

Empowering Anatomical Education using ChatGPT 3.5

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MEDICAL JOURNAL OF BABYLON

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Current Issue



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**Ahmed Al-Imam, Nawfal Al-Hadithi,
Faisal Alissa, Michal Michalak**

**Generative artificial intelligence in
academic medical writing.**

Medical Journal of Babylon

20(3): 654-656, 2023

DOI: 10.4103/MJBL.MJBL_1176_23



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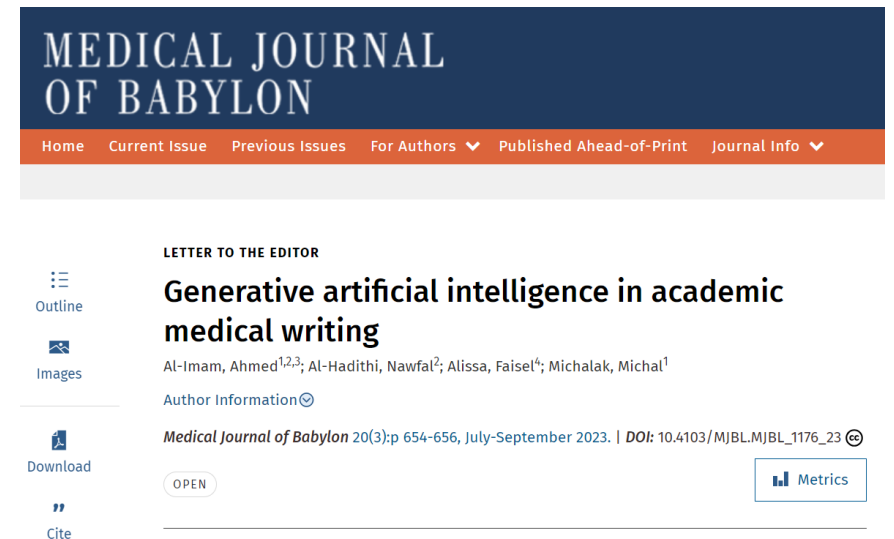
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LETTER TO THE EDITOR

**Generative artificial intelligence in academic
medical writing**

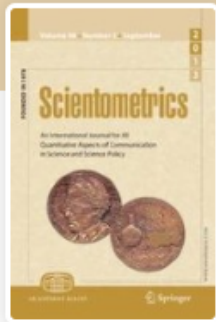
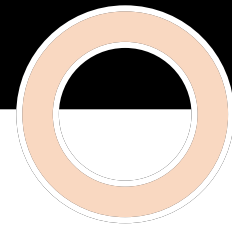
Al-Imam, Ahmed^{1,2,3}; Al-Hadithi, Nawfal²; Alissa, Faisal⁴; Michalak, Michal¹

Author Information

Medical Journal of Babylon 20(3):p 654-656, July-September 2023. | DOI: 10.4103/MJBL.MJBL_1176_23

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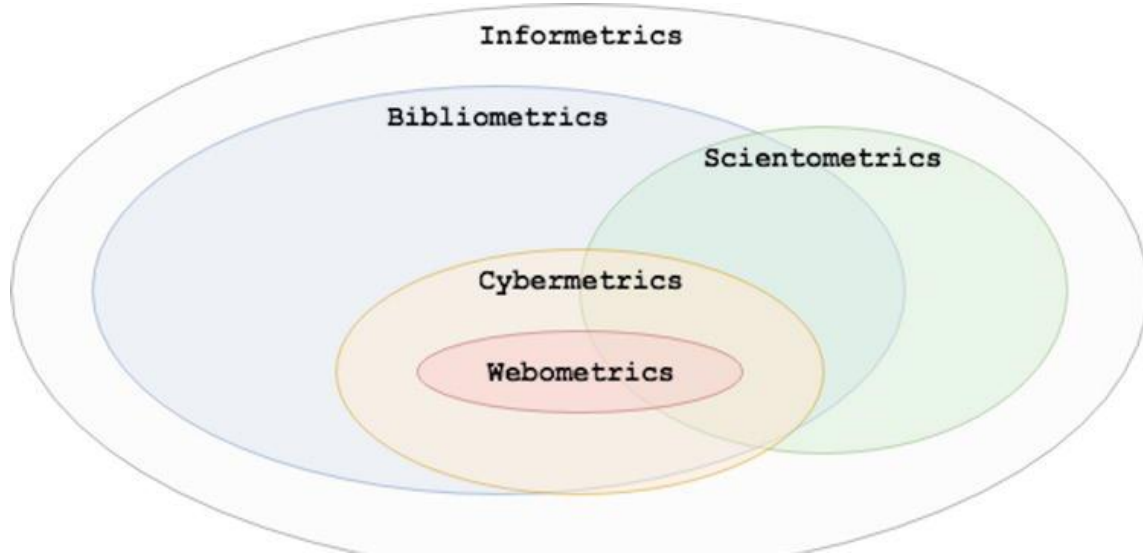
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Subject area: Medicine: General Medicine



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Category	Rank	Percentile
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GenAI in academic medical writing

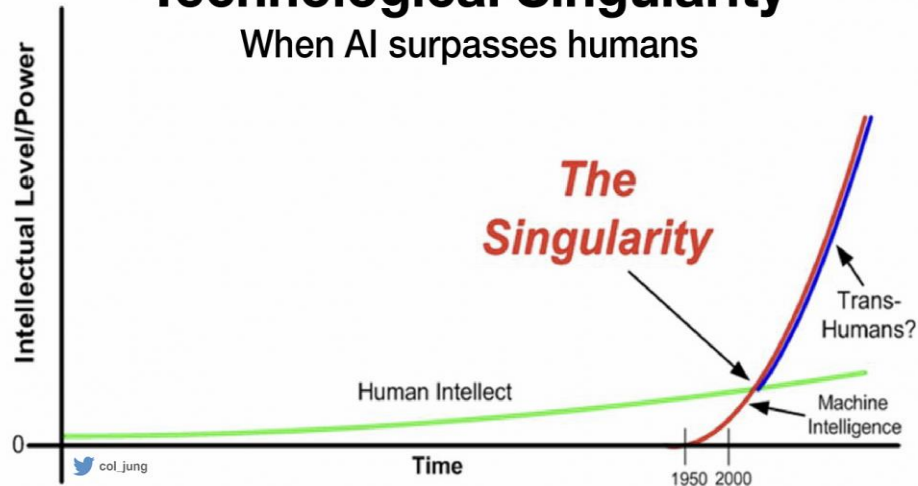
AI Singularity

Singularity refers to a future point in time where **artificial intelligence (AI)** could potentially surpass human intelligence. This occurrence would arise from the exponential self-improvement of AI, leading to an unpredictable and rapid change in the technological landscape.



