



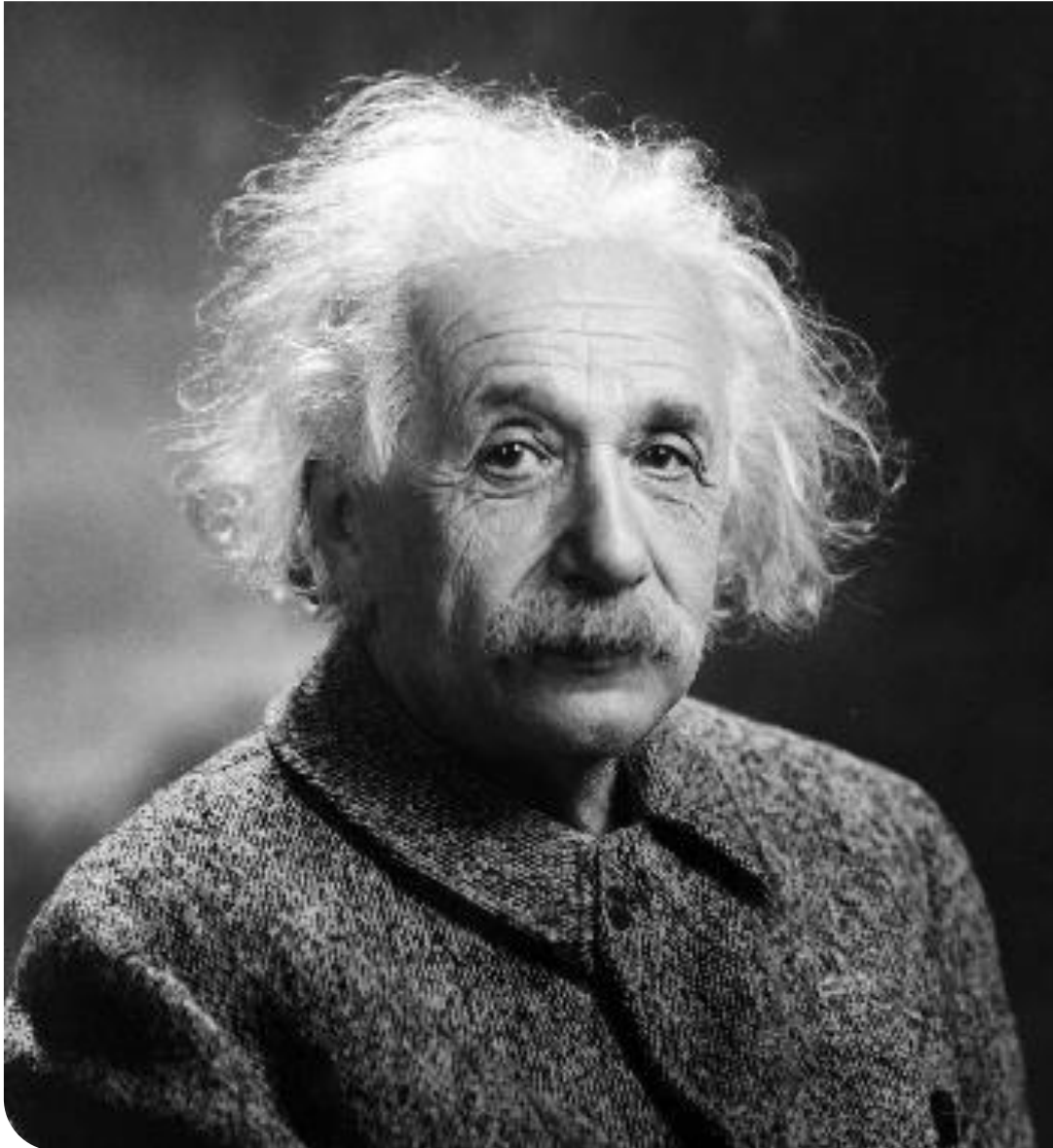
How (not) to use chatGPT as a researcher

Prof. David Martens

Faculty of Business & Economics
Co-director Antwerp Center for Responsible AI

Doctoral Day - October 2023

*Warning: Presentation of October 2023 -
Likely outdated, given the advances in LLM.*



Einstein's Warning

"Technological progress is like an axe in the hand of a pathological criminal."

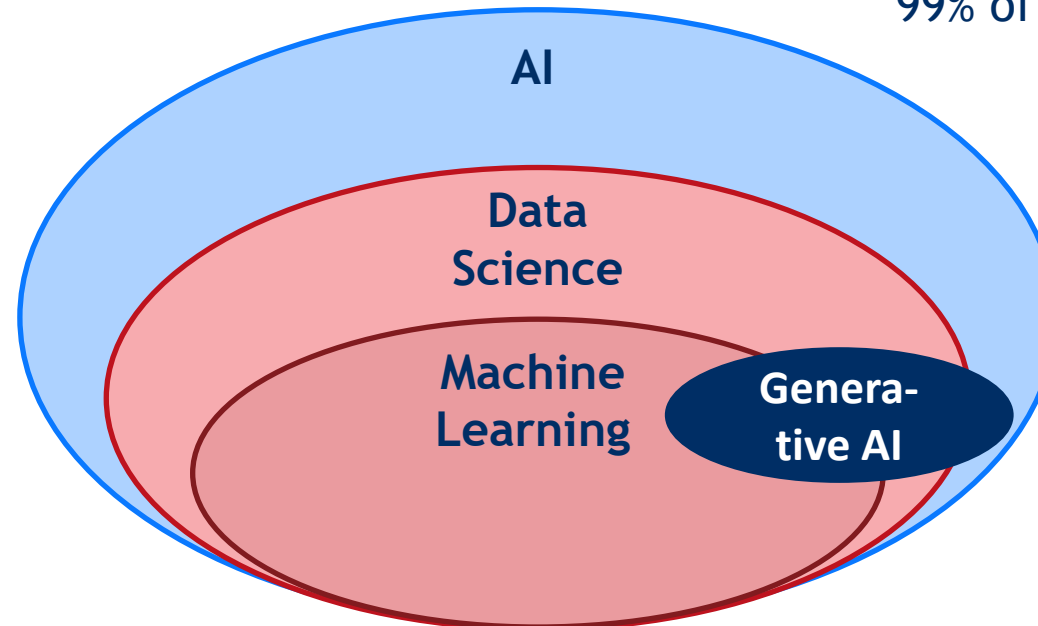
Outline

- **What is AI, generative AI and chatGPT**
- Uses of chatGPT as a researcher
- Dangers of using chatGPT

Machine Learning, Data Science and AI

- **Machine Learning:** automatic extraction of patterns from data
- **Data science:** a set of fundamental principles that guide the extraction of knowledge from data
- **AI:** methods for improving the knowledge or performance of an intelligent agent over time, in response to the agent's experience in the world

“99% of AI is prediction” Ng



Machine Learning, Data Science and AI



Mat Velloso

@matvelloso

Difference between machine learning and AI:

If it is written in Python, it's probably machine learning

If it is written in PowerPoint, it's probably AI

[Post vertalen](#)

2:25 a.m. · 23 nov. 2018

How does chatGPT work?

