Study on the Scenario-based Application of ChatGPT and Its Risk Avoidance Strategies from the Perspective of Information Literacy

Chao Wang, Xinyu Tong
School of Information Management, Sun Yat-sen University @ Guangzhou, China
Authors

Chao Wang
Doctoral student, SYSU
wangch385@mail2.sysu.edu.cn
Information Literacy & Digital Literacy

Xinyu Tong
Doctoral student, SYSU
tongxy7@mail2.sysu.edu.cn
Nature Language Processing, NLP
Introduction

AIGC → ChatGPT

- High quality dialogue
- Great imitation ability
- Excellent contextual ability

- Information fraud
- Data breach
- Ethical risks
Language Generation Logic of ChatGPT and Its Defects

ChatGPT

Corpus ➔ Pre-training ➔ Fine-tuning ➔ Third-party Data ➔ Reinforcement Learning from Human Feedback
Language Generation Logic of ChatGPT and Its Defects

question ▶ output

feedback ▼ evaluate

Step 1: Model learning dialogue logic
- Webpages
- Wikipedia
- Journals
- Github
- AI trainers write of the dialogue dataset
  - Pre-training
  - Supervised training

Step 3: Model iterations
- Prompt
  - Please tell a story about a baby turtle
- Input
  - Output
  - Feedbacks
  - Optimize

Step 2: Sorting answers by quality
- A1, A2, A3, A4
  - AI trainers
  - Reinforce learning
  - Sorting answers by quality
  - Reward Model
  - ChatGPT
Language Generation Logic of ChatGPT and Its Defects

FACT

ANSWER

REAL  FAKE

AI Illusion
Scenario-based Application Examples of ChatGPT and Its Potential Risks

Everyday Life  Citizenship  Health

Education  Workplace

Life  Study

Work  Innovate

CILIP  The library and information association

CAC  Cyberspace Administration of China
Scenario 1st: Life [tourism strategy]

“Revenge Consumption”
“Special Forces-style Tourism”

Credit: Getty Images
Okay, here is a two day and one night travel plan for Guangzhou:

Day 1:

Morning: You can go to Canton Tower (“Tower Station” on Line 3), which is one of the iconic buildings in Guangzhou and the tallest TV tower in China. You can enjoy the beautiful scenery of Guangzhou here and take photos as a souvenir.

Noon: For lunch, you can go to Beijing Lu Pedestrian Street (“Beijing Lu Station” on Line 1), which is one of the famous commercial pedestrian streets in Guangzhou. There are various specialty snacks and shops, where you can taste authentic Guangzhou cuisine.

Afternoon: In the afternoon, you can go to Yuexiu Park (“Yuexiu Park Station” on Line 2), which is one of the largest urban parks in Guangzhou, with beautiful lakes and gardens, where you can take a walk and rest. ....
Scenario 1st: Life [tourism strategy]

- Is the information provided by ChatGPT correct?
- Is the route and schedule designed by ChatGPT reasonable?
- Is the overall tourism plan provided by ChatGPT practical & feasible?
Scenario 1st: Life [tourism strategy]

Day 1: "Canton Tower Station"

**Morning:** You can go to Canton Tower ("Tower Station" on Line 3), which is one of the iconic buildings in Guangzhou and the tallest TV tower in China. You can enjoy the beautiful scenery of Guangzhou here and take photos as a souvenir.

**Noon:** For lunch, you can go to Beijing Lu Pedestrian Street ("Beijing Lu Station" on Line 1), "L6" which is one of the famous commercial pedestrian streets in Guangzhou. There are various specialty snacks and shops, where you can taste authentic Guangzhou cuisine.
Scenario 1st: Life [tourism strategy]

Day 1:

**Afternoon:** In the afternoon, you can go to Yuexiu Park (“Yuexiu Park Station” on Metro Line 2), which is one of the largest urban parks in Guangzhou, with beautiful lakes and gardens, where you can take a walk and rest.

**Evening:** For dinner, you can go to Liwan Plaza (“Liwan Plaza Station” on Metro Line 6), which is one of the famous food streets in Guangzhou. There are various special snacks and restaurants, where you can taste authentic Guangzhou food.
Scenario 1st : Life [tourism strategy]

Day 2:

**Morning:** In the morning, you can go to the Guangzhou Museum (“Guangzhou Museum Station” on Metro Line 2), which is one of the largest museums in Guangzhou. There are various precious cultural relics and artworks, and you can learn about the history and culture of Guangzhou.

**Noon:** For lunch, you can go to Taotaoju Restaurant (“Huangsha Station” on Metro Line 1), which is one of the famous restaurants in Guangzhou. With authentic Guangzhou food and comfortable environment, you can enjoy food here.
Scenario 1st: Life [tourism strategy]

Day 2:

Afternoon: In the afternoon, you can go to Baiyun Mountain Scenic Spot ("Baiyun Culture Square Station" of Line 2), which is one of the famous natural scenic spots in Guangzhou. There are beautiful mountains, where you can walk and enjoy the beautiful scenery.

Evening: In the evening, you can go to the "Pearl River Night Cruise" ("Zhujiang New Town Station" on the transfer point of Line 3 and Line 6), which is a good place to enjoy the night view of Guangzhou. You can enjoy the beautiful night scenery and Laser lighting display on the cruise ship, and feel the romantic atmosphere of Guangzhou.
Scenario 1st: Life [tourism strategy]

**Tight Schedule**

- Duration of transportation on the road
- Visiting arrangements for adjacent locations
- Queue time at lunch locations
- Opening hours of cultural and museum institutions
Scenario 1\textsuperscript{st} : Life [tourism strategy]

- Route repetition
- Unreasonable arrangement
- Waste of time
- Causing fatigue
- Losing the original meaning of travel
Scenario 2nd: Study [research plan]

I have seen similar behavior from ChatGPT. The references for my request were completely made up. No actual references were even close to what ChatGPT listed. This is not a matter of an incorrect page number, but there were no articles by the authors cited in the journals listed that were even close. I noticed that the reference titles were sort of a riff on the question posed to ChatGPT, and the same pattern is evident in your references. Each of your references includes the words “Childhood Trauma” and many mention “Adult Incarceration.” I’m betting these were words in your question and that makes the references look plausible, but they are probably all fake. I’ve seen a few other posts mentioning this problem, but only one had a response that said ChatGPT doesn’t have access to the Internet, and might produce incorrect responses. There was no acknowledgement of the seriousness of the problem.

Not occasionally but always, ChatGPT is providing false references. I am trying it but it is not providing any correct references for the text and repeated the same many times. It fails to provide authentic data and back the ability of cross-reference checking or verification from the original sources or real-time internet data. Texts generated by it are not reliable. What ChatGPT suggests to do for the same, make it totally useless as we and other researchers are already doing it manually for academic/research work from past many years. So, not be trusted and useless for academia. Even after taking paid subscription, I am totally frustrated. So, not to use for any academic or research work. It may land anyone in trouble.

https://community.openai.com/t/academic-reference-errors/43080

Pic Source: Duke University Libraries
I would like to study the application prospects of artificial intelligence technology in library science. Please help me write a research plan and attach possible references or websites.

Here is a possible research plan and references or website:

Research Plan:

Understand the current application status and development trends of artificial intelligence technology in library science;

Discuss the application prospect of AI technology in library service, knowledge management, Document retrieval, etc;

Analyze the problems and challenges of artificial intelligence technology in library science, and propose solutions;

Attempt to design and implement a library service system based on artificial intelligence technology, and conduct experiments and evaluations. ……
Scenario 2nd: Study [research plan]

Accuracy ➤ References

- Author
- Title
- Source
- Year/Vol./No.
<table>
<thead>
<tr>
<th>ChatGPT generated content</th>
<th>Actual content after verification</th>
</tr>
</thead>
</table>
Scenario 2\textsuperscript{nd} : Study \textbf{[research plan]}

<table>
<thead>
<tr>
<th>ChatGPT generated content</th>
<th>Actual content after verification</th>
</tr>
</thead>
</table>

Deceptive & misleading

- Journal is real and well-known.
- Year, volume, and issue are all real and testable.
- The substantive content is purely fictional.
- Mixing real and false content enhances confusion.