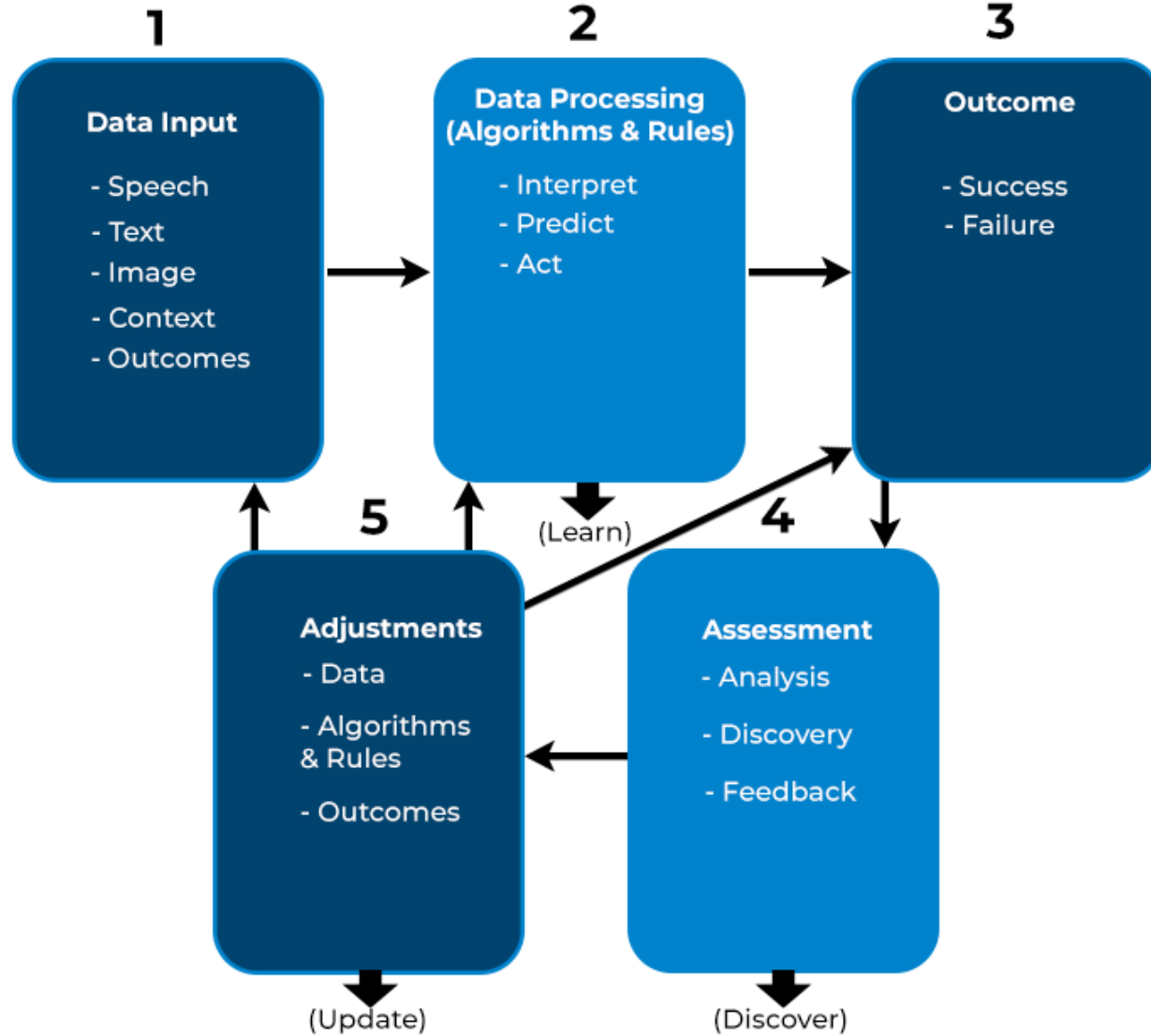
Technological Singularity

When AI surpasses humans

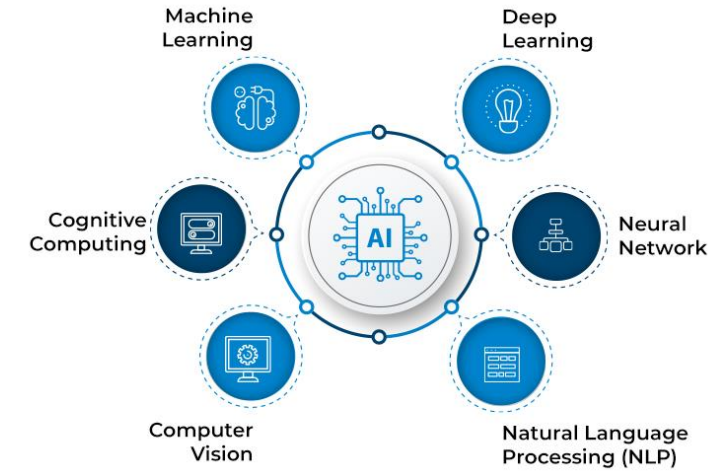


- **Kardashev scale**
- **GenAI vs. General AI & AI superintelligence**
- **Text-based GenAI (unimodal) vs. academic writing**
- **Large language model (LLM) vs. machine learning**
- **Advantages & disadvantages**