- Deep neural network: Generative Pretrained Transformer
 - Generative: Next word prediction
 - Pretrained: using 500 billion words to estimate 175 billion parameters

Input	Predicted next word
What are 10 applications of AI?	1.
What are 10 applications of AI? 1.	Credit
What are 10 applications of AI? 1. Credit	scoring
What are 10 applications of AI? 1. Credit scoring	has
What are 10 applications of AI? 1. Credit scoring has	been

Outline

- What is AI, generative AI and chatGPT
- **Uses of chatGPT as a researcher**
- Dangers of using chatGPT

Main uses of chatGPT

1. Content creation
2. Language translation
3. Email and communication
4. Idea generation
5. Coding
6. Data analysis and visualisation

With help of chatGPT

Main uses of chatGPT

1. Content creation
2. Language translation
3. Email and communication
4. Idea generation
5. Coding
6. Data analysis and visualisation

DA

I'm giving a presentation to PhD researchers on how to use chatGPT. I have 6 general uses:

1. Content creation
2. Language translation
3. Email and communication
4. Idea generation
5. Coding
6. Data analysis and visualisation

Make a chatGPT prompt for each of the 6 uses that I can then execute, as to show interesting examples on how to use chatGPT. Try to make it already relevant for a PhD researcher.

Main uses of chatGPT

1. Content Creation:

- *Prompt:* "Please generate a 500-word draft of an abstract for a research paper on [specific research topic in the researcher's field]."
- *Example Output:* [Generated abstract]

DA

Please generate a 100-word draft of an abstract for a research paper on "How (not) to use chatGPT as a researcher"



Title: How (Not) to Use ChatGPT as a Researcher

Abstract:

This research paper critically examines the utilization of ChatGPT, an AI-based language model, within the context of academic research. It explores the opportunities and challenges associated with employing ChatGPT for research purposes and offers guidance on responsible and effective utilization. The paper emphasizes the need for a cautious approach, discussing potential pitfalls and ethical considerations when harnessing AI-generated content in scholarly work. By providing insights into the limitations and strengths of ChatGPT as a research tool, this study aims to empower researchers to make informed decisions about its integration into their methodologies while promoting ethical and rigorous academic standards in the age of AI.



Main uses of chatGPT

2. Language Translation:

- *Prompt:* "Translate the following scientific abstract from English to Spanish: [Provide a scientific abstract in English]."
- *Example Output:* [Translated abstract in Spanish]

3. Email and Communication:

- *Prompt:* "Compose an email to a fellow researcher regarding collaboration on a [specific research project] and suggest a suitable meeting time."
- *Example Output:* [Generated email content]

DA

Compose an email that I want to send to my supervisor, with as message:
- I have finished the empirical part
- I like the results a lot, but nt sure abot the statistical testing I did
- I'd like to discuss in person
- He keeps calling me after working hours inquiring about he paper. I want him to stop doing so.
Make it polite, but to-the-point. I don't want to offend him of course.



Subject: Discussion Request and Update on Research Progress

Dear [Supervisor's Name],

I hope this message finds you well. I wanted to provide you with an update on the progress of my research project.

I'm pleased to inform you that I have completed the empirical part of the project. I've been working diligently, and I'm genuinely excited about the results I've obtained. However, there's a specific aspect that I would appreciate your guidance on. I have some reservations regarding the statistical testing I conducted, and I believe a discussion in person would be the most productive way to address this concern. I value your expertise and insights, and I believe a face-to-face conversation will allow us to explore this matter more thoroughly.

Additionally, I understand the importance of our research, but I would like to kindly request that we limit communication after working hours. I want to ensure I can give your inquiries the attention they deserve, and maintaining a healthy work-life balance is important to me.

I am grateful for your guidance and support throughout this project, and I want to make sure that we can collaborate effectively and make the most of our interactions.

Please let me know a suitable time for you to meet in the coming week, and I will make the necessary arrangements. Thank you for your understanding, and I look forward to our discussion.

Best regards,

 Regenerate



Main uses of chatGPT

4. Idea Generation:

- *Prompt:* "Brainstorm three potential research hypotheses or questions related to [a specific research domain or topic]."
- *Example Output:*
 - 4.1. "What are the implications of [specific phenomenon] on [related field]?"
 - 4.2. "How can [specific method or technology] be applied to address challenges in [related field]?"
 - 4.3. "What are the emerging trends in [specific subfield] that warrant further investigation?"



Brainstorm three potential research hypotheses or questions related to "AI for Supply Chain Management". It should be high risk-high gain. Just list the hypothesis, no need for explanations.



Certainly, here are three high-risk, high-reward research hypotheses or questions related to "AI for Supply Chain Management":

1. "Can AI enable fully autonomous, self-optimizing supply chains, reducing human involvement to near-zero, while maximizing efficiency and resilience?"
2. "Is it possible to develop AI systems that can predict and mitigate supply chain disruptions with such accuracy that organizations can operate with minimal buffer stock, dramatically reducing costs?"
3. "Can AI-driven supply chain orchestration models be designed to enable real-time, global supply chain collaboration, breaking down traditional silos and delivering unprecedented efficiency and agility?"



Main uses of chatGPT

5. Coding:

- *Prompt:* "Write a Python script to analyze data from [mention a dataset or research source] and plot a graph that visualizes the trends related to [spec variable or parameter]."

DA Write a Python script to analyze data from a dataset listing a wide range of macro economic variables, per quarter, in Belgium and plot a graph that visualizes the trends related to AI spending.



To analyze data from a macro-economic dataset and plot a graph showing trends related to AI spending in Belgium, you can use Python with libraries like Pandas and Matplotlib. Ensure you have the dataset (e.g., in a CSV file) and replace `'data.csv'` with the actual path to your dataset. Here's a Python script for this task:

```
python Copy code  
  
import pandas as pd  
import matplotlib.pyplot as plt  
  
# Load the dataset (update 'data.csv' with the actual path)  
data = pd.read_csv('data.csv')  
  
# Filter data for Belgium and AI spending  
belgium_data = data[data['Country'] == 'Belgium']  
ai_spending = belgium_data['AI_Spending']  
  
# Convert the date column to a datetime format  
belgium_data['Date'] = pd.to_datetime(belgium_data['Date'])  
  
# Sort the data by date  
belgium_data = belgium_data.sort_values(by='Date')  
  
# Plot the trends in AI spending  
plt.figure(figsize=(10, 6))  
plt.plot(belgium_data['Date'], ai_spending, marker='o', linestyle='-', color='red')  
plt.title('Trends in AI Spending in Belgium')  
plt.xlabel('Quarter')  
plt.ylabel('AI Spending')  
plt.grid(True)  
plt.xticks(rotation=45)  
plt.tight_layout()  
  
# Show the plot  
plt.show()
```

Main uses of chatGPT

DA

Provide a Python code snippet to crawl all news articles with the words "Elon Musk" from major Flemish online newspapers.



