

ChatGPT Considered Harmful

- An informal study of future technologies

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Yes, we borrowed our title from Dijkstra's famous "Go To Statements Considered Harmful" paper. There is some relevance between the two. Like goto, which is very powerful but must be used carefully or it could make codes error prone, ChatGPT is widely known as powerful, but what it does for us must be treated carefully or it could present as truth inconsistent or outright wrong information.

We use you.com chat as an application on ChatGPT and point out a few problems through examples. The screenshots were made from late December 2022 to early January 2023.

In the first set of examples, we can see that each individual answer looks correct for those who do not know the correct answer beforehand, but when combining several answers together you can see the inconsistency between the answers because the answers could be obtained from different sources, refer to different time periods, or both.

who is the richest person on earth

The current richest person on earth is Bernard Arnault, co-founder, chair, and CEO of LVMH. He has a net worth of \$179.1 billion.

Correct.

who is the second richest person on earth

The second richest person in the world is Bernard Arnault, the Chairman and CEO of LVMH. He has a net worth of \$167 billion.

I suppose a person cannot be both the richest and second richest man in the world. Thus, it is either wrong or inconsistent.

who is the third richest person on earth

According to Forbes' Real-Time Billionaires rankings ^[1], the third richest person on Earth as of January 01, 2023 04:16:46 UTC is Gautam Adani, with a net worth of \$86.2 billion. Adani is an Indian billionaire and the chairman of the Adani Group, a conglomerate with interests in energy, agriculture, logistics and more.

1. Real Time Billionaires
<https://www.forbes.com/real-time-billionaires/>

Given ChatGPT's answers to the first two questions, I am not confident if this answer is correct or not. Once a doubt has arisen, you would not trust the system anymore (at least not completely).

who is the fourth richest person on earth

According to the Bloomberg Billionaires Index, the fourth richest person on earth is Gautam Adani, with a net worth of \$112.5 billion as of July 21, 2022.

Well, I am not sure if Adani is in fact the third or fourth richest person on earth, and the net worths are different, referencing different dates.

Try another celebrity:

is elon musk the richest person on earth

As of January 01, 2023, Elon Musk is not the richest person on Earth. According to the Bloomberg Billionaires Index ^[1], Bernard Arnault is currently the richest person in the world with a net worth of \$172.9 billion ^[2], while Elon Musk is in second place with a net worth of \$171 billion ^[3].

1. Led by Musk, world's 10 richest men add \$402 bn to their net worth ...
<https://www.business-standard.com/article/international/led-by-musk-world-s-10-richest-men-add-402-bn-to-their-net-worth-in-2021...>

2. The 10 Richest People in the World (December 2022)
<https://www.investopedia.com/articles/investing/012715/5-richest-people-world.asp>

3. Elon Musk is no longer the richest man on the planet, according to ...
<https://www.cnn.com/2022/12/07/business/elon-musk-wealth/index.html>

Not bad with three references. ChatGTP can give a negative answer to the question.

is elon musk the second richest person on earth

Yes, Elon Musk is currently the second richest person on Earth, according to the Bloomberg Billionaires Index. As of January 01, 2023 05:06:43 UTC, his net worth is estimated to be \$168.5 billion.

The answer is consistent with the one above. However, this time it does not give any reference, and although both refer to the same source (Bloomberg Billionaires index Jan 01, 2023), the net worth is a bit different.

is elon musk the third richest person on earth

Yes, Elon Musk is currently the third-richest person on earth, with a net worth of \$137 billion, according to Forbes. He is behind Bernard Arnault (\$162 billion) and Gautam Adani (\$121 billion).

This answer is quite different from the above two.

is elon musk the fourth richest person on earth

Yes, Elon Musk is currently the fourth richest person on Earth. According to the Bloomberg Billionaires Index, Elon Musk has a net worth of \$84.8 billion as of August 18th ^[1], 2020, making him the fourth richest person in the world.

1. [Elon Musk is the fourth-richest person on the planet, index says ...](https://www.cnet.com/culture/elon-musk-is-apparently-the-fourth-richest-person-on-the-planet/)
<https://www.cnet.com/culture/elon-musk-is-apparently-the-fourth-richest-person-on-the-planet/>

The engine quoted another source and agreed to the question. Interestingly, it appears that the engine is trying to find a source that can confirm the question, even though it had found newer sources that contradict with the question.

In the second set of examples, we perform tests on someone closer to home. We can see problems the engine infers incorrect information from the sources and wrongly connects different persons together (entity resolution).

Who is john lee

John Lee is a Hong Kong pro-China politician and former police officer who is the 5th and current Chief Executive of Hong Kong ^[1]. He was first elected to the Los Angeles City Council during a special election in August 2019 ^[2], and re-elected to his first full term in March 2020 ^[2]. He is also the founder of Wealth Dragons Online and the co-founder and CEO of Wealth Dragons Group PLC ^[3]. Additionally, he is the Associate Dean for Faculty and Academic Affairs and a Professor in the Department of Teacher Education and Learning Sciences in the College of Education at NC State University ^[4].

1. [John Lee Ka-chiu - Wikipedia](https://en.wikipedia.org/wiki/John_Lee_Ka-chiu)
https://en.wikipedia.org/wiki/John_Lee_Ka-chiu

2. [John Lee | CD12](https://councildistrict12.lacity.gov/about/john-lee)
<https://councildistrict12.lacity.gov/about/john-lee>

3. [John Lee - CEO - Wealth Dragons | LinkedIn](https://uk.linkedin.com/in/johnlee888)
<https://uk.linkedin.com/in/johnlee888>

4. [John K. Lee | College of Education](https://ced.ncsu.edu/people/jklee/)
<https://ced.ncsu.edu/people/jklee/>

Clearly, you.com is mixing several people. I would not blame you.com, since john lee is a common name, which has a special meaning only to Hong Kong starting from the last few years. However, the way you.com presents the mixed information is dangerous since it presents the information as truth about one single person. In a search engine, the answers would be presented as different answers pointing to different source pages, and the users would infer by themselves if they were referring to the same or different persons.

Who is John Lee Ka-chiu

John Lee Ka-chiu is a Hong Kong pro-China politician and former police officer who is the 5th and current Chief Executive of Hong Kong ^[1]. He was previously the Secretary for Security in the Hong Kong Government, before being elected chief executive in May 2022. He is a member of the Executive Council of the HKSAR government and has held various positions within the police force ^[2], including Commissioner of Police. He is a strong proponent of the "One Country, Two Systems" principle, and has advocated for greater autonomy and more democratic rule in Hong Kong.

1. [John Lee Ka-chiu - Wikipedia](https://en.wikipedia.org/wiki/John_Lee_Ka-chiu)

https://en.wikipedia.org/wiki/John_Lee_Ka-chiu

2. [Treasury Sanctions Individuals for Undermining Hong Kong's ...](https://home.treasury.gov/news/press-releases/sm1088)

<https://home.treasury.gov/news/press-releases/sm1088>

It is always good to be specific in the question. Here, we get information about the same person. This screenshot is a precious; it should make many people happy.

Who is lee ka chiu of united states

Lee Ka-chiu is a former security chief of Hong Kong who was sanctioned by the United States in 2020 for his role in suppressing freedom in the region. He is currently a member of the Executive Council of the HKSAR and the Director of the Hong Kong and Macao Affairs Office of the State Council ^{[1][2]}.

1. [Hong Kong-related Designations; Central African Republic ...](https://home.treasury.gov/policy-issues/financial-sanctions/recent-actions/20200807)

<https://home.treasury.gov/policy-issues/financial-sanctions/recent-actions/20200807>

2. [Treasury Sanctions Individuals for Undermining Hong Kong's ...](https://hk.usconsulate.gov/n-2020080702/)

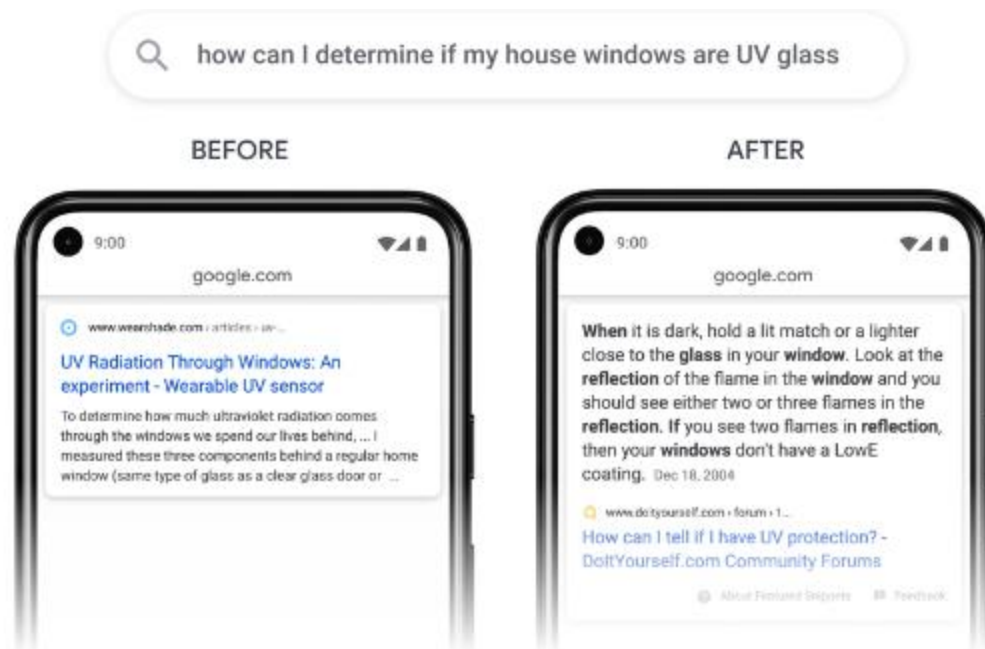
<https://hk.usconsulate.gov/n-2020080702/>

Another evidence of you.com tending to focus on major figures (in this case, a Chief Executive of Hong Kong), while there should be many lee ka chiu's in this world. In the second reference, lee ka chiu was still the Secretary for Security when the sanction was handed down --- evidence that you.com cannot focus on the latest information sources.

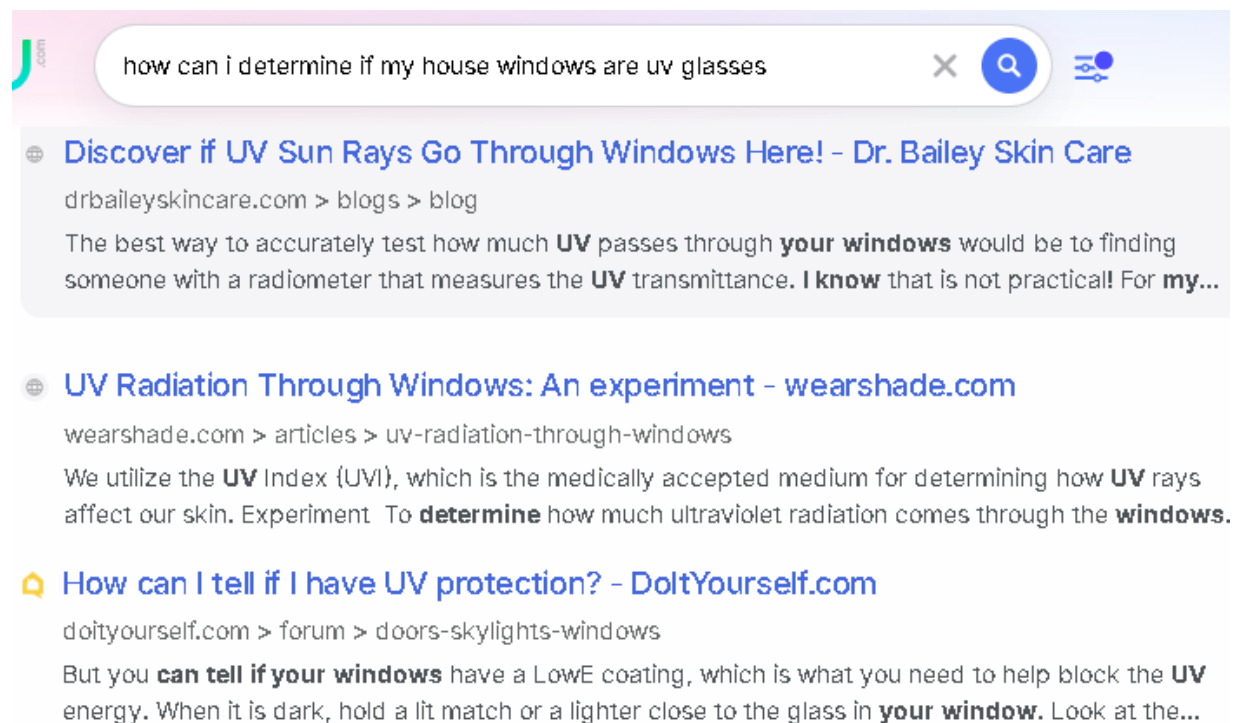
How does ChatGPT benefit search engines?

Regardless of the criticism raised above, it is fun to interact with ChatGPT. Its ability to understand the meaning of writings will be tremendously useful in understanding documents and queries and hence returning more accurate search results. Its weaknesses in distinguishing different entities of the same name, focusing on up-to-date information, resolving conflicting information, and understanding temporal and logical sequences are yet to be improved.

The web search engine in you.com has a quality that rivals Google though. I take the example from Raghavan's original post "[How AI is powering a more helpful Google](#)", which is shown below:



And here is what you.com returns (screenshot edited to remove ads):



We can notice that the "before" and "after" answers appear as second and third answers, respectively, in you.com. The first answer appears to be good too.

What are the Caveats?

The fact that a GPT-based search engine can provide passages to summarize the key points for a query is great. However, where to insert the ads and would those ads be effective in this mode? If there were no organic links to the websites which are the source of the knowledge, those websites would not be able to acquire human traffic from the search engine. The traffic that the websites get only comes from the crawler of the search engine, which brings no benefit to the websites.

Conclusion

We can see a few problems from the tests:

- The real harm is that, when you look at each result individually, you do not know if the answer is correct or not, and you tend to believe it is correct. However, when looking at all answers together, you can see inconsistencies, meaning that some answers are incorrect.
- The engine appears to draw information from different sources, perhaps of different dates, and infers incorrect answers. For example, the engine fails to resolve different entities with the same name and connects different individually correct information to produce a wrong answer. The following is an example showing that the engine should have known that the first answer was wrong.

what is the birthplace of john smith, president of united states

John Smith, the President of the United States, was born in Hawaii in 1961.

is john smith a president of united states

John Smith was not a president of the United States. However, he was a three-term Massachusetts state representative ^[1], a United States senator from New York from 1804 to 1813 ^[2], and the fifth Presiding Patriarch of the Church of Jesus Christ of Latter-day Saints (LDS Church).

- Despite all the mistakes presented here (and in many other places by different people), the GPT engine appears to be able to produce better answers as the inference process goes on, turning incorrect answers into correct ones some periods of time later.