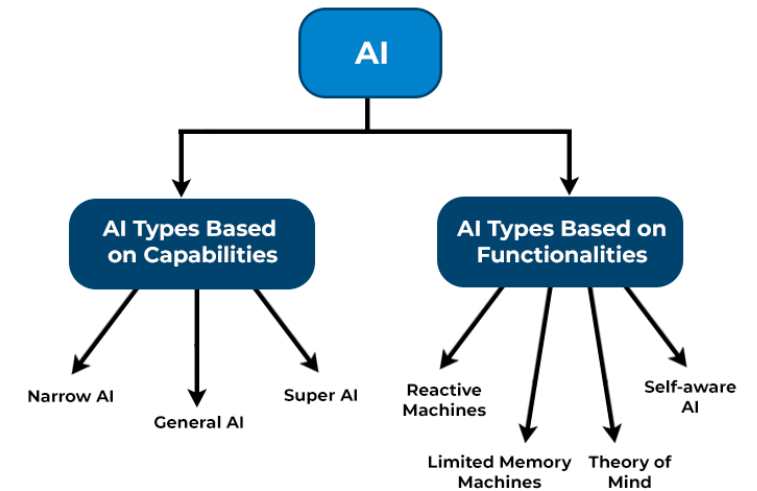
HOW AI WORKS

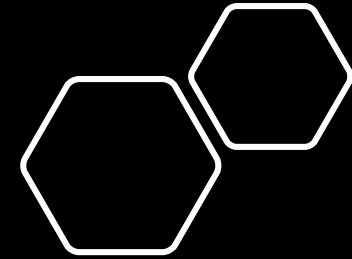


KEY COMPONENTS OF AI



TYPES OF AI





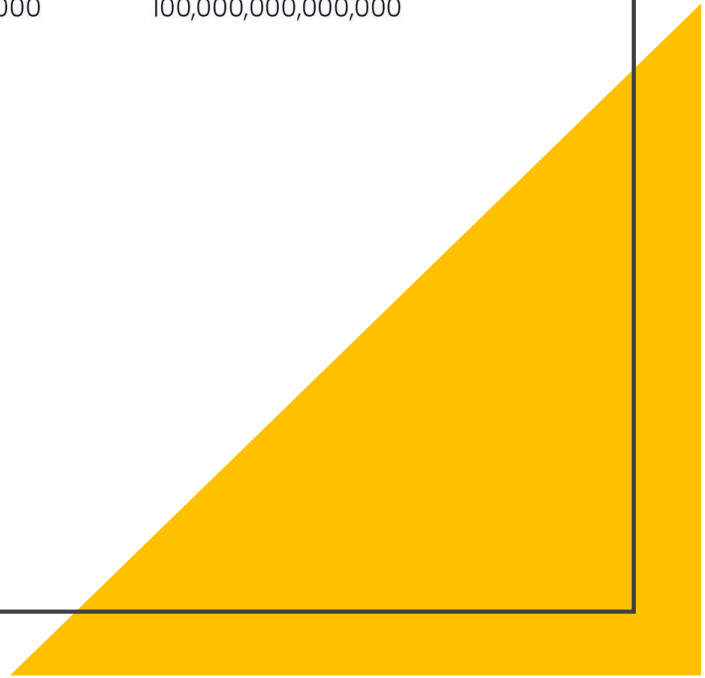
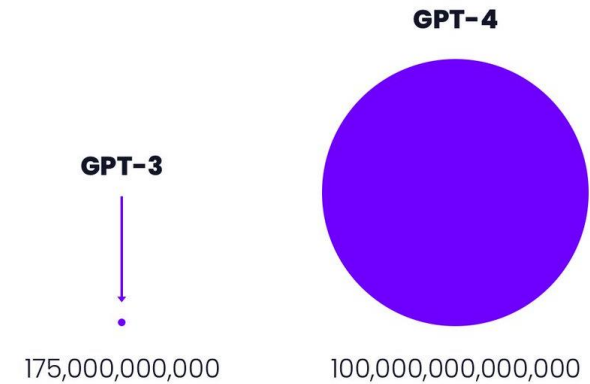
Aspect	AI	Generative AI
Definition	General intelligent systems.	Content generation using deep learning.
Purpose	Solve problems, automation.	Create new content (text, images, etc.).
Examples	Chatbots, self-driving cars.	Text generators (e.g., GPT-3), art synthesis (e.g., DALL-E).
Learning Methods	Variety of techniques (ML, rules).	Deep learning (e.g., GANs, Transformers).
Data Requirements	Structured, unstructured data.	Large relevant datasets for training.
Human Interaction	Responding, recommending, executing.	Content generation, answering questions.
Use Cases	Healthcare, fraud detection.	Text generation, image creation.
Challenges	Understanding context, generalization.	Coherent content, avoiding bias.
Ethical Concerns	Privacy, discrimination, job displacement.	Deepfakes, misuse, content moderation.

- Recent, unprecedented, & **fearful**
- ChatGPT 3.5 (vs. GPT-3), CTRL, GPT-4, Bard 2.0, GrammarlyGO, T5, XLNet, GPT4 with vision (**GPT-4V**), **Scopus AI**, **Google's Gemini**
- **Speed/efficiency** vs. manuscripts & abstracts/summaries
- Prioritize tasks, especially for **non-native** speakers
- Policymakers/stakeholders vs. **impact**

is Technology Singularity

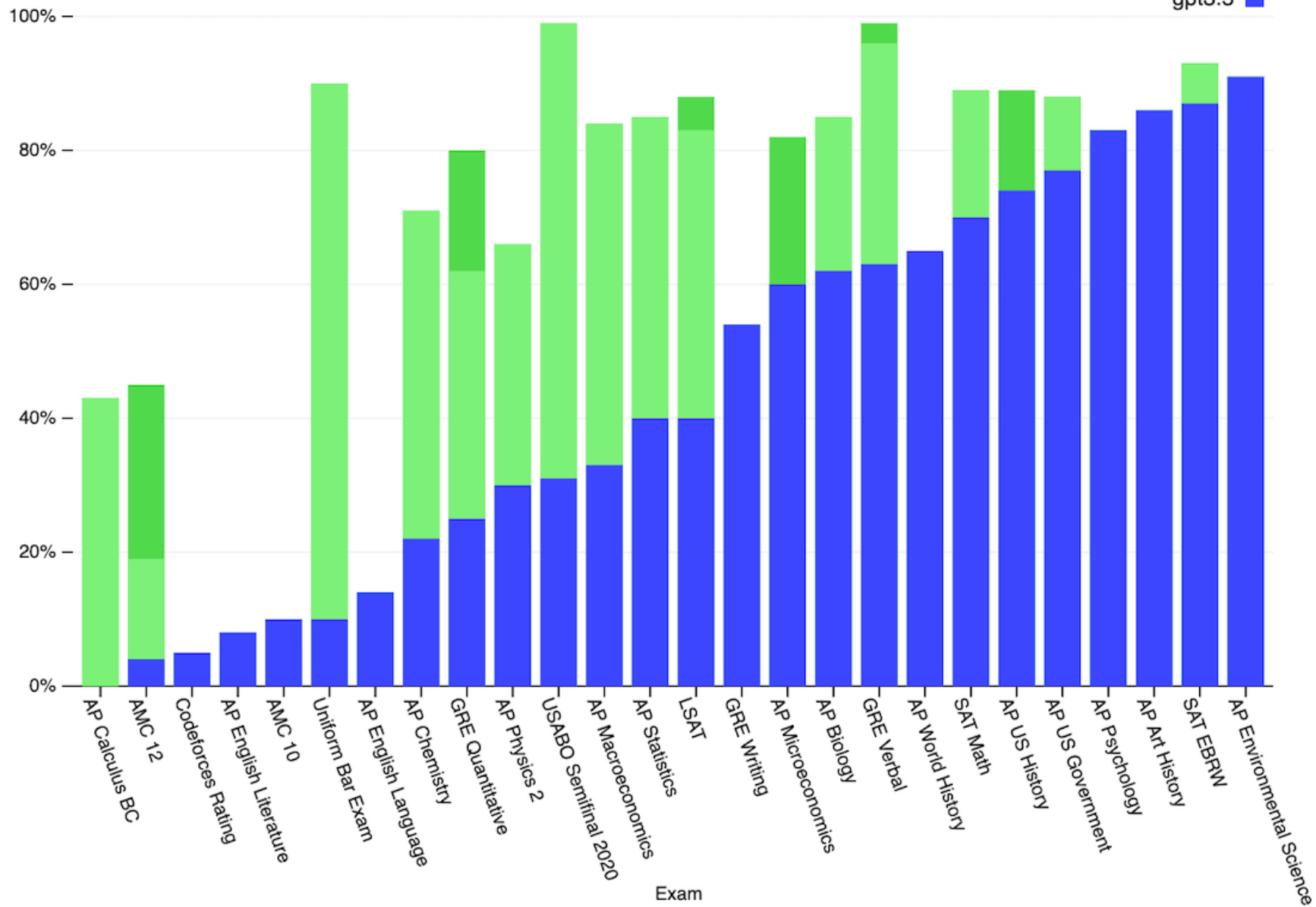


Features	GPT-3	GPT-4
Parameters	175 billion	More than GPT-3
Capabilities	Language translation, summarization, question answering	Writing essays and articles, creating art and music
Performance	Generates human-like text, struggles with sarcasm and idiomatic expressions	Expected to significantly improve upon GPT-3's performance
Potential Applications	Chatbots, virtual assistants, content generation, research	Creative writing, art, improvement of existing applications



Exam results (ordered by GPT-3.5 performance)

Estimated percentile lower bound (among test takers)



GenAI Models

Features of different text-based GenAI models. GenAI: generative artificial intelligence; NLP: natural language processing

Source

[Generative artificial intelligence in academic medical writing](#)

Medical Journal of
Babylon20(3):654-656, July-
September 2023.

AI HALLUCINATIONS

GenAI Disadvantages

- Potential loss of **authenticity**
- Ethical concerns vs. plagiarism/authorship
- Struggle to comprehend nuanced **contextual** understanding
- Unsuitable recommendations
- **AI Hallucination phenomenon**
- Newer models will improve exponentially

Pros	Cons
1. Speed and efficiency in drafting content.	1. Potential loss of authenticity.
2. Enhanced language quality and coherence.	2. Struggle to grasp nuanced contextual understanding.
3. Transformation of complex data into accessible narratives.	3. Risks of inaccuracies, misinterpretations, and irrelevant recommendations.
4. Augmenting research impact	4. Ethical concerns.
	5. Risk of biased content and “hallucinations.”
	6. Questionable bibliographies.

Limitations	Prospects
1. GenAI models need for update and supervision.	1. Recognition of GenAI as a complementary tool.
2. Limited ability for critical analysis and reasoning.	2. Development of responsible and effective GenAI use guidelines.
3. Lack of domain-specific expertise and clinical experience.	3. Integration in modern medical education, and online search behavior studies, among others.
4. Need for rigorous revisions for high-quality content.	

Text-based GenAI’s SWOT analysis

Source

Generative artificial intelligence in academic medical writing

Medical Journal of Babylon20(3):654-656, July-September 2023.



