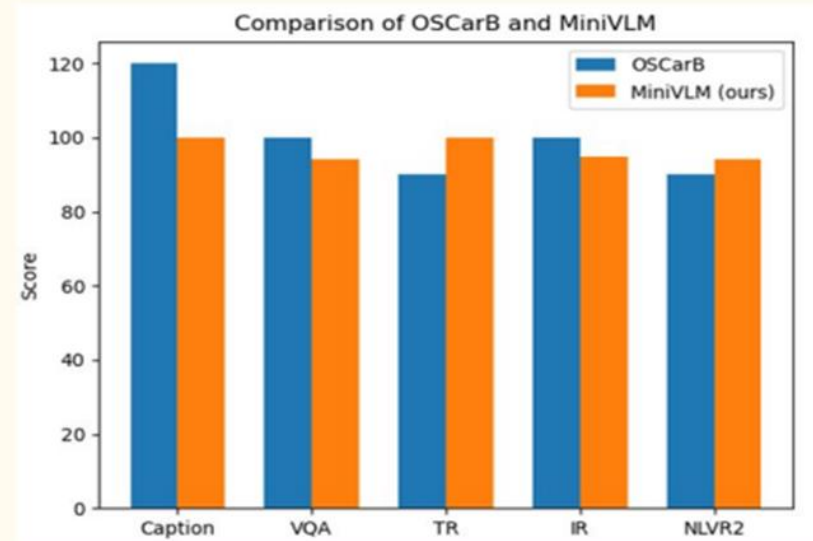


### Prompt:

Write python codes to generate similar figures.



### GPT-4V:



Analýza  
grafických  
údajů a  
logika

### Prompt:

Write svg codes to generate following image.



# Halucinování AI

**Statistická povaha modelu** – modely neoperují na bázi skutečného pochopení světa, ale na bázi pravděpodobnosti slovních sekvencí,

**Nedostatek přístupu k ověřeným datům** - model nemá schopnost vždy ověřovat informace v reálném čase,

**Chybějící kontext** - model nedostatečně chápe kontext otázky nebo požadavku,

**Snaha o uspokojení uživatele** - navrženy tak, aby generovaly užitečné a uspokojivé odpovědi

# Open AI – Chat GPT

## Free

\$0 / month

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- ✓ Early access to new features

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- 50 messages a week with **OpenAI o1-preview** and 50 messages a day with **OpenAI o1-mini** – **Nemá přístup k internetu a nelze nahrávat soubory (prozatím)**

Nové vlákno Ctrl I

Domů

Objevit

Prostory

Knihovna

How often must the clinical

How often must the clinical

kdo je odpovědný za repro

kdy vzniká smluvní vztah

když si někdo zarezervuje

### Vyzkoušejte Pro


Upgradujte pro nahrávání obrázků, inteligentnější AI a další Pro Search.

[Zjistit více](#)

# How often must the clinical evaluation plan for MDR Class III medical devices be updated?

## Zdroje


Medical devices in the disclosure era and the role of medical writers

 semanticscholar · 1

Correlation between Malocclusion and Mandibular Fractures: A...

 ncbi.nlm.nih · 2

Harnessing the Power of Collaboration for Postmarket Surveillance...

 pubmed.ncbi.nlm... · 3



Zobrazit vše

## Perplexity

The clinical evaluation plan (CEP) for Class III medical devices under the Medical Device Regulation (MDR) is a critical component of the regulatory framework, ensuring that devices meet safety and efficacy standards throughout their lifecycle.

### Frequency of Updates

1. **Regular Updates:** The CEP must be updated at least annually or whenever significant changes occur that could impact the device's performance or safety profile. This includes updates based on new clinical data, changes in manufacturing processes, or modifications to the device itself <sup>1</sup>



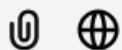
How often must the clinical evaluation plan for MDR Class III medical devices be updated?

Under the European Medical Device Regulation (MDR), the clinical evaluation plan (CEP) for Class III medical devices must be updated regularly to ensure ongoing compliance with safety and performance requirements. Specifically, the clinical evaluation and its documentation should be updated throughout the device's lifecycle with clinical data obtained from the implementation of the manufacturer's Post-Market Clinical Follow-up (PMCF) plan and the post-market surveillance plan. For Class III devices and implantable devices, the PMCF evaluation report and, if indicated, the summary of safety and clinical performance must be updated at least annually with such data.

REGULACE LÉKAŘSKÝCH PŘÍSTROJŮ

While the MDR does not explicitly mandate a specific frequency for updating the CEP itself, it is implied that the CEP should be reviewed and revised as necessary to reflect any new clinical data, changes in the device's risk profile, or modifications in its intended use. Therefore, manufacturers should establish procedures to assess and update the CEP in alignment with the annual updates of the PMCF evaluation report and other post-market surveillance activities. This proactive approach ensures that the clinical evaluation remains current and accurately reflects the device's safety and

Napsat zprávu pro ChatGPT



Medical Device Regulation

### MDR - Article 61 - Clinical evaluation - Medical Device Regulation

11. července 2019 — For class III devices and implantable devices, the PMCF evaluation report and...

#### Výsledky hledání

EUMDR

### Step 4: Complete the clinical evaluation - EU MDR

28. října 2024 — The clinical evaluation process is described in Annex XIV, Part A. It begins with the...

seleon GmbH

### The clinical evaluation of medical devices according to MDR

2. srpna 2024 — As a general rule for class III devices and implantable devices, clinical data should be...

Oriel Stat A Matrix

### Definitive Guide to Medical Device Clinical Evaluation Reports (CER ...


2. listopadu 2023 — How Often Your EU CER (Clinical Evaluation Reports) Should Be Updated. Section 6.2....

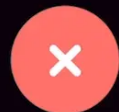
Greenlight Guru

### Clinical Evaluation of a Medical Device in the EU [Guide]

# Speak with ChatGPT



 ● ● ● ● ●  
Start speaking



# Nahodilý výstup

Při stejném zadání není schopen vygenerovat stejný obrázek. Nelze zadat některé parametry obrázku, např. počet pater budovy:

„Generate a 3D representation of a one-story building of a medical device manufacturer. It is intended to accommodate 150 people. the ground floor will be a shop floor and warehouse, and the second floor will comprise offices. the color theme is blue and white.“



# Microsoft Copilot Pro

Přednostní přístup k nejnovějším modelům AI a vyšší limity používání

Získat na měsíc zdarma

## 550,00 Kč uživatel/měsíc

Vyzkoušet zkušební verzi zdarma

Po skončení zkušebního období vám budeme předplatné účtovat každý měsíc za běžnou cenu, dokud jej nezrušíte v účtu Microsoft. Další informace najdete na stránce [Obchodní podmínky](#) pro Microsoft Store.



### Přednostní přístup

I během špičky budete mít přednostní přístup k nejnovějším modelům od Microsoftu a OpenAI.



### Copilot v oblíbených aplikacích

Díky integrovaným funkcím Copilota můžete Word, Excel, PowerPoint a Outlook používat zcela novým způsobem.<sup>1</sup>



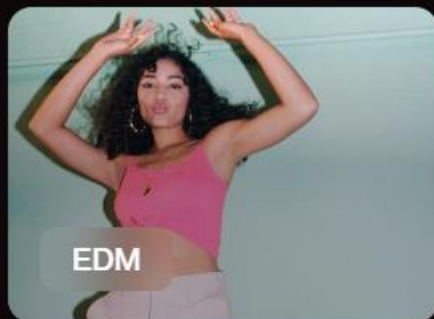
### Vytváření jako nikdy dříve

Svou představivost můžete proměnit v obrázky a k jejich rychlejšímu vytváření využívat navýšení výkonu.

# SUNO

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**It's my Life**  
Pop rock, Arena rock, Ro...



**Rock!**  
rock, rock, rock, rock, roc...



**The Dark Side of Life**  
rhythmic dubstep electr...

# Synthesia.io (avatar)

invitation

Avatar Space Text Shape Media Record

Invite Generate

Scenes

SCENE 1

konference KVALITA

Hotel Zámek Valeč

26. – 27. 11. 2024

synthesia

00:00 00:11 00:22 00:33 00:44 00:55 01:06 01:17

Dobry den.

S potěšením Vás zveme na konferenci KVALITA 2024, která se uskuteční v listopadu v Hotelu Zámek Valeč.

Scene layout

Replace

Background color

#FFFFFF

Background media

Replace

Crop

Opacity 100 %

Blur 0 %

Music

Upward

Volume 17 %

Loop

?

# Zdroje

- ❖ [Chatbot Arena](#)
- ❖ Yang, Z., Li, L., Lin, K., Wang, J., Lin, C-C., Liu, Z., & Wang, L. (2023). The Dawn of LMMs: Preliminary Explorations with GPT-4V(ision). arXiv. Retrieved from <https://arxiv.org/pdf/2309.17421.pdf>
- ❖ [OpenAI](#)
- ❖ [Zaujaloma AI - YouTube](#)
- ❖ [SuperAjták by XEVOS - YouTube](#)
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# Konference kvality

by @boisterousbeatbox259



## [Verse]

Vstáváme ráno světla blikají

Konference začíná všichni

čekají

Umělá inteligence co nás

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