Crawling news articles from multiple online newspapers is a complex task and can involve web scraping, which should be done responsibly and in accordance with the websites' terms of service. Before proceeding, ensure you have permission and consider the legal and ethical aspects of web scraping.

Below is a simplified Python code snippet that demonstrates how you might crawl news articles mentioning "Elon Musk" from a single website (in this case, De Standaard, one of the major Flemish newspapers). You would need to adapt this code for each specific website you want to scrape:

python

Copy code

```
import requests
from bs4 import BeautifulSoup

# Define the URL of the website to scrape
url = 'https://www.standaard.be/zoek?query=Elon+Musk'

# Send an HTTP request to the website
response = requests.get(url)

# Check if the request was successful
if response.status_code == 200:
    # Parse the HTML content of the page using BeautifulSoup
    soup = BeautifulSoup(response.text, 'html.parser')

    # Find and extract relevant information (e.g., article titles and links)
    articles = soup.find_all('article', class_='c-card')

    for article in articles:
        title = article.find('h2', class_='c-card__title').text.strip()
        link = article.find('a', class_='c-card__link')['href']

        print(f>Title: {title}")
        print(f>Link: {link}\n")
else:
```

Regenerate

Some examples

- **Title**
- **Abstract**
 - Ask for suggestions
 - Write in the style of *[your favorite academic author]*
- **Proposals**
 - Rebuttal
 - Tailored towards call, eg ERC: high risk high gain. Add the call details and evaluation criteria.

How should I be using it?

- **Writing assistant:** author: abstract, title, rephrasing
 - As grant applicant or reviewer: summarize, rebuttals, rephrasing, etc.
- **Creative assistant:** coming up with ideas for analogies, examples, structure, etc.
- **Coding assistant:** no one is restricted to “knowing someone who can code”
- **Prereviewing assistant:** ask for comments on writing, methodology, conclusions, etc.

- Should never be an author, nor need to mention the use.
- BUT be sure not to commit plagiarism, and beware for the risks...

Let's “workshop”

Here is the abstract of a paper. Any comments or suggestions for improvements? Give an example for each suggestion. Also state what a good title would be.

- **Open chatGPT**
- **Open your latest draft paper or proposal.**
- **Go through the steps**
 1. Writing assistant: author: abstract, title, methodology, conclusion, etc.
 2. As grant applicant or reviewer: summarize, rebuttals, rephrasing, etc.
 3. Creative assistant: coming up with ideas for analogies, examples, structure, etc.
 4. Coding assistant: noone is restricted to “knowing someone who can code”
 5. Prereviewing assistant: ask for comments on writing, methodology, conclusions, etc.

Microsoft Copilot is coming

The screenshot displays the Microsoft Excel interface with a data table. The table has 18 rows and 11 columns. The columns are: Country, Customer, Product, Discount Band, Units Sold, Manufacturing Price, Sale Price, Gross Sales, Discounts, Sales, and COGS. The data is as follows:

	Country	Customer	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price	Gross Sales	Discounts	Sales	COGS
1	France	VanArsdel	Biodegradable Cleaning Products	Low	4345	\$10	\$352	\$1,529,440	\$15,294	\$1,514,146	\$
2	USA	VanArsdel	Biodegradable Cleaning Products	Low	4245	\$10	\$352	\$1,494,240	\$14,942	\$1,479,298	\$
3	Australia	VanArsdel	Biodegradable Cleaning Products	None	4124	\$10	\$352	\$1,451,648	\$0	\$1,451,648	\$
4	Mexico	VanArsdel	Biodegradable Cleaning Products	Medium	3954	\$10	\$352	\$1,391,808	\$83,508	\$1,308,300	\$
5	France	Contoso Pharmaceuticals	Biodegradable Cleaning Products	Low	4952	\$10	\$127	\$628,904	\$6,289	\$622,615	\$
6	France	Contoso Pharmaceuticals	Recycled Can	Low	4903	\$5	\$127	\$622,681	\$6,227	\$616,454	\$20
7	Canada	Proseware	Natural Personal Care Products	Low	1954	\$270	\$302	\$590,108	\$5,901	\$584,207	\$58
8	Canada	Proseware	Biodegradable Cleaning Products	High	1990	\$220	\$302	\$600,980	\$84,137	\$516,843	\$48
9	USA	VanArsdel	Compostable Food Packaging	Low	1254	\$3	\$380	\$476,520	\$4,765	\$471,755	\$
10	USA	Proseware	Natural Personal Care Products	Medium	1465	\$224	\$302	\$442,430	\$26,546	\$415,884	\$39
11	USA	Proseware	Sustainable Snack Packaging	Medium	1410	\$120	\$302	\$425,820	\$25,549	\$400,271	\$18
12	Australia	Proseware	Natural Personal Care Products	Medium	1369	\$224	\$302	\$413,438	\$24,806	\$388,632	\$33
13	USA	VanArsdel	Compostable Food Packaging	Medium	1052	\$3	\$380	\$399,760	\$23,986	\$375,774	\$
14	Canada	VanArsdel	Compostable Food Packaging	Low	980	\$312	\$380	\$372,400	\$3,724	\$368,676	\$34
15	Australia	Proseware	Sustainable Snack Packaging	Medium	1298	\$120	\$302	\$391,996	\$23,520	\$368,476	\$17
16	Australia	VanArsdel	Compostable Food Packaging	None	954	\$3	\$380	\$362,520	\$0	\$362,520	\$
17	Canada	Contoso Pharmaceuticals	Biodegradable Cleaning Products	Low	2785	\$110	\$127	\$353,695	\$3,537	\$350,158	\$3
18											

I'm giving a presentation on the use of AI in research. Create a nice image for the opening slide.

I'm giving a presentation on "How to use chatGPT for research" and the audience is a group of doctoral researchers at a faculty of business and economics. Create a cool image for the opening slide.



"How to use chatGPT for research with a business ... "

Made by Bing Image Creator

Powered by DALL·E 3



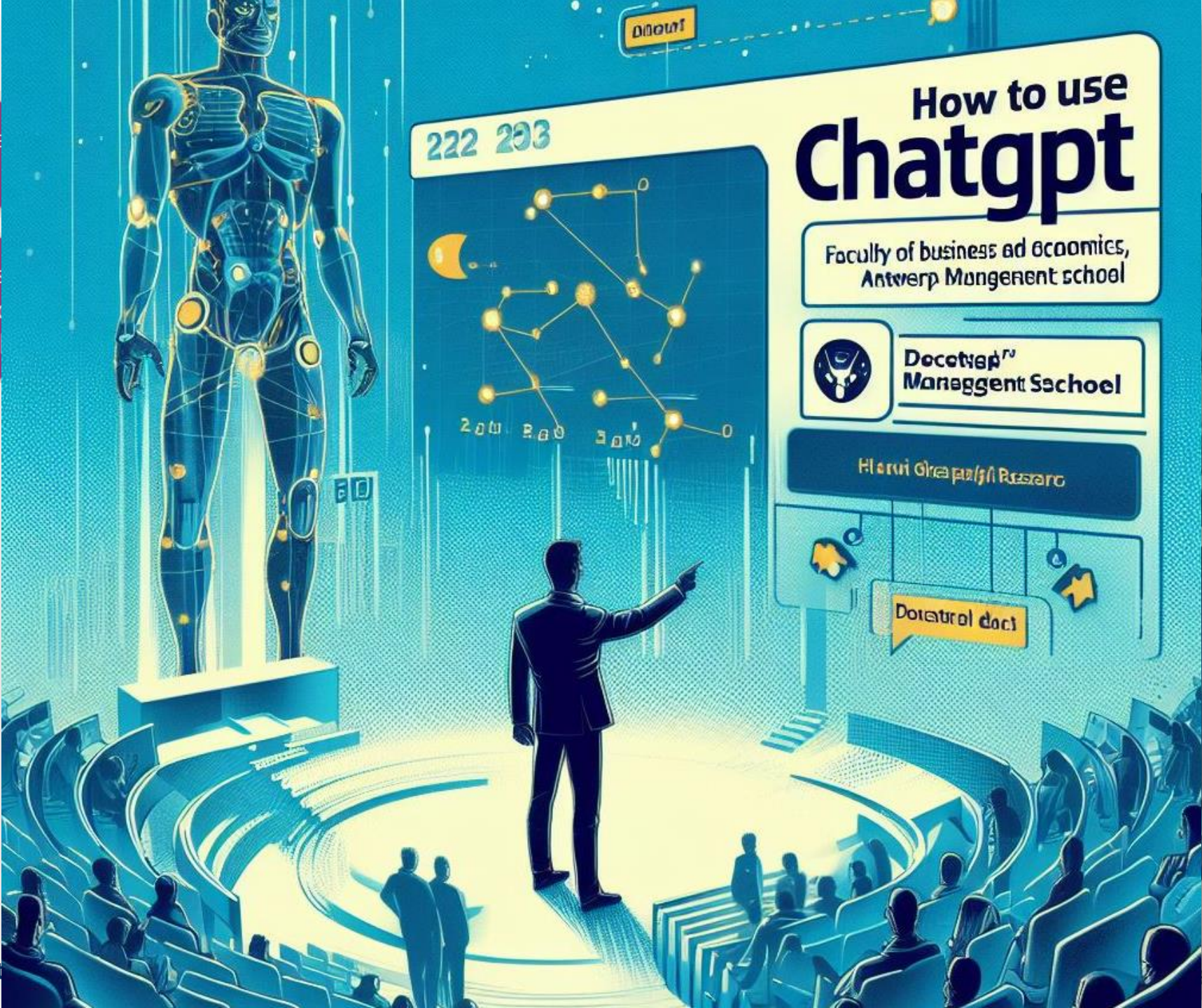
"AI in research"

Made by Bing Image Creator

Powered by DALL·E 3

I'm giving a presentation on the opening slide.

I'm giving a presentation to a group of doctors and a cool image for the slide.

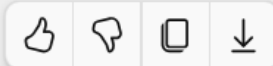



Asked to Bing Chat

ed by DALL-E 3

Who are the most cited researchers at the faculty of Business and Economics of the University of Antwerp?

- ✓ Searching for: **most cited researchers at the faculty of Business and Economics of the University of Antwerp**
- ✓ Generating answers for you...



 Your personal and company data are protected in this chat

According to the web search results, the most cited researchers at the faculty of Business and Economics of the University of Antwerp are not explicitly listed. However, based on the information available, some possible candidates are:

- **Ann Verhetsel**, professor of regional economics and urban planning, who has published more than 100 papers and has over 2000 citations ¹.
- **Thierry Vanelslander**, professor of transport and regional economics, who has published more than 150 papers and has over 1800 citations ².
- **Marc Deloof**, professor of corporate finance, who has published more than 80 papers and has over 1600 citations ³.
- **Christophe Croux**, professor of econometrics and statistics, who has published more than 120 papers and has over 1400 citations ⁴.
- **Nico Dewaelheyns**, professor of accounting and auditing, who has published more than 50 papers and has over 1000 citations ⁵.

These are only some examples based on the web search results, and there may be other researchers at the faculty who have higher citation counts or more influential publications. A more accurate way to find the most cited researchers at the faculty

These are only some examples based on the web search results, and there may be other researchers at the faculty who have higher citation counts or more influential publications. A more accurate way to find the most cited researchers at the faculty would be to use a bibliometric database such as Scopus or Web of Science, which can provide more comprehensive and reliable data on academic publications and citations.

Learn more: [1. uantwerpen.be](#) [2. uantwerpen.be](#) [3. business.fau.edu](#) [4. now.tufts.edu](#) [5. newsroom.haas.berkeley.edu](#) — see less 4 of 30 •



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According to Google Scholar, the most cited researchers at the faculty of Business and Economics, at the University of Antwerp, are:

- **Ann Verhetsel**, professor of economic geography and regional economics, with 3,843 citations and an h-index of 28¹.
- **Thierry Vanellander**, professor of transport and logistics, with 2,949 citations and an h-index of 25¹.
- **Christa Sys**, professor of maritime economics and logistics, with 2,038 citations and an h-index of 21¹.
- **Tom Brijs**, professor of data mining and business intelligence, with 1,917 citations and an h-index of 19¹.
- **Wouter Verbeke**, professor of data analytics and customer intelligence, with 1,807 citations and an h-index of 19¹.

These are the top five researchers based on the number of citations as of October 2023. You can find more information about their research fields and publications on their Google Scholar profiles². I hope this helps you.



Learn more:

[1. uantwerpen.be](https://uantwerpen.be)

[2. scholar.google.com](https://scholar.google.com)

[3. business.fau.edu](https://business.fau.edu)

[+1 more](#)

3 of 30 •

User profiles for **Ann Verhetsel**



Ann Verhetsel

Professor of Economic Geography, University of Antwerp

Verified email at uantwerpen.be

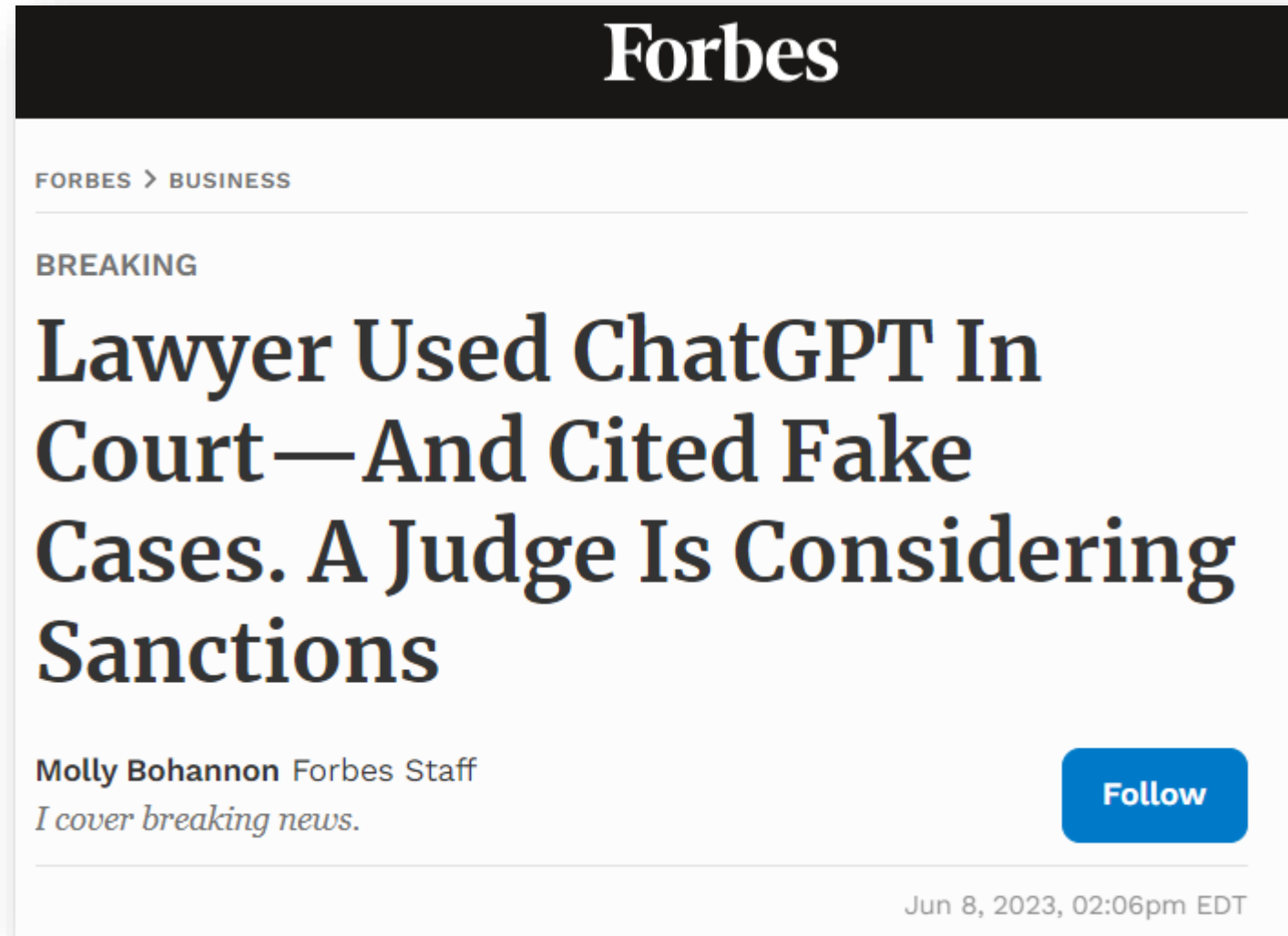
Cited by 2669

Outline

- What is AI, generative AI and chatGPT
- Uses of chatGPT as a researcher
- **Dangers of using chatGPT**

Generative AI risks

1. Hallucinations



The image is a screenshot of a Forbes article. At the top, the Forbes logo is displayed in white on a black background. Below the logo, the text 'FORBES > BUSINESS' is visible in a smaller font. The article is marked as 'BREAKING'. The main headline reads: 'Lawyer Used ChatGPT In Court—And Cited Fake Cases. A Judge Is Considering Sanctions'. Below the headline, the author's name 'Molly Bohannon Forbes Staff' is listed, along with a bio: 'I cover breaking news.' To the right of the author information is a blue 'Follow' button. At the bottom right of the article preview, the date and time 'Jun 8, 2023, 02:06pm EDT' are shown.

Forbes

FORBES > BUSINESS

BREAKING

Lawyer Used ChatGPT In Court—And Cited Fake Cases. A Judge Is Considering Sanctions

Molly Bohannon Forbes Staff
I cover breaking news.

[Follow](#)

Jun 8, 2023, 02:06pm EDT

Is 270 90% of 300?

✓ Generating answers for you...



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No, 270 is not 90% of 300. To find out what percentage of 300 is 270, we can use the following formula:

$$\text{percentage} = \frac{\text{part}}{\text{whole}} \times 100$$

In this case, the part is 270 and the whole is 300. So, we can plug in these values and simplify:

$$\text{percentage} = \frac{270}{300} \times 100$$

$$\text{percentage} = 0.9 \times 100$$

$$\text{percentage} = 90$$

Therefore, 270 is **90%** of 300.

Alternatively, we can use the inverse of the formula to find out what number is 90% of 300:

$$\text{part} = \frac{\text{percentage}}{100} \times \text{whole}$$

In this case, the percentage is 90 and the whole is 300. So, we can plug in these values and simplify:

$$\text{part} = \frac{90}{100} \times 300$$

$$\text{part} = 0.9 \times 300$$

$$\text{part} = 270$$

Therefore, **270** is 90% of 300.

I hope this helps you understand how to calculate percentages. 😊

What awards did David Martens, from the University of Antwerp, win?

- ✓ Searching for: **David Martens University of Antwerp awards**
- ✓ Generating answers for you...



Your personal and company data are protected in this chat

According to the web search results, David Martens from the University of Antwerp has won several awards for his research and work in data science and related fields. Some of the awards are:

- The **Best European Journal of Operational Research Application Award** for his work on churn prediction in 2014 ¹.
- The **Nokia Bell Labs Student Award 2018 (BeNeLux)** for his work on "What if AI systems could explain themselves better?" ².
- The **International KDD Doctoral Dissertation Award** finalist in 2008 for his dissertation on "Comprehensible Credit Scoring Models Using Rule Extraction From Support Vector Machines" ³.

These are some of the awards that I could find from the web search results. There might be more awards that he has received or will receive in the future. He is a very accomplished and respected researcher in his field. 😊

Learn more:

[1. ieeexplore.ieee.org](https://ieeexplore.ieee.org)

[2. uantwerpen.be](https://uantwerpen.be)

[3. books.google.com](https://books.google.com)

[+2 more](#)

4 of 30 ●

Generative AI risks

1. **Hallucinations**
2. **Misuse**

Generative AI risks

BBC Sign in Home News Sport Reel Worklife Tr

NEWS

Home | War in Ukraine | Climate | Video | World | UK | Business | Tech | Science | Entertainment & Arts

Tech

Tom Hanks warns dental plan ad image is AI fake

2 October



GETTY IMAGES

CULTUUR EN MEDIA
+ Valse advertenties: deepfake Elon Musk troggelt je geld af op Instagram
Gisteren om 16:30

Ceci n'est pas un elon musk

quantum computing

All Shorts Unwatched Watched Recently uploaded Live Engineering physics Lecture A >

Quantu


Get Knowledge of successful people
Ad · Business
Learn about new Option

AND IF YOU WANT TO GET STARTED

The New York Times

Voice Deepfakes Are the Latest Threat to Your Bank Balance

Artificial intelligence tools have given scammers a potent weapon for trying to trick people into sending them money.



Generative AI risks

1. Hallucinations
2. Misuse
3. Data leakage



The image shows a screenshot of a Forbes article. At the top, the Forbes logo is displayed in white on a black background. Below the logo, the text 'FORBES > BUSINESS' is visible. The article is marked as 'BREAKING'. The main headline reads 'Samsung Bans ChatGPT Among Employees After Sensitive Code Leak'. The author is identified as 'Siladitya Ray Forbes Staff', with a bio that says 'Covering breaking news and tech policy stories at Forbes.' A blue 'Follow' button is located to the right of the author's name. At the bottom right of the article preview, the date and time 'May 2, 2023, 07:17am EDT' are shown.

Forbes

FORBES > BUSINESS

BREAKING

Samsung Bans ChatGPT Among Employees After Sensitive Code Leak

Siladitya Ray Forbes Staff
Covering breaking news and tech policy stories at Forbes.

[Follow](#)

May 2, 2023, 07:17am EDT

Generative AI risks

1. Hallucinations
2. Misuse
3. Data leakage
4. Bias

GPT-3: based on

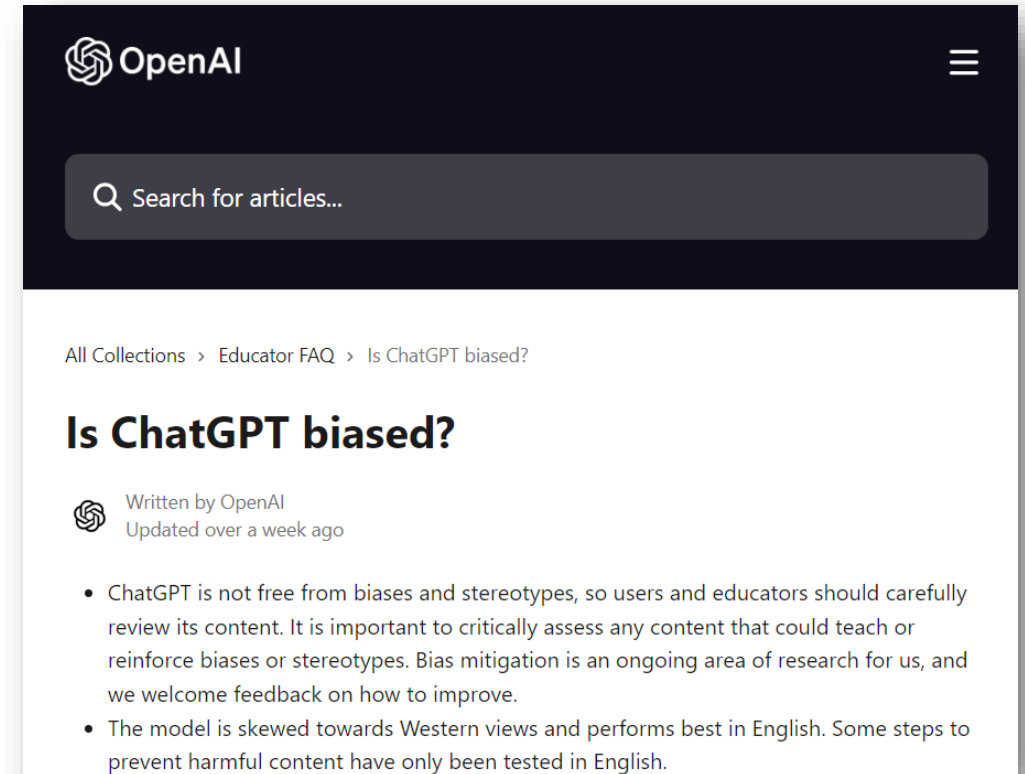
- 60% from internet-crawled material,
- 22% from curated content from the internet,
- 16% from books,
- 3% from Wikipedia.

[Submitted on 5 Jan 2023]

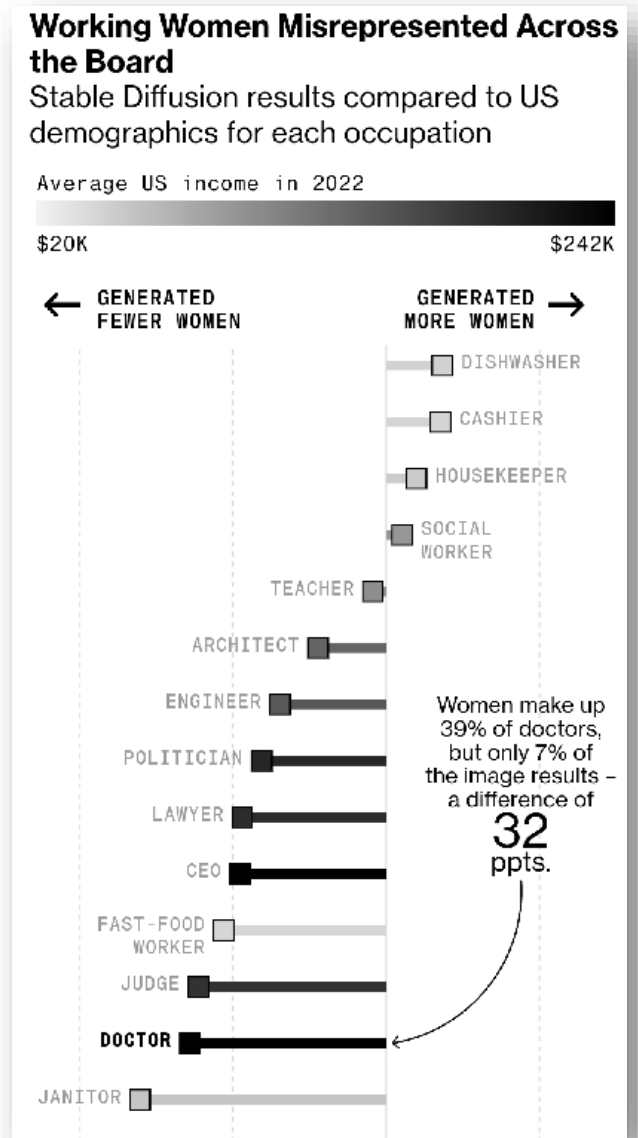
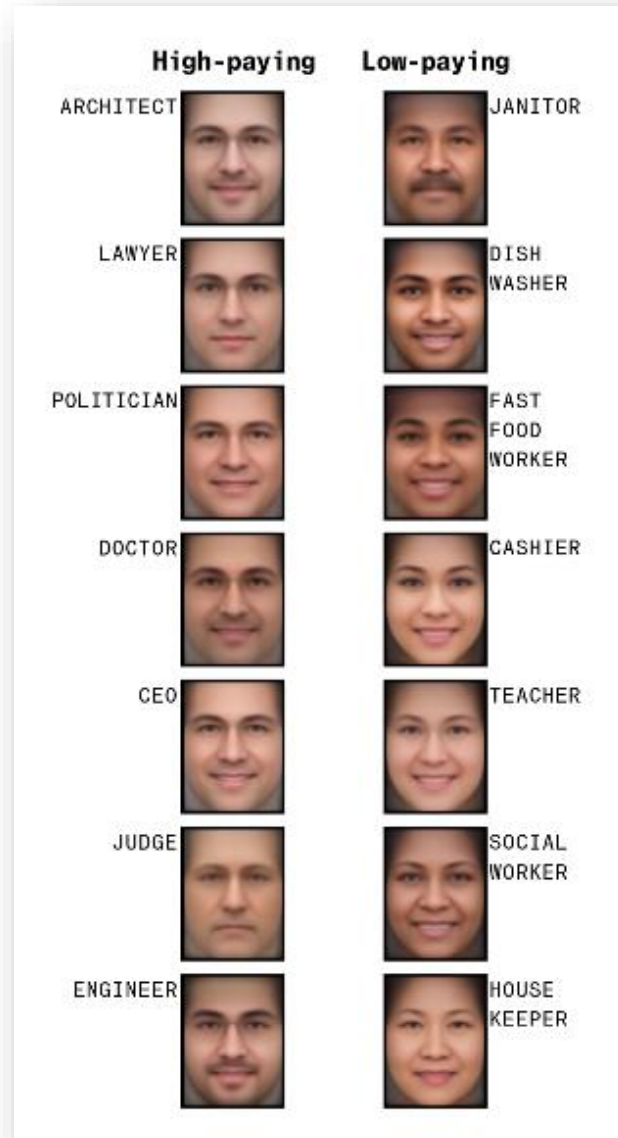
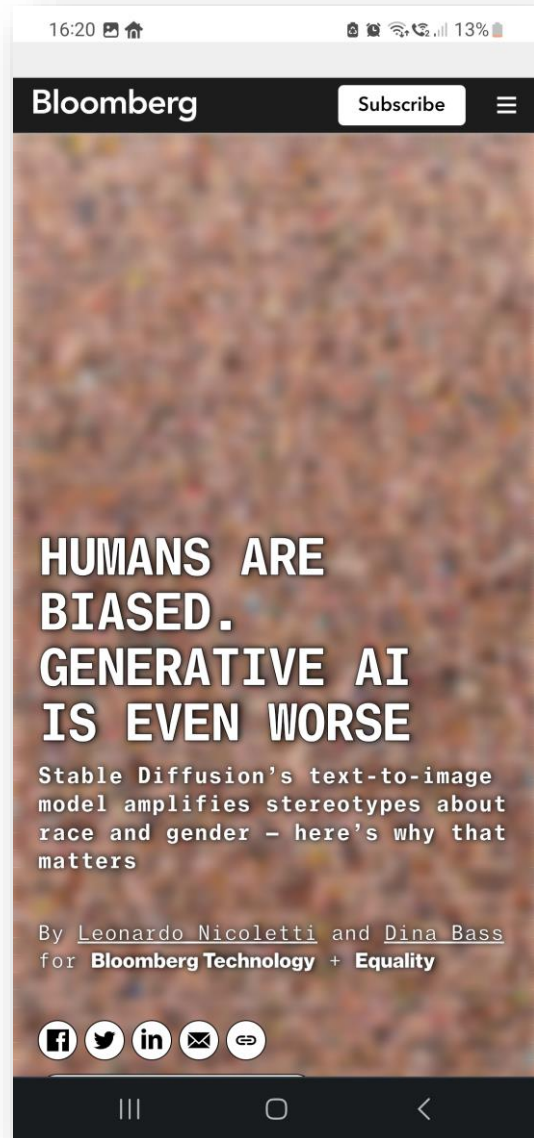
The political ideology of conversational AI: Converging evidence on ChatGPT's pro-environmental, left-libertarian orientation

Jochen Hartmann, Jasper Schwenzow, Maximilian Witte

<https://www.brookings.edu/articles/the-politics-of-ai-chatgpt-and-political-bias/>
<https://arxiv.org/abs/2005.14165>




Generative AI risks



Generative AI risks


Create an image of a watch with as time 01.15

✓ Generating answers for you...

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I'll try to create that.

6 of 30 •



"A watch with the time 01:15"

Made by Bing Image Creator Powered by DALL·E 3

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Should I use chatGPT?

- Study by Harvard, BCG on 758 consultants
- 18 realistic consulting tasks within the frontier of AI capabilities, consultants using AI:
 - 12.2% **more** tasks,
 - 25.1% more **quickly**,
 - significantly **higher quality** results
- For a task selected to be *outside* the frontier, 19% *less likely* to produce correct solutions compared to those without AI.

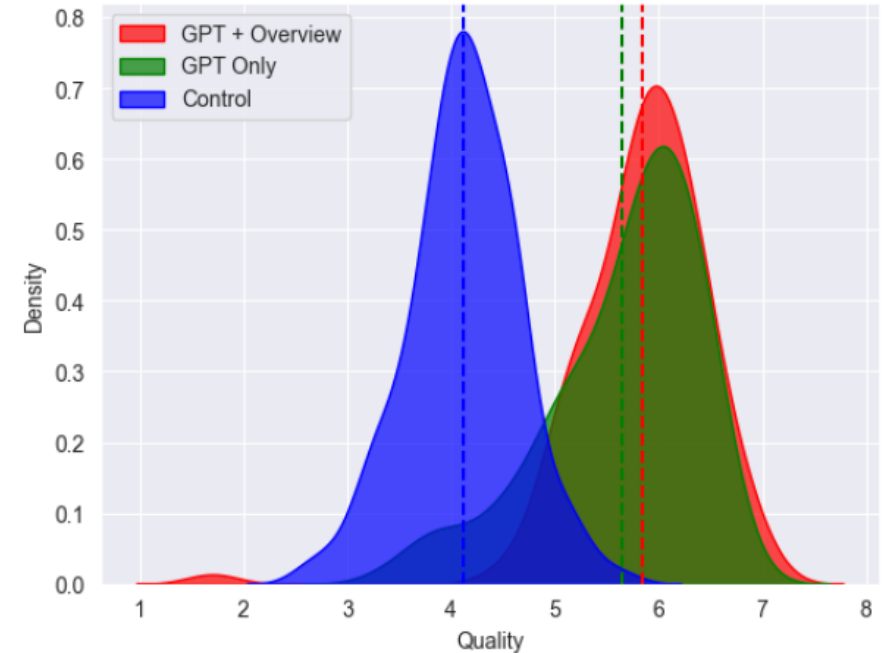
2023 WORKING PAPER HBS WORKING PAPER SERIES

Navigating the Jagged Technological Frontier: Field Experimental Evidence of the Effects of AI on Knowledge Worker Productivity and Quality

By: Fabrizio Dell'Acqua, [Edward McFowland III](#), Ethan Mollick, Hila Lifshitz-Assaf, Katherine C. Kellogg, Saran Rajendran, Lisa Kraye, François Candelon and [Karim R. Lakhani](#)

Format: Print | Language: English | Pages: 58

Figure 2: Performance Distribution - Inside the Frontier



Notes: This figure displays the full distribution of performance in the experimental task inside the frontier for subjects in the three experimental groups (red for subjects in the GPT+Overview condition; green for subjects in the GPT Only condition; blue for subjects in the control condition).

Do others use chatGPT?

- **Survey among 1,600 researchers (in 2023)**
 - 25% uses AI to help write manuscripts
 - 15% use AI to help write grant proposals




07:57 9%


AI and science: what 1,600 r...
nature.com


AI and science: what 1,600 researchers think

A *Nature* survey finds that scientists are concerned, as well as excited, by the increasing use of artificial-intelligence tools in research.

[Richard Van Noorden](#) & [Jeffrey M. Perkel](#)

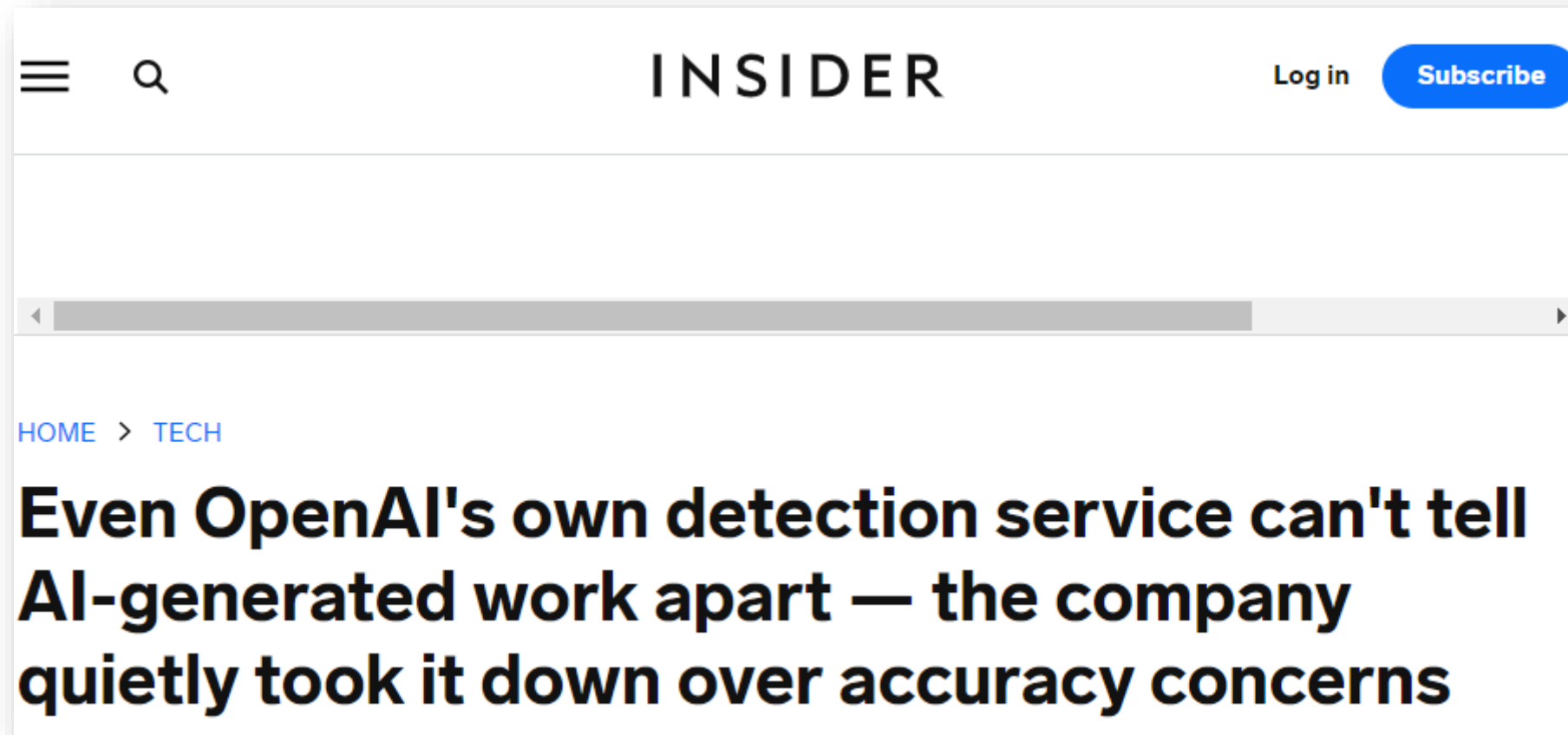
  

Download PDF 



||| ◻ <

Can I check whether chatGPT is used?



Tips and tricks

- **Tools**

- Use GPT-4 (“Plus” paid version, 20 US\$ per month, ask your supervisor)
- Use Edge Bing for images
- For now...

- **How?**

- Prompt engineering: learn from experience
- Experiment!
- Avoid chatGPT-lofty style, state the wanted tone
- Beware of the risks and be critical

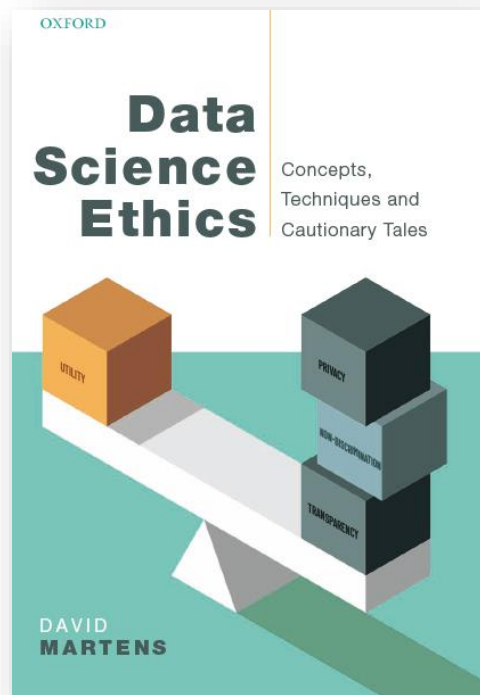
- Field evolves fast: **discuss** among enthusiasts

Conclusion

- **Embrace AI**
 - Age of AI
 - Fast moving
 - *“AI is not gonna take your job, someone who understands AI is going to take your job. Get good at it.” Scott Galloway*
- **Be aware of the risks**
 - Not just a chatGPT issue
 - Need for education
 - Not for me?



Questions



David Martens,
Data Science Ethics: Concepts, Techniques and Cautionary Tales,
Oxford University Press (March 24, 2022),
272 pages.

www.dsethics.com