Text-based GenAI's SWOT analysis.
GenAI: generative artificial intelligence; SWOT: strengths, weaknesses, opportunities, and threats

Source

[Generative artificial intelligence in academic medical writing](#)

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ChatGPT-generated dendrogram concerning the features of different GenAI models GenAI: Generative artificial intelligence; NLP: Natural language processing

Source

Generative artificial intelligence in academic medical writing

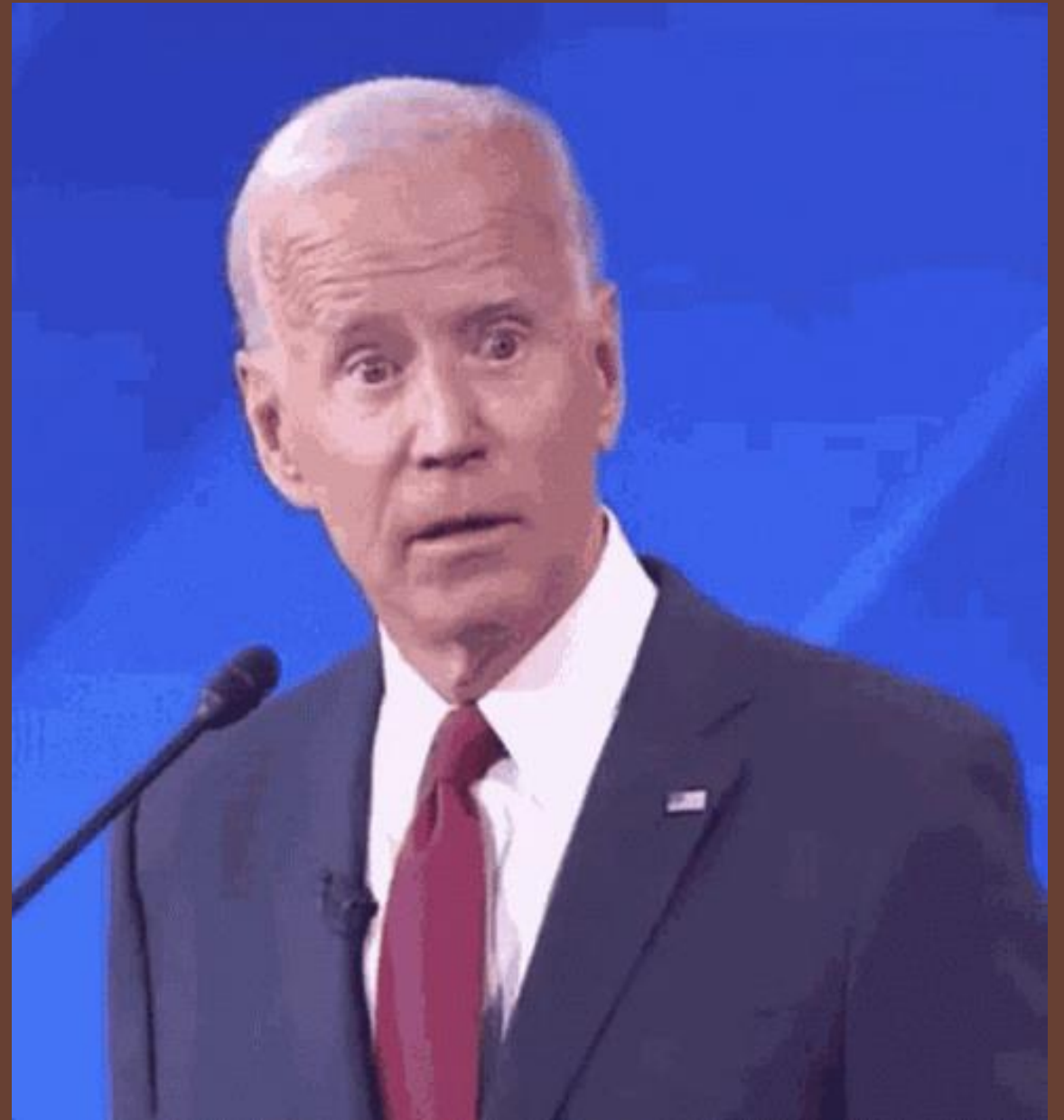
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Generative AI Models

- |
- |— GPT-2
 - |— Text generation capabilities
 - |— Contextual understanding
 - |— Large-scale language model
 - |— Fine-tuning for specific tasks
 - |— Progressive disclosure of content
- |
- |— GPT-4
 - |— Enhanced contextual understanding
 - |— Improved coherence in text generation
 - |— Handling longer context
 - |— Better common sense reasoning
- |
- |— XLNet
 - |— Bidirectional context handling
 - |— Reduced limitations of left-to-right models
 - |— Improved understanding of relationships
- |
- |— CTRL
 - |— Controllable text generation
 - |— Specified style or topic adaptation
 - |— Adaptable for various writing tasks
- |
- |— T5
 - |— Versatility in handling NLP tasks
 - |— Unified text-to-text framework
 - |— Robust performance across tasks
 - |— Customization for specific tasks

Confused?

- Landscape of opportunities **& threats**
- Evident efficiency/language enhancement
- **Authenticity** & ethical concerns
- **Potential** in advancing medical knowledge
- **Preserving** human creativity
- Upholding research/academic ethics
- Navigate this path **thoughtfully & collectively**



*Generative Pre-trained Transformer*_ChatGPT 3.5



write me a



ChatGPT Prompting Cheat Sheet

Use this Cheat Sheet to master prompting

MODES AND ROLES	FORMAT	TONES
Intern: Find research on [insert topic] Idea generator: Generate ideas on [x] Editor: Edit and fix this text: [insert text] Teacher: Teach me about [insert topic] Critic: Critique my argument: [argument]	Code Table Essay Tweet Blog Report Social Email Presentation media post Bullets Research	Write using [x] tone Firm Professional Persuasive Confident Descriptive Formal Poetic Humorous Informal Narrative Academic Friendly

HOW TO BUILD A CHAIN PROMPT WITH EXAMPLE

- 1. Insert first prompt:** Give me a summary of this document [insert or copy paste document text]
- 2. Modify the output:** Use the summary above and write a 500 word piece that explains the topic to beginners
- 3. Modify the tone:** Change the tone of the answer above and make it sound more professional
- 4. Modify the format:** Convert the answer above into text for a presentation with 1 slide for each key point

PROMPTS FOR MARKETERS

List [insert number] ideas for blog posts about [insert topic]
Create a 30 day social media calendar about [insert topic]
Generate landing page copy for [insert product description]
Write 5 pieces of Facebook ad copy for [product description]
Generate 5 persuasive subject lines for an email about [insert email description]

PROMPTS FOR CODING

Help me find mistakes in my code: [insert your code]
Explain what this snippet of code does: [insert code snippet]
What is the correct syntax for a [statement or function] in [programming language]?
How do I fix the following [programming language] code which [explain the functioning]? [insert code snippet]

PROMPTS FOR SALES

Generate 10 ways to generate leads for [product description]
Create a personalized sales email for potential customers. Include [topic, brand name, promo offers, etc.]
Write a sales landing page description for [product description]
Generate 5 personas I should include in my outreach for [X]
Generate a script to use when cold-calling [insert persona]

PROMPTS FOR DESIGNERS

What are some interactions to consider when designing a [insert app or website description]
Create a user persona for [describe product]
Generate 10 questions for a user interview regarding [topic]
Create a user journey for [insert app and persona description]
Generate UI/UX design requirements for [describe feature]

PROMPTS FOR RESEARCH

Identify the top 20 companies in [insert industry] by revenue
What are the top trends in [insert industry] for 2023?
Find me the best-reviewed software for [insert task]
Summarize the annual financial statement of [insert company]
Summarize this research paper and give me a list of the key insights: [insert research paper text]

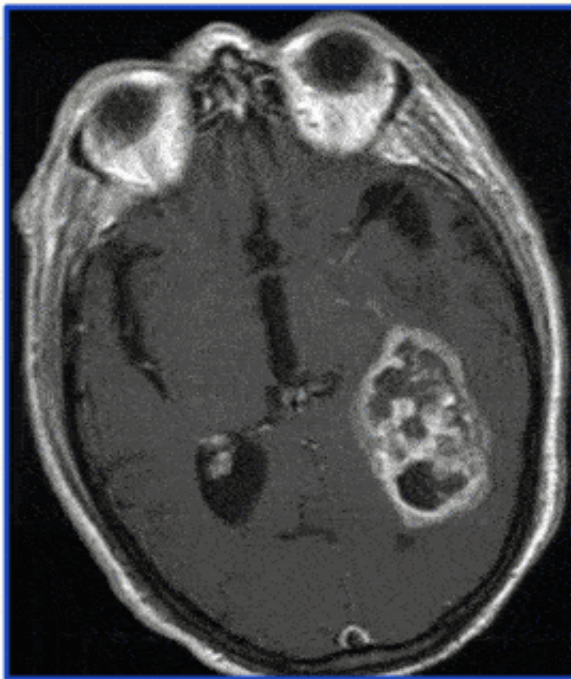
PROMPTS FOR CUSTOMER SERVICE

Create a template for an email response to customers inquiring about [product].
What are the most frequently asked questions about [topic]?
Create a help page that explains how to use [your product].
Summarize the following knowledge base article to give step-by-step instructions: [insert article]

“GPT-4 Opens Its Eyes”

Prompt:

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



GPT-4V:

Report:

Date: 01/01/2021

Modality: Magnetic Resonance Imaging (MRI)

Body Part: Brain

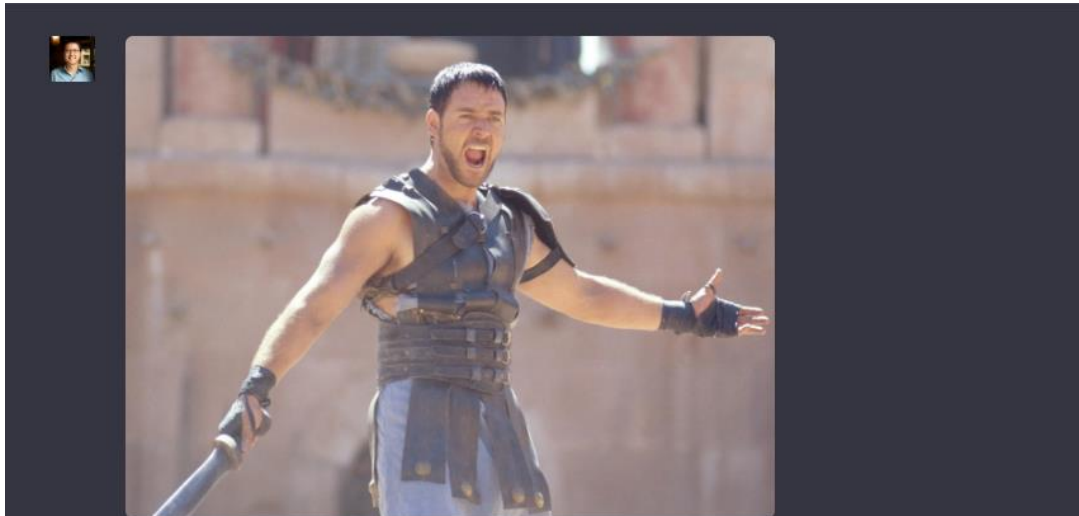
Technique: Axial T1-weighted

Findings: The MRI of the brain demonstrates a large intra-axial mass in the left parietal lobe with surrounding edema. The mass appears to be heterogeneous in signal intensity with areas of high and low signal intensity. There is a significant mass effect with midline shift to the right. The ventricles appear to be compressed and there is evidence of hydrocephalus. No other significant abnormalities are noted.

Impression: Large intra-axial mass in the left parietal lobe with surrounding edema and significant mass effect. Likely high-grade glioma. Further imaging and clinical correlation are recommended.

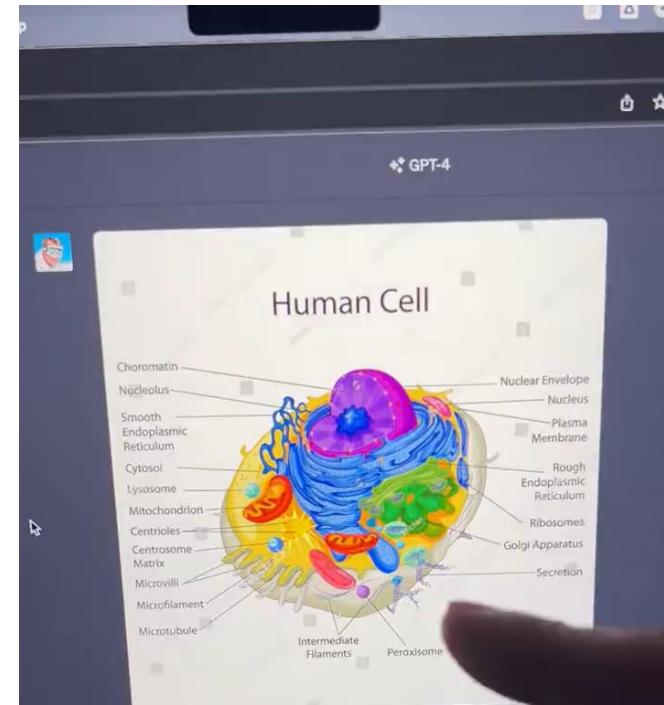
Evaluation from Professionals:

Correct study identification, correct mass description and location, correct diagnosis



What movie is this from? What is the person saying?

The image depicts Russell Crowe as Maximus Decimus Meridius in the film "Gladiator," directed by Ridley Scott. This scene is famous for the line Maximus shouts to the crowd: "Are you not entertained?!" after a particularly brutal fight in the Colosseum.



Human Cell

Chromatin, Nucleolus, Smooth Endoplasmic Reticulum, Cytosol, Lysosome, Mitochondrion, Centrioles, Centrosome Matrix, Microvilli, Microfilament, Microtubule, Nuclear Envelope, Nucleus, Plasma Membrane, Rough Endoplasmic Reticulum, Ribosomes, Golgi Apparatus, Secretion, Intermediate Filaments, Peroxisome

shutterstock

I'm a 9th grade biology student and I'm really struggling in school. Can you help me understand this?

Of course! Let's break down the parts of the human cell depicted in the image:

1. **Nucleus:** This is the cell's control center. It contains our DNA and regulates the cell's activities.

send a message

ChatGPT may produce inaccurate information about people, places, or facts. ChatGPT September 25 Version

Does Elsevier promote GenAI?

Scopus AI



ELSEVIER

Our Responsible AI Principles

- 1 We consider the real-world impact of our solutions on people.
- 2 We take action to prevent the creation or reinforcement of unfair bias.
- 3 We can explain how our solutions work.
- 4 We create accountability through human oversight.
- 5 We respect privacy and champion robust data governance.

“Elsevier takes Scopus to the Next Level with Generative AI”

Summarized views based on
Scopus abstracts

“Go Deeper Links”
for extended exploration

A soon-to-be-added
graphical representation

Natural language queries

[Elsevier's website](#)

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OpenAI Research API ChatGPT Safety Company

DALL-E 2

DALL-E 2 is an AI system that can create realistic images and art from a description in natural language.


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concept art desert

Try these out
 Experiment with the latest in generative AI and let us know what you think.



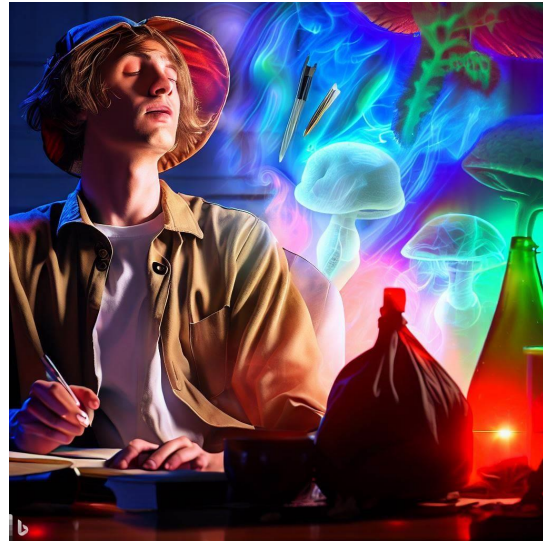
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Technology

Google nears release of AI software Gemini, The Information reports



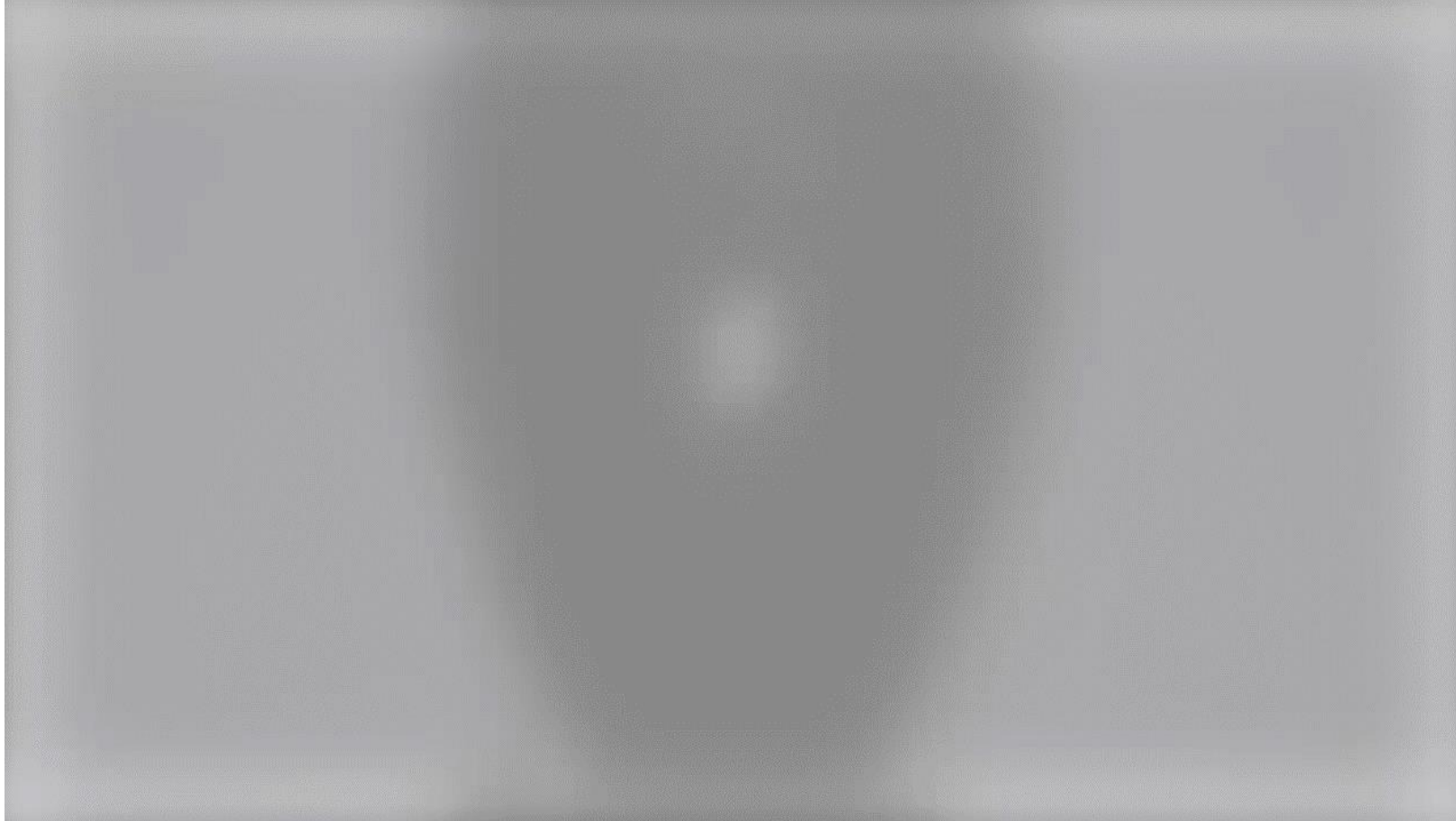
Highlights

- Google DeepMind is creating a new LLM called Gemini to compete with OpenAI.
- Google has reportedly given select companies early access to Gemini, signaling an upcoming release.
- The fusion of DeepMind and Google resources makes Gemini's impact potentially immense.

Sora — OpenAI's Text-to-Video Model

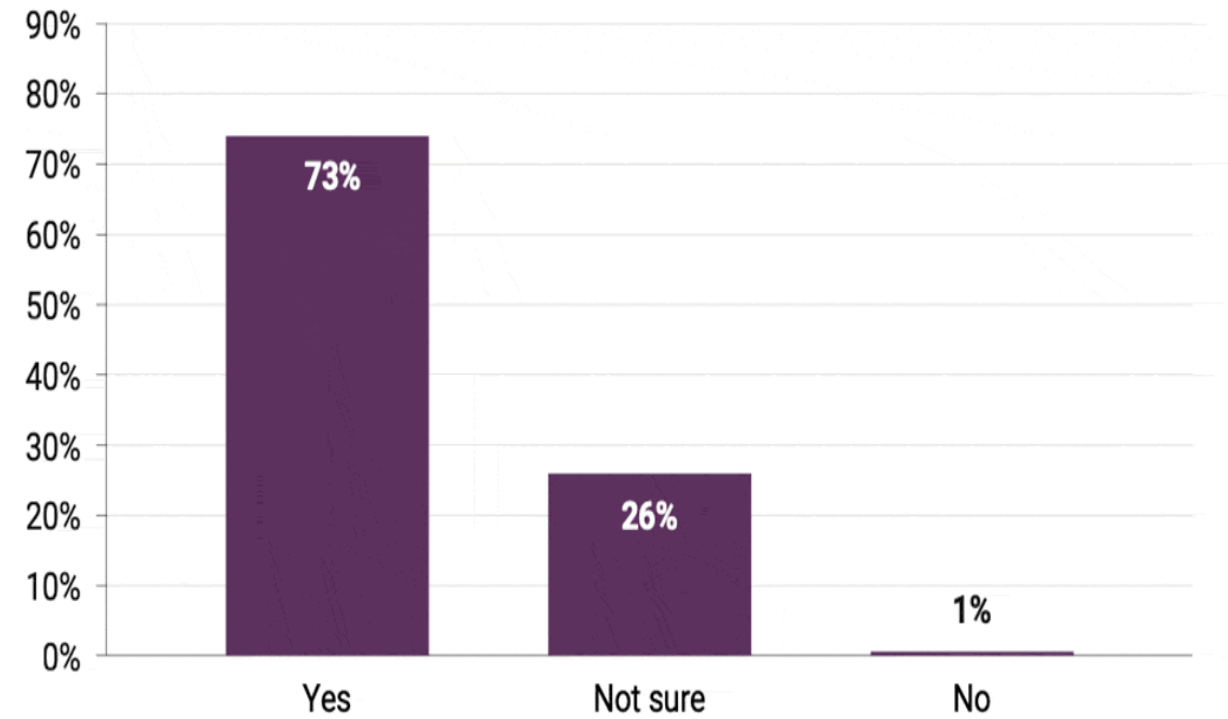


ChatGPT Gets a Body with the Figure 01 Robot





Do Generative AI Technologies Present New Opportunities for News Outlets?



Source: *London School of Economics & Political Sciences*
via *the Batch_DeepLearning.AI*



Merci
Beaucoup