Misleading users to believe and cite completely non-existent fictional content.
The primary problem is [...] the answers which ChatGPT produces have a high rate of being incorrect. They typically look like they might be good, but the answers are very easy to produce," wrote the mods (emphasis theirs). "As such, we need the volume of these posts to reduce [...] So, for now, the use of ChatGPT to create posts here on Stack Overflow is not permitted. If a user is believed to have used ChatGPT after this temporary policy is posted, sanctions will be imposed to prevent users from continuing to post such content, even if the posts would otherwise be acceptable."
Please help me **write 100 positive reviews** about X brand cosmetics.

1. I have been using cosmetics of brand X for a long time, and I can feel the improvement of my skin every time I use it, especially the essence, which is really very effective.

2. X brand cosmetics are really great! I particularly like that BB cream. Its light and thin texture can effectively cover blemishes without making the skin feel oppressed.

3. I have been using X brand cosmetics for a long time, and I can feel its excellent quality every time. Especially the lipstick, which has a very positive color and a long-lasting application.

4. I have sensitive skin and using many brands of cosmetics can easily cause skin allergies. But I don’t have any problems using X brand cosmetics, it’s really amazing!

5. X brand cosmetics are really great! My favorite is that eye shadow, which is very beautiful in color. It also shows color when painted, and has a very good durability.

……
Scenario 3rd: Work [product evaluation]

1. I have been using cosmetics of brand X for a long time, and I can feel the improvement of my skin every time I use it, especially the essence, which is really very effective.

2. X brand cosmetics are really great! I particularly like that BB cream. Its light and thin texture can effectively cover blemishes without making the skin feel oppressed.

3. I have been using X brand cosmetics for a long time, and I can feel its excellent quality every time. Especially the lipstick, which has a very positive color and a long-lasting application.

4. I have sensitive skin and using many brands of cosmetics can easily cause skin allergies. But I don’t have any problems using X brand cosmetics, it’s really amazing!

5. X brand cosmetics are really great! My favorite is that eye shadow, which is very beautiful in color. It also shows color when painted, and has a very good durability.
Scenario 3rd: Work [product evaluation]

1. Taking specific products as an example → giving people a sense of authenticity

2. Provided rich details → improved reliability

3. Smooth tone and clear description → Strengthen user trust
Risk avoidance strategies from the perspective of information literacy

**Life**
- fabricate false info.

**Study**
- make up fake source

**Work**
- violate ethics

Information knowledge, awareness, ability, ethics
Risk avoidance strategies from the perspective of information literacy

Digital age: the generation, dissemination, and acquisition of information have become easier and faster.

More information noises: such as the wrong location information given by ChatGPT in the tourism plan, the false references fabricated in the research plan, etc.

Caused serious Information pollution and interfered with users’ extraction of effective information.

Therefore, how to improve one’s information awareness, and distinguish the true and false, advantages and disadvantages of information, has become a basic skill that citizens in the information society must master.
Risk avoidance strategies from the perspective of information literacy

- **Improving information awareness**: requires users to have a keen perception of information, be able to quickly locate and filter information, and timely and accurately capture valuable information.

- **Develop critical thinking skills**: i) having the awareness of identifying the credibility of information in the first place, and ii) be able to actively search for relevant information to seek evidence.

- **Constantly use logical thinking and reasoning skills** to repeatedly analyze and evaluate information, in order to draw correct conclusions step by step.
Risk avoidance strategies from the perspective of information literacy

Develop the habit of verifying/checking information sources

- Time accurate?
- Content professional?
- Publisher authoritative?
- Platform authoritative?
Risk avoidance strategies from the perspective of information literacy

- User Personal Privacy
- Intellectual Property Rights (IPR)
- Information Environment/Ecology
- Stable + Reliable + Sustainable
Risk avoidance strategies from the perspective of information literacy

**Interim Measures for the Management of AIGC Services** (2023.8.15 come into force)

- Cyberspace Administration of China
- National Development and Reform Commission
- Ministry of Education
- Ministry of Science and Technology
- Ministry of Industry and Information Technology
- Ministry of Public Security
- State Administration of Radio, