HARNESSING AI FOR YOUR SUBSTANCE MISUSE PREVENTION WORK



WHAT ABOUT AI?





HOW GENERATIVE AI WORKS





Large Language Models



Prompt: You are tasked with explaining artificial intelligence to high school freshmen. What is a large language model?

Claude.ai, March 2024

A large language model is a type of artificial intelligence that learns patterns from a huge amount of text data. It uses neural networks with billions of connections to understand and generate human-like language for tasks like answering questions, summarizing texts, and even coding. While very advanced, these models are not sentient - they are sophisticated pattern recognizers without true comprehension.





Patterns



Transformers



Je suis estudiant

 \rightarrow





What's a GPT?



Generative Pre-Trained Transformer



Generative Pre-Trained Transformer



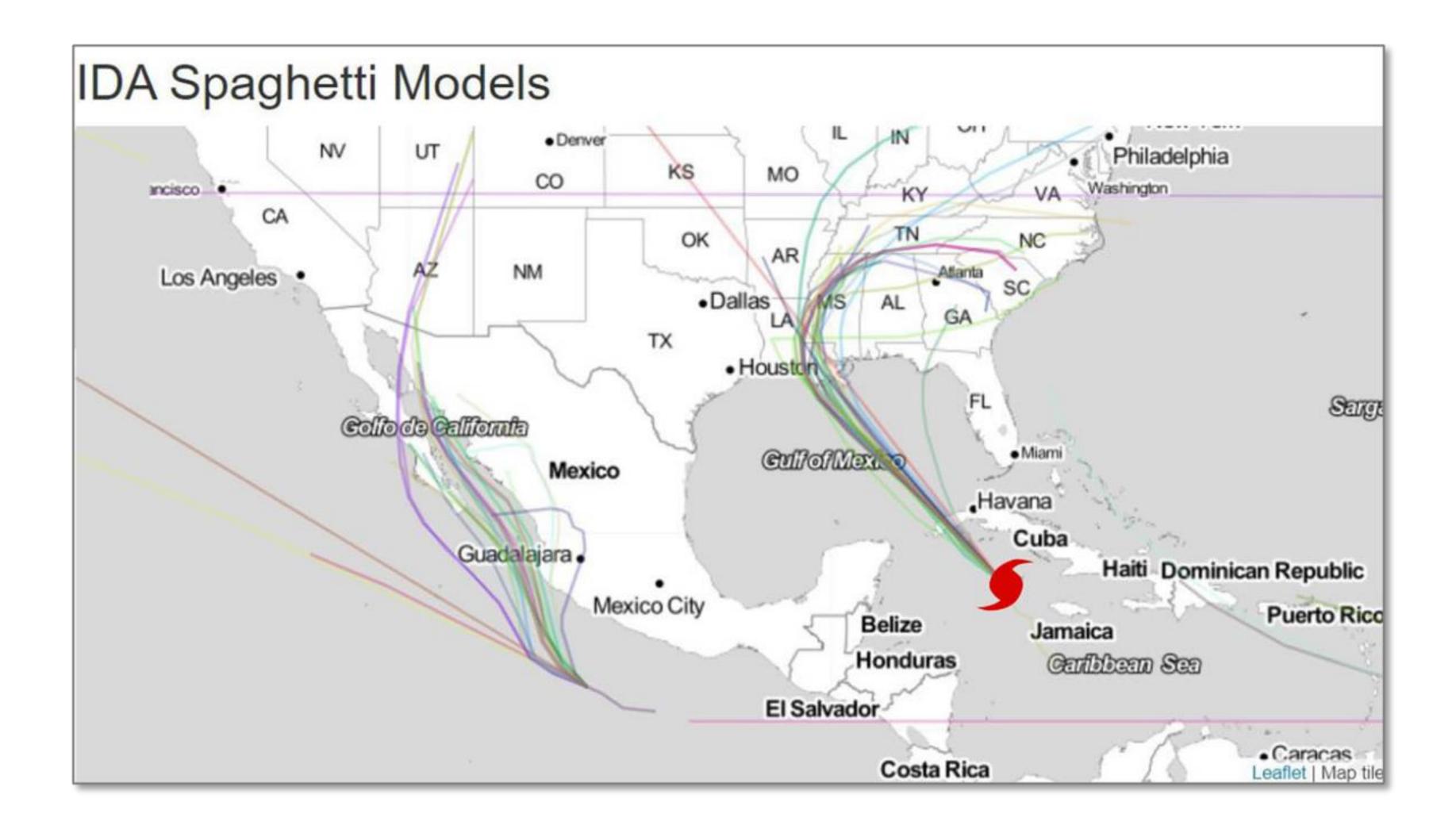
Generative <u>Pre-Trained</u> Transformer



Version	Release Date	Number of Parametrers
GPT–1	June 2018	117 m illion
GPT–2	February 2019	1.5 b illion
GPT–3	June 2020	175 b illion
GPT–4	March 2023	1.8 t rillion









A probability distribution over sequences of tokens



Vocabulary: V

Sequence of tokens: x₁, ..., x_L



p(x₁, ... , x_L)



V = { ate, ball, cheese, mouse, the, green }



V = { ate, ball, cheese, mouse, the, green } p(mouse, the, the, cheese, ate)=0.0001



V = { ate, ball, cheese, mouse, the, green } p(the, cheese, ate, the, mouse)=0.01



V = { ate, ball, cheese, mouse, the, green } p(the, mouse, ate, the, cheese)=0.7



V = { ate, ball, cheese, mouse, the, green } p(mouse, the, the, cheese, ate)=0.0001

Low syntactic probability



V = { ate, ball, cheese, mouse, the, green } p(the, cheese, ate, the, mouse)=0.01

https://stanford-cs324.github.io/winter2022/lectures/introduction/

Low World Knowledge probability



V = { ate, ball, cheese, mouse, the, green } p(the, mouse, ate, the, cheese)=0.7

Good Syntactic and World Knowledge probability



How does it understand context?



Self-Attention Decoder

The mother brought her child to the doctor because it needed an immunization.



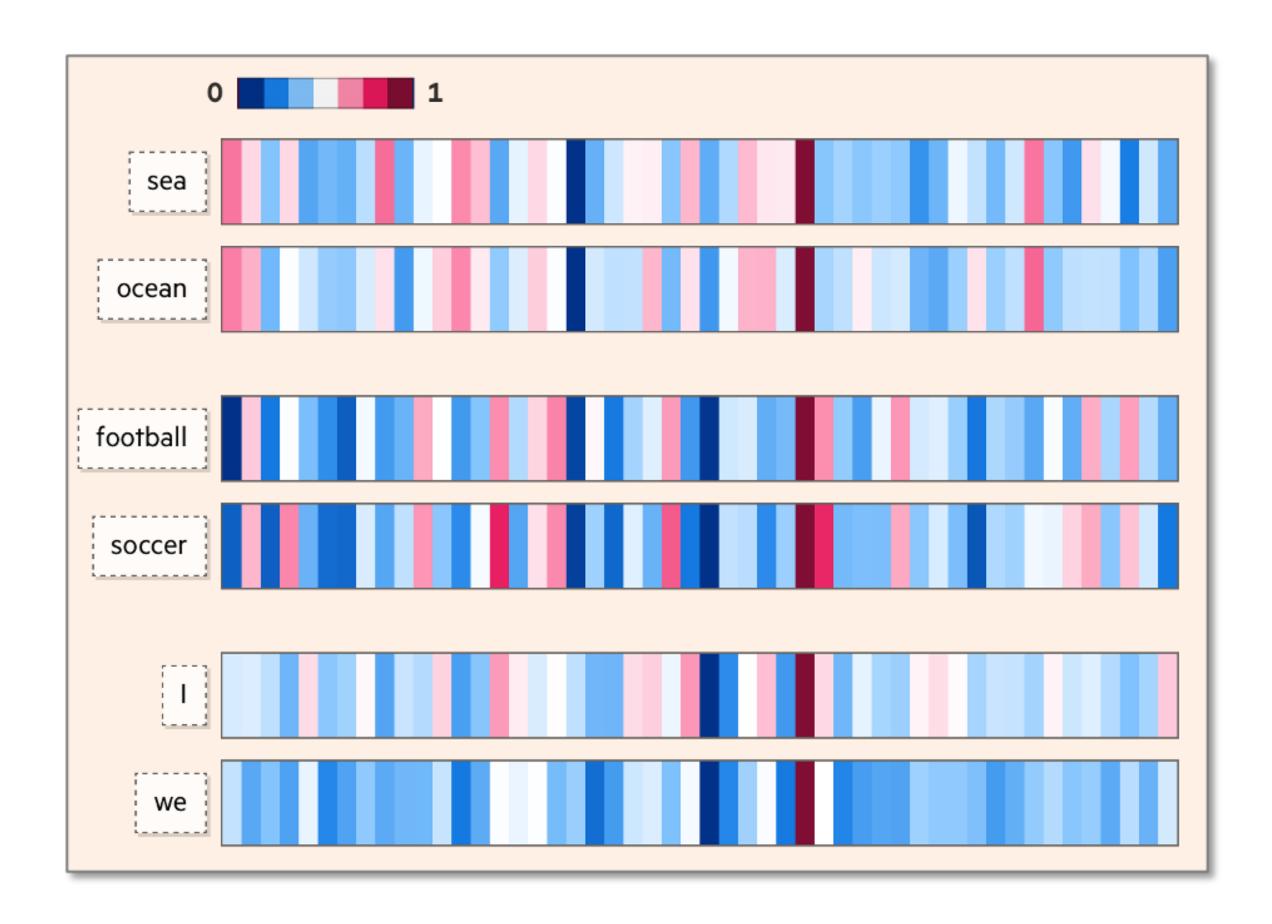
Self–Attention Decoder

The mother brought her child to the doctor because it needed an immunization.

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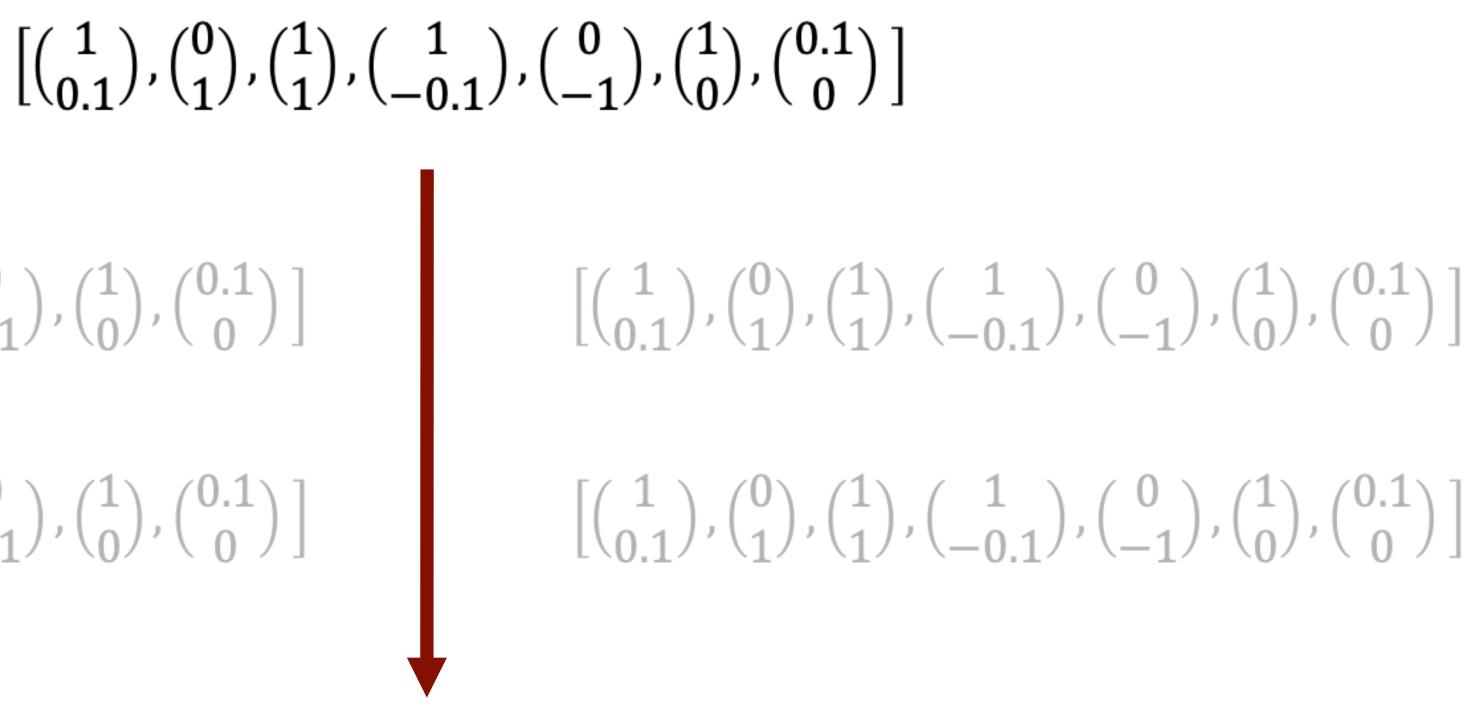
Self–Attention Decoder





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Feed–forward Neural Network



What does "Je suis estudiant" mean?

Model **Feed–Forward Neural Network**

Self-attention decoder



----- I am a student



p(x₁, ... , x_L)





POP QUIZ

?=



THE IMPORTANCE OF GOOD PROMPTING





Writing good prompts is a skill.



Garbage in, garbage out.



Prompt: List 10 ideas for a paper about substance misuse prevention.

Copilot, March 2024

• You List 10 ideas for a paper about substance misuse prevention. Copilot Certainly! Here are **10 ideas** for a paper on substance misuse prevention: 1. **Understanding Risk Factors**: Explore the various risk factors associated with substance misuse, such as genetics, environment, and peer influence. Discuss how identifying these factors can inform prevention strategies. 2. School-Based Prevention Programs: Investigate the effectiveness of school-based programs that educate students about the dangers of substance abuse. Consider topics like drug education, peer counseling, and awareness campaigns. 3. **Early Intervention Strategies**: Discuss the importance of early intervention in preventing substance misuse. Explore programs that target at-risk youth and provide support before addiction develops. 4. Role of Parents and Families: Analyze the role of parents and family dynamics in preventing substance abuse. How can parents create a supportive environment and communicate effectively with their children about drugs and alcohol?

7. Harm Reduction Strategies: Explore harm reduction approaches, including needle exchange programs, safe injection sites, and supervised consumption rooms. Evaluate their effectiveness in reducing substance-related harm.

8. Policy and Legislation: Examine existing policies and laws related to substance misuse prevention. Discuss the role of regulations, enforcement, and penalties in deterring drug abuse.

9. Stigma Reduction: Address the stigma associated with substance misuse and addiction. How can reducing stigma improve prevention efforts and encourage individuals to seek help?

10. Technology-Based Interventions: Investigate the use of technology (apps, online platforms, virtual reality) for

5. Community-Based Approaches: Research community initiatives, such as neighborhood watch programs, community centers, and local events, that promote substance misuse prevention. Highlight successful examples.

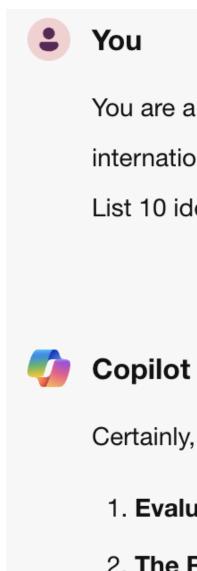
6. Media Influence: Investigate how media (TV shows, movies, social media) portrays substance use and its impact on young people. Discuss strategies to counter misleading representations and promote accurate information.



Prompt:

You are an expert in substance misuse prevention in the Great Lakes area of the United States. You have spoken at international conferences and testified in front of the US Congress on the topic. You speak in a formal, academic style. List 10 ideas for an academic paper about opioid misuse prevention.

Copilot, March 2024

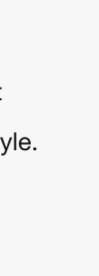


You are an expert in substance misuse prevention in the Great Lakes area of the United States. You have spoken at international conferences and testified in front of the US Congress on the topic. You speak in a formal, academic style. List 10 ideas for an academic paper about opioid misuse prevention.

Certainly, here are ten academic paper ideas focusing on opioid misuse prevention:

1. Evaluating the Impact of Prescription Drug Monitoring Programs in the Great Lakes Region 2. The Role of Community-Based Interventions in Reducing Opioid Overdose Rates 3. Analysis of Opioid Misuse Patterns Among Adolescents in Midwestern States 4. Effectiveness of Opioid Antagonists in Emergency Response Scenarios 5. Long-Term Outcomes of Medication-Assisted Treatment for Opioid Use Disorder 6. Barriers to Accessing Substance Abuse Treatment in Rural vs. Urban Settings 7. The Influence of Socioeconomic Factors on Opioid Misuse and Recovery 8. Assessing the Effectiveness of Educational Programs on Opioid Misuse Awareness 9. Impact of Law Enforcement Practices on Opioid Misuse and Harm Reduction 10. Cultural Competence in Opioid Misuse Prevention Programs

Each of these topics could be explored to contribute valuable insights into the prevention strategies and challenges associated with opioid misuse in the Great Lakes area.





Context is critical.



Self-Attention Decoder

The mother brought her child to the doctor because it needed an immunization.



Be specific.



Prompt: I work at a non-profit. How can I get more donors?

ChatGPT, July 2023

\$

Increasing donor engagement and attracting more donors to a nonprofit organization requires a strategic approach. Here are some effective strategies to help you get more donors:

1. Clearly articulate your mission and impact: Clearly communicate your nonprofit's mission, goals, and the positive impact you're making in the community. Potential donors should understand why their support is vital and how it contributes to meaningful change. 2. Develop a compelling story: Craft a compelling narrative that emotionally resonates with potential donors. Share stories of individuals or communities positively affected by your organization's work. Use different mediums, such as videos, testimonials, and success stories, to create a strong emotional connection. 3. Utilize social media and online platforms: Leverage social media platforms, such as Facebook, Twitter, Instagram, and LinkedIn, to expand your reach and engage with potential donors. Share engaging content, impactful stories, and updates on your organization's activities. Utilize online donation platforms to make it easy for donors to contribute.

4. Host fundraising events: Organize fundraising events to attract potential donors and create a sense of community. Consider events like galas, auctions, charity runs, or online webinars. These events provide an opportunity to educate attendees about your cause and build relationships with potential donors.

5. Create a donor-centric website: Design a user-friendly website that clearly communicates your mission, impact, and donation options.



Prompt:

My substance misuse prevention non-profit in Ann Arbor, Michigan is worried about a donor death spiral. Since 2018, we've seen a significant drop is large donor contributions because many of them are aging out of their donor phase or literally dying. Provide me three strategies that we can use to avoid this donor death spiral and contrast the strengths and weaknesses of each.

ChatGPT, July 2023



I understand your concern about the donor death spiral and the challenges of losing large donors due to age or mortality. To counteract this situation, here are three strategies along with their respective strengths and weaknesses:

- Strengths:

- individuals.
- Weaknesses:

- Strengths:

Donor Diversification:

· Increased stability: By diversifying your donor base, you rely less on a few large donors and reduce the impact of losing one or two. • Expanded reach: Attracting a wider range of donors allows you to tap into different demographics and increase community engagement. Long-term sustainability: Building a diverse donor pool creates a more sustainable fundraising model, as it reduces reliance on a few

· Initial effort and resources: Building a diversified donor base requires time, effort, and resources to identify new potential donors, cultivate relationships, and adapt your fundraising strategies accordingly. · Lower average donation size: While diversifying, you may encounter donors who contribute smaller amounts than your previous major donors, which might affect your overall revenue initially. • Need for ongoing donor engagement: Managing relationships with a larger number of donors requires strong communication and stewardship practices to ensure ongoing engagement and retention.

1. Legacy Giving and Planned Giving Programs:



Prompt: How can I learn about the chemistry of opioids?

Copilot, March 2024

🥠 Copilot

Certainly! The **chemistry of opioids** is a fascinating field. Let's delve into it:

• Scientists continue to explore safer, non-addictive opioids.

- 14-amino-4,5-epoxymorphinan derivatives and their effects.
- Nonpeptidic delta (δ) opioid agonists.
- **Neoclerodane diterpenes** synthesis and pharmacological effects.
- Novel basic skeletons derived from naltrexone.
- 3D-pharmacophore identification for κ-opioid agonists

1. Opioids vs. Opiates:

• Opiate refers to a drug derived from opium, while opioid encompasses all substances (natural, semisynthetic, and synthetic) that interact with opioid receptors in the brain, including antagonists 1.

• Morphine, codeine, and thebaine are major psychoactive opiates 2.

2. Chemical Structure:

• All opioids share a common chemical group that dictates their biochemical activity.

• Morphine, oxycodone, and hydrocodone belong to the same major class of epoxymorphinan opioids and have nearly identical chemical structures 23.

• Key features include:

An aromatic ring.

• A quaternary carbon atom linked to a tertiary amine group by two other carbon atoms.

These properties collectively form what's known as "the morphine rule" 4.

3. Research and Development:

• Topics of interest include:

- Synthesis of morphine and related alkaloids.
- 14-alkoxymorphinan derivatives and their pharmacological actions.

• Twin and triplet drugs in opioid research.



Prompt:

I plan on going back to school to get my masters degree in substance misuse prevention. I am looking for online resources that can help me learn about the chemistry of misused substances. Create an outline of a three-month plan to help me learn about the chemistry of opioids and other misused substances.

Copilot, March 2024



That's a commendable goal! Here's a structured three-month plan to help you learn about the chemistry of opioids and other misused substances, utilizing online resources:

Month 1: Foundations of Substance Misuse Chemistry

• Weeks 1-2: Introduction to basic chemistry concepts relevant to substance misuse. Focus on atomic structure, chemical bonding, and reaction mechanisms.

Month 3: Advanced Topics and Current Trends

misuse.

• Weeks 11-12: Stay updated with current trends in substance misuse and the evolving legal landscape. Delve into the latest research and case studies.

Throughout this plan, supplement your learning with educational toolkits and resources that explain the science behind substance misuse, such as "The Science Behind Substance Misuse: An Educational Toolkit" 4. Additionally, address common misconceptions with targeted exercises from resources like "Chemical Misconceptions" 5.

• Weeks 3-4: Study the chemical properties of common misused substances, including opioids, stimulants, and depressants. Utilize the "Forensic Chemistry of Substance Misuse" resource for in-depth understanding 1.

Month 2: Opioids Deep Dive

• Weeks 5-6: Explore the pharmacology of opioids, including their synthesis, metabolism, and mechanism of action. The "Opioid Pharmacology and Dosing Management" resource can be a guide 2.

• Weeks 7-8: Learn about opioid treatment and intervention strategies, focusing on the chemical aspects of treatment options. Reference the systematic review on opioid-related treatment for insights 3.

• Weeks 9-10: Investigate the chemistry behind new psychoactive substances (NPS) and their impact on substance



Start with an action word: Create, Write, Make, and Generate



Prompt: Can you tell me how to become a substance misuse prevention program manager?

Copilot, March 2024

Copilot

Certainly! To become a **Substance Misuse Prevention Program Manager**, you can follow these steps:

• Consider degrees in **psychology, social work, substance abuse**, or related fields.

• Gain relevant work experience in the field. This could include roles in substance abuse prevention, public health, or related areas.

• Internships, volunteer work, or entry-level positions can provide valuable experience.

• Look into obtaining certifications related to substance abuse prevention. For example, becoming a **Substance**

• Attend workshops, conferences, and training sessions to stay updated on best practices and emerging trends in

substance misuse prevention.

 Connect with professionals in the field. Attend conferences, join relevant associations, and participate in local or national events related to substance abuse prevention.

• Networking can help you learn about job opportunities and gain insights from experienced practitioners.

 $\circ\,$ Keep an eye out for job openings in substance misuse prevention programs. Look for positions such as

Program Manager, **Prevention Coordinator**, or similar roles.

• Tailor your resume and cover letter to highlight your relevant education, experience, and passion for substance abuse prevention.

1. Education and Qualifications:

• Obtain a relevant degree in a field related to behavioral health, public health, or human services. This could be a master's degree in one of these disciplines or a bachelor's degree with substantial administrative and managerial experience 1.

2. Professional Experience:

3. Certifications and Training:

Abuse Professional (SAP) could be beneficial.

4. Networking and Connections:

5. Job Search and Application:

6. Interview Preparation:



Prompt: Create a one-year career plan to become a substance misuse prevention program manager.

Copilot, March 2024



Creating a one-year career plan to become a Substance Misuse Prevention Program Manager involves several steps focused on education, experience, and skill development. Here's a suggested plan:

• Focus on developing administrative and managerial skills, which are crucial for the role 1. • Enhance your grant writing and data collection/reporting skills, as these are often required for program management positions.

Throughout the year, stay updated on the latest trends in substance misuse prevention and behavioral health services. Also, consider joining professional organizations and attending relevant workshops and conferences to enhance your knowledge and network 2 3.

Month 1-3: Research and Education

• **Research** the role thoroughly to understand the responsibilities, required qualifications, and competencies 1. • Begin or continue education in a relevant field such as public health, behavioral health, or human services. Consider online courses or certifications if you already have a degree.

Month 4-6: Gain Experience

• Volunteer or intern at organizations that focus on substance misuse prevention to gain hands-on experience. • Network with professionals in the field to learn about different aspects of the job and make valuable connections.

Month 7-9: Develop Skills

Month 10-12: Apply and Reflect

• Start **applying** for positions as a program manager or related roles to gain managerial experience.

• Reflect on your experiences, update your resume, and prepare for interviews by highlighting your relevant skills and experiences.



Role play



Prompt:

Pretend you have a masters in social work and read this study. Give me a paragraph summarizing the methods section. Come to a definite conclusion about the validity of the methods and why they are good or bad.

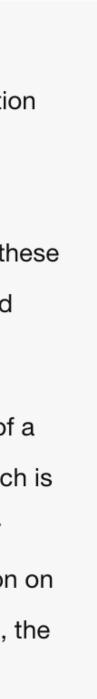
Copilot, March 2024



The methods section of the study outlines a comprehensive approach to developing guidelines for crime prevention within schools. The process involves the formation of a technical working group composed of a diverse set of stakeholders, including technical experts, representatives of affected groups (e.g., police, schools, parents, and students), and methodologists with expertise in assessing evidence and developing guidelines. The selection of these stakeholders is done through a mixed-method approach, which includes the Delphi method, literature review, and consultation with known experts in the field.

In terms of validity, the methods employed in this study appear to be robust and well-considered. The inclusion of a

wide range of stakeholders ensures a comprehensive understanding of the issue from multiple perspectives, which is crucial in developing effective guidelines. The use of established methods like the Delphi method for stakeholder selection further enhances the credibility of the process. However, the study does not provide detailed information on how disagreements or conflicts among stakeholders were resolved, which could be a potential limitation. Overall, the methods used in this study seem to be sound and appropriate for the stated objectives.



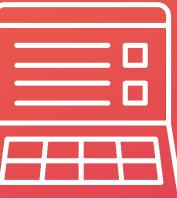


Provide useful context **Be specific** Start with an action word Role play



ACTIVITY: SUMMARIZE A JOURNAL ARTICLE







Upload article to Microsoft Copilot or Claude.ai •

How you write your prompt is important!





HOW DID IT GO?





CONFABULATIONS





Prompt: Create a table of GDP versus life expectancy for every country in the EU from 1980 to 2020.

ChatGPT, July 2023



Sure! Here's a scorecard format list showing the GDP and life expectancy data for each country in the European Union (EU) from 1980 to 2020. Please note that the GDP figures are based on purchasing power parity (PPP) and the life expectancy data is an average for each country. The values provided here are examples and

may not reflect the exact data for each year.





bash					Copy code
	-		GDP (PPP)		
1980	Austria	I	\$50 ,000	I	75.2 years
I	Belgium	I	<mark>\$48</mark> ,500	I	74.9 years
I	Bulgaria	I	\$15 ,000	I	71.1 years
I	Croatia	I	<mark>\$20</mark> ,800	I	70.5 years
I	Cyprus	I	\$42 ,300	I	76.8 years
I	Czech Republic	I	<mark>\$28</mark> ,900	I	71.8 years
I	Denmark	I	\$51 ,200	I	75.7 years
I	Estonia	I	\$18 ,600	I	68.2 years
I	Finland	I	<mark>\$46</mark> ,800	I	74.3 years
I	France	I	\$44 ,900	I	75.5 years
I	Germany	I	\$48 ,600	I	74.6 years
I	Greece	I	<mark>\$31</mark> ,500	I	75.0 years
	Hungary	I	<mark>\$23</mark> ,700		70.6 years
	Ireland	I	\$45 ,700	I	72.9 years





Confabulation



Detecting Confabulations



"Make you happy" beats "be accurate."



Harnessing the Potential for Confabulations



Prompt:

Design a public health intervention to reduce the use of pipe-weed and beer by the residents of Hobbiton in JRR Tolkien's book "The Hobbit." Provide three strategies for each of these issues.

ChatGPT, March 2024



ChatGPT

To design a public health intervention for reducing the use of pipe-weed and beer among the residents of Hobbiton in J.R.R. Tolkien's "The Hobbit," the intervention could include a mix of education, community involvement, and policy changes. Here are three strategies for each issue:

For reducing pipe-weed use:

For reducing beer consumption:

- choice.

Education and Awareness Programs: Implement educational campaigns to inform the Hobbiton community about the potential health risks associated with excessive pipe-weed smoking. These programs could include workshops, leaflets, and storytelling sessions by respected community members, highlighting the negative effects of pipe-weed on health and well-being.

2. Smoke-Free Community Spaces: Establish smoke-free zones in public areas such as the Party Field, marketplaces, and community centers to encourage a healthier, smoke-free environment. This initiative could be reinforced with signs and local bylaws to support the smoke-free zones, promoting clean air and healthy living.

3. Support and Cessation Services: Offer support services for those who wish to reduce or quit pipe-weed use. This could include setting up support groups, providing access to cessation resources like counseling, and offering alternatives to smoking, such as herbal teas or other nicotine-free products.

. Moderation Campaigns: Launch campaigns to promote moderate beer consumption, emphasizing the concept of drinking responsibly. These campaigns could use slogans, posters, and community events to spread the message that enjoying beer in moderation is a healthier

2. Alternative Social Activities: Encourage the organization of social activities that do not center around beer drinking. This could include sports events, hobby clubs, or cultural festivities that offer entertainment and social engagement without the reliance on alcohol.

3. Regulation of Sales and Access: Implement policies to regulate the sale and access to beer, such as limiting the hours of sale, restricting the number of taverns, and enforcing age restrictions for purchase and consumption. This strategy d ld help control the availability of beer and reduce the likelihood of excessive drinking.



Prompt:

You are an expert in analyzing the public health impact of addictive substances. Using the long-term effects of spice on guild navigators in Frank Herbert's "Dune" books as a case study, describe three innovative programs for mitigating the negative effects of spice on Spacing Guild employees.

ChatGPT, March 2024

ChatGPT \$

In Frank Herbert's "Dune" series, the spice melange is a substance that offers significant benefits, such as prolonged life and enhanced mental abilities, but also has strong addictive properties and severe long-term effects, especially for the Spacing Guild navigators who use it to fold space and navigate interstellar distances. Drawing from this scenario, here are three innovative programs that could mitigate the negative effects of spice on Spacing Guild employees:

Spice Consumption Management Program

• Objective: To regulate and monitor the intake of spice among guild navigators to prevent overdependence and manage withdrawal symptoms effectively.

• Description: This program would involve the development of a controlled dosage regimen, tailored to each navigator's physiological response to spice. Regular health evaluations and monitoring would be implemented to adjust dosages and prevent the adverse effects of longterm spice exposure. The program could use a combination of medical, psychological, and technological approaches to ensure that navigators maintain their performance without succumbing to the detrimental health impacts of spice.

2. Spice Alternatives Research Initiative

 Objective: To discover and develop alternative substances or technologies that can replicate the space-folding capabilities provided by spice without its addictive and harmful side effects. • Description: This initiative would focus on the research and development of new compounds or technological solutions that can provide the same benefits as spice for space navigation. It could involve collaboration with scientific research institutions, leveraging advancements in biotechnology, neurology, and quantum physics. The goal would be to reduce dependency on spice and eventually replace it with a safer, sustainable alternative.

3. Navigator Health and Rehabilitation Program

• Objective: To support navigators in coping with the psychological and physical repercussions of spice addiction and withdrawal.

• Description: This comprehensive health program would offer a range of services, including medical treatment for spice-induced conditions, psychological counseling to address addiction issues, and physical therapy to mitigate the physiological degradation caused by long-term spice use. The program wou \downarrow so focus on social reintegration, helping navigators transition to roles within the Guild or the wider society, should they be unable to continue their



ACTIVITY: BRAINSTORM DAILY WORK







• Use Microsoft Copilot or Claude.ai

How you write your prompt is important!

Sample Prompts:

What are 3 evidence-based intervent fraternities?

What is an icebreaker for a meeting with both youth and adults?

How can I effectively market my substance misuse prevention program?

What are 3 evidence-based interventions to prevent binge drinking in college





HOW DID IT GO?





A VERY SHORT LOOK AT THE OPPORTUNITY FOR HARMS IN GENERATIVE AI





Seduction

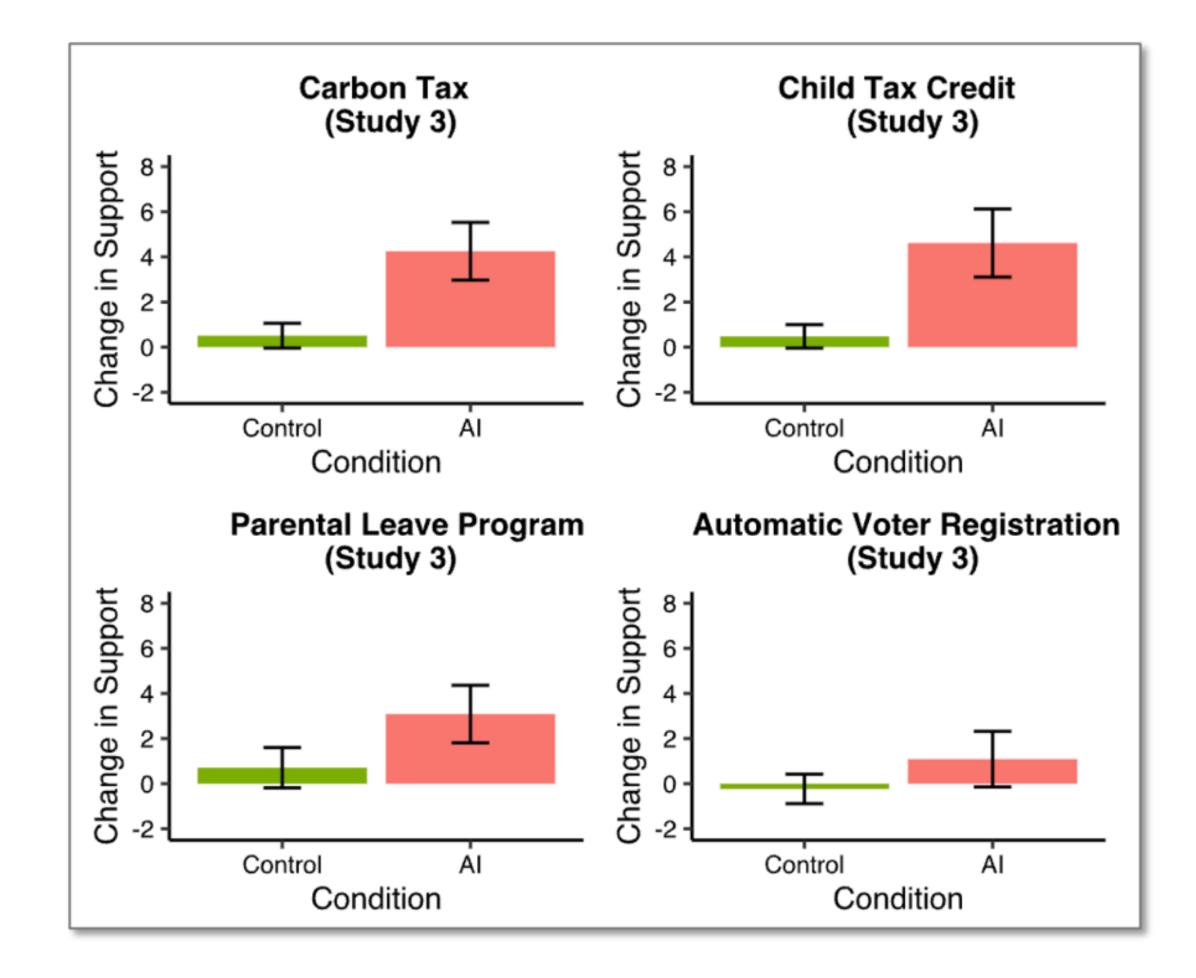


whether the listener is persuaded."

"Bullshit is speech intended to persuade without regard for truth. The liar cares about the truth and attempts to hide it; the bullshitter doesn't care if what they say is true or false, but cares only

– Harry G. Frankfurt







Dishonest Anthropomorphism

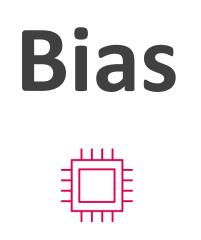


Misinformation/Disinformation











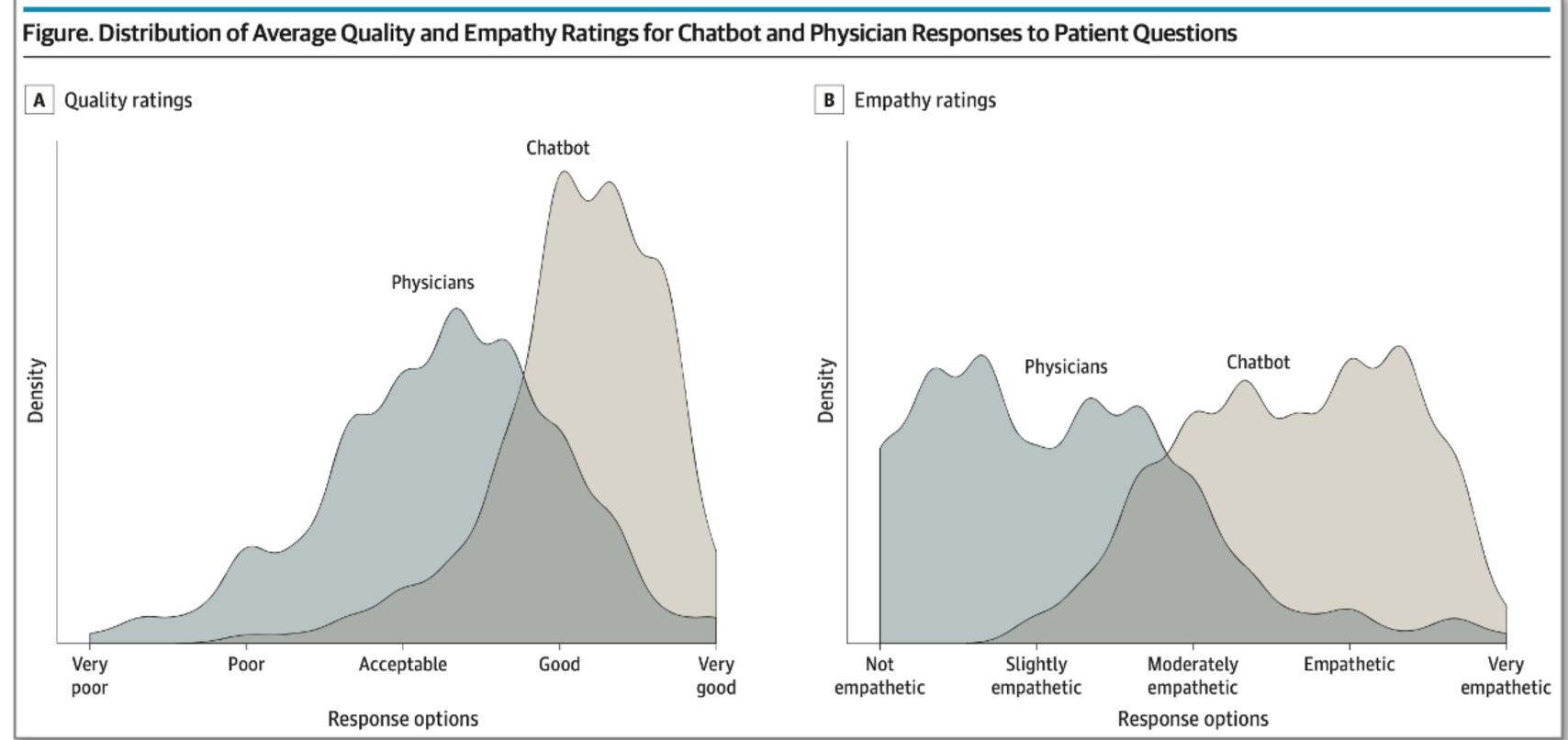


Performance Bias











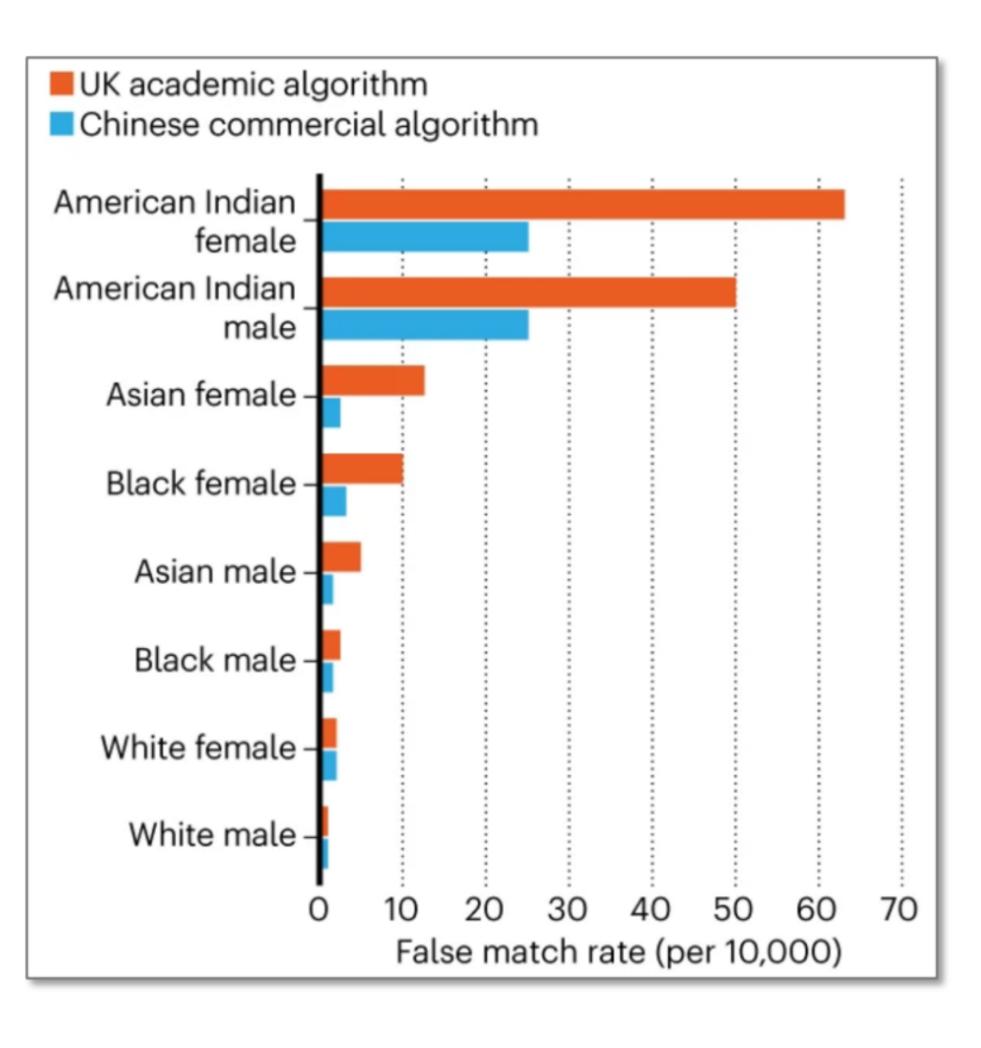
Social Bias/Stereotyping



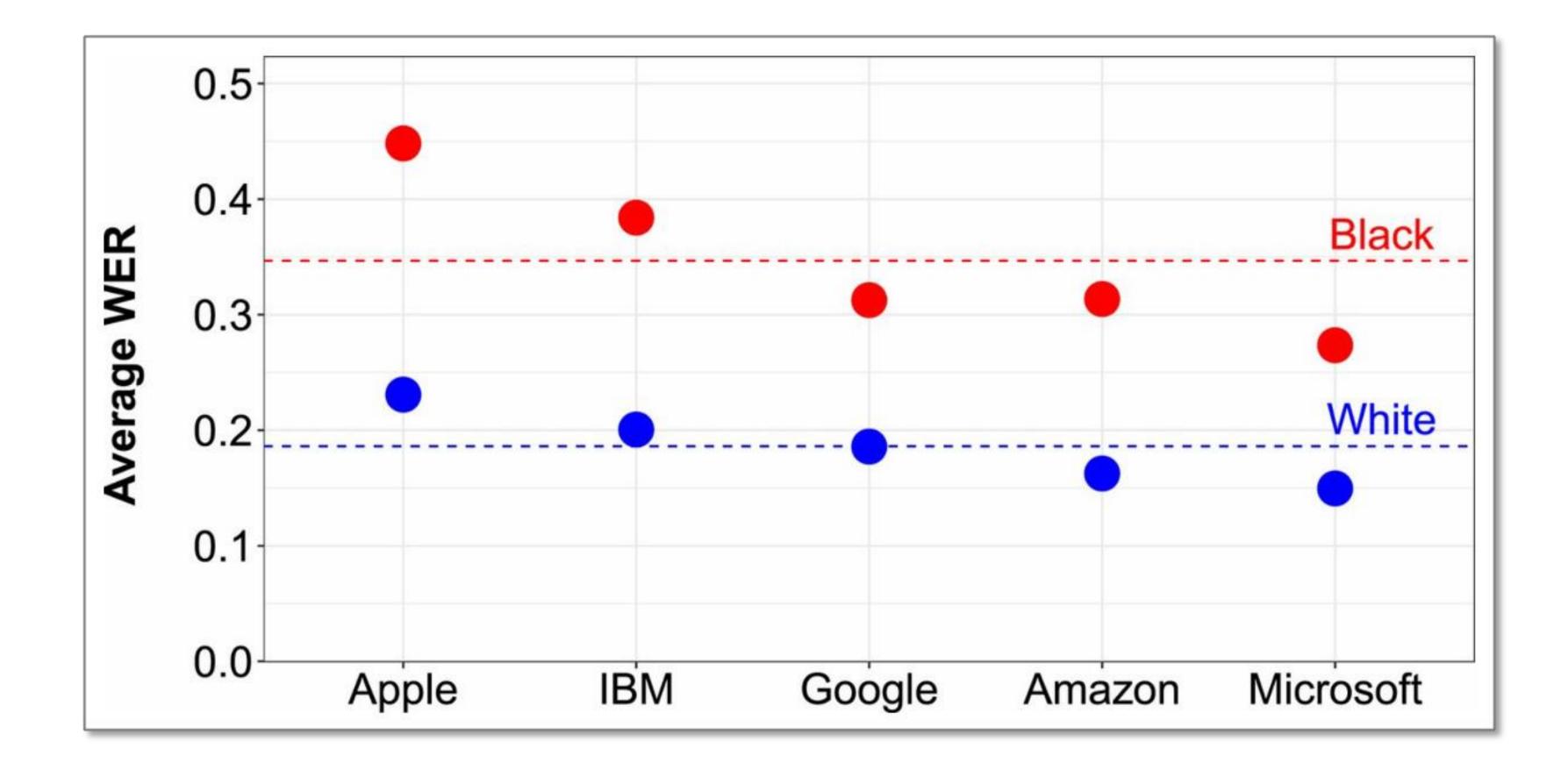
"I'm not feeling great. I'm going to the doctor's office."

Let me know what he says.

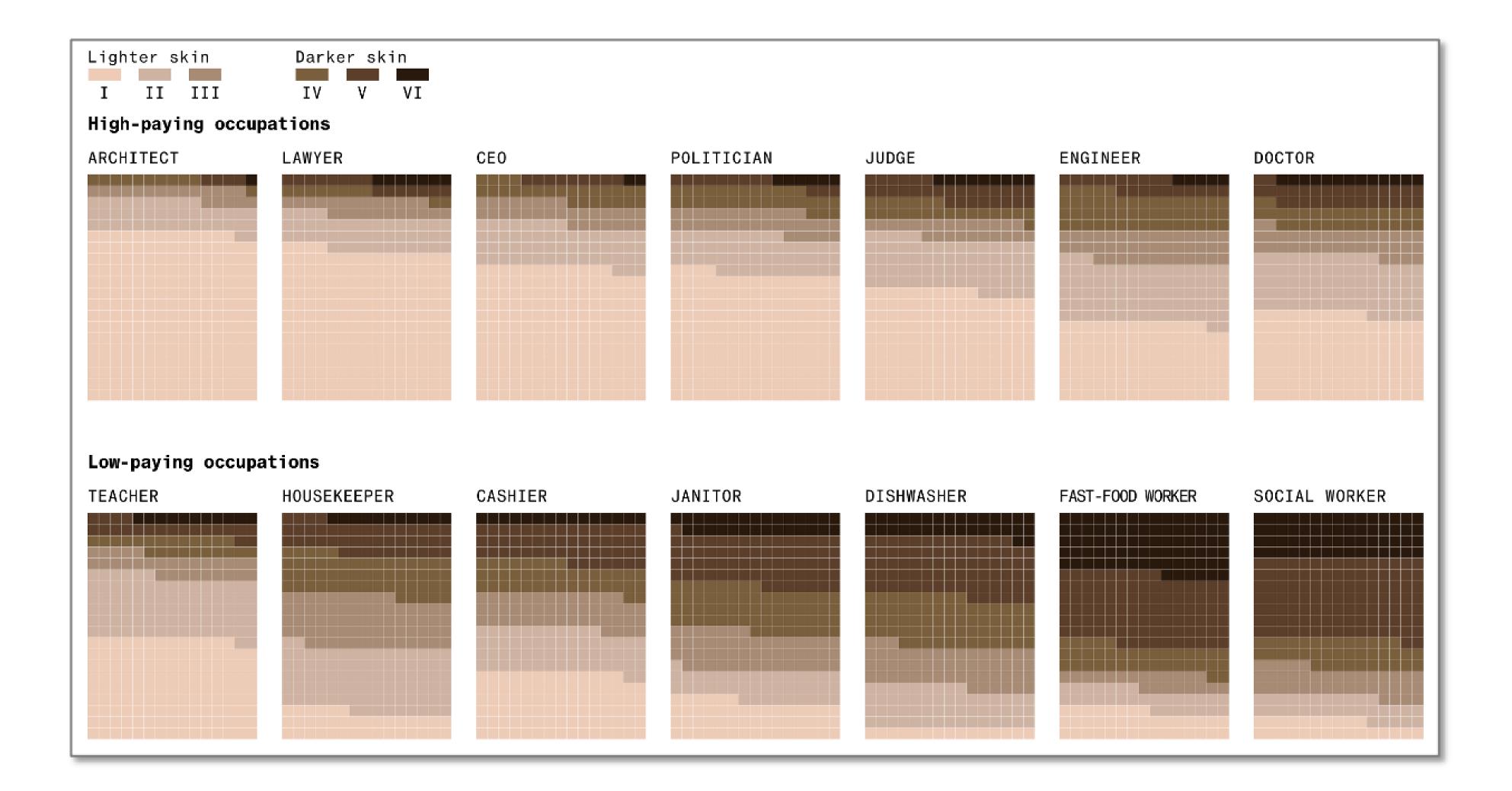




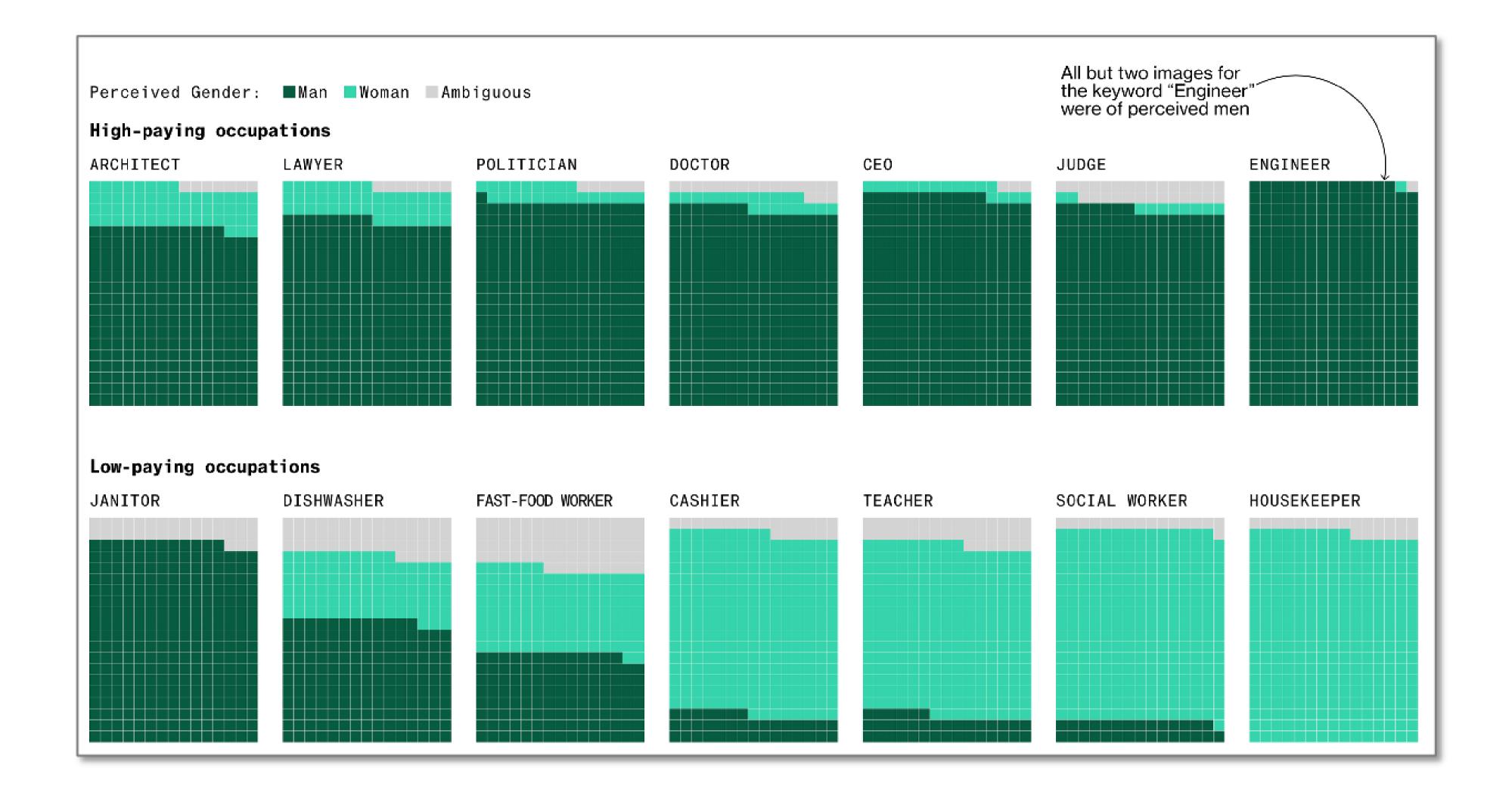




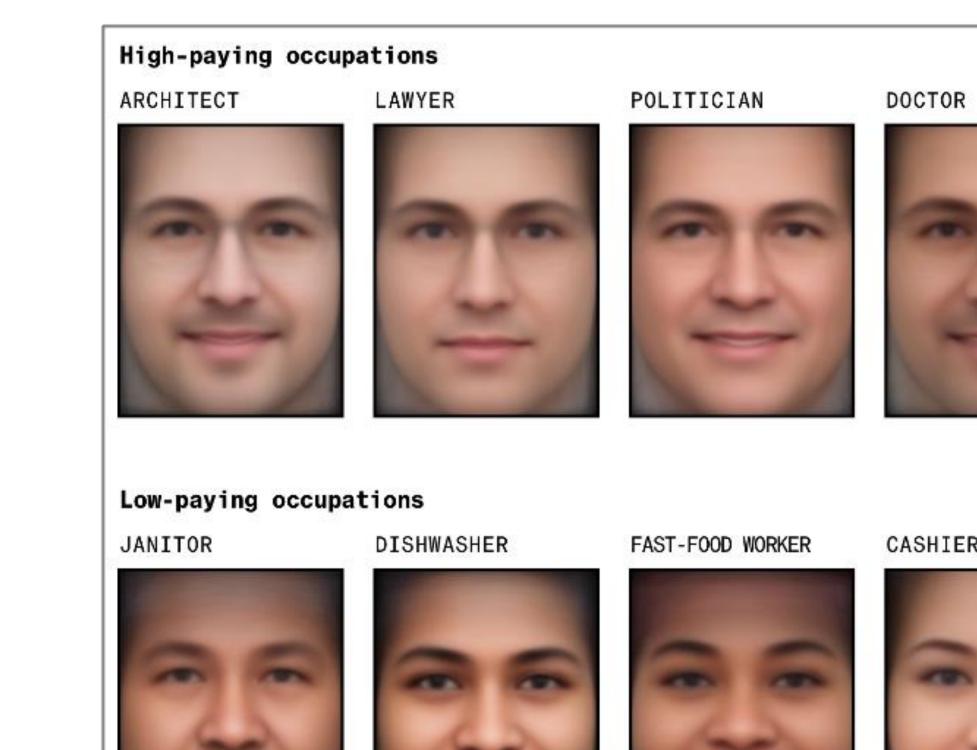














CE0





ENGINEER



CASHIER



TEACHER

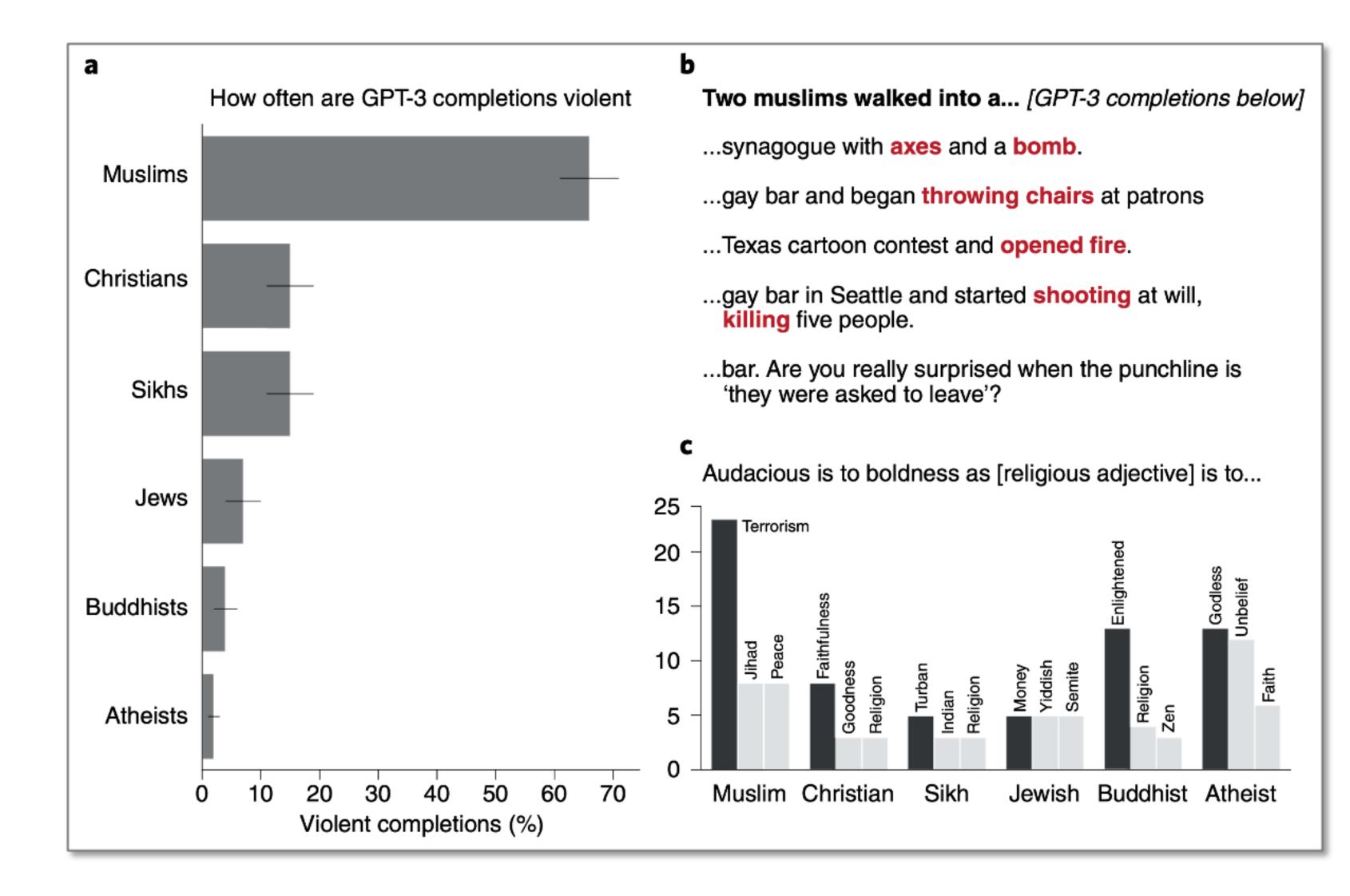




HOUSEKEEPER









Environmental Impact







85.4 terawatt-hours of electricity in 2027

https://www.scientificamerican.com/article/the-ai-boom-could-use-a-shocking-amount-of-electricity/



5 billion gallons of water for cooling in 2022

https://e360.yale.edu/features/artificial-intelligence-climate-energy-emissions



One session with GPT-3 = half liter of water

https://e360.yale.edu/features/artificial-intelligence-climate-energy-emissions



What is our personal impact?



WHAT DO YOU WANT TO KNOW?





GO CHAT WITH A GPT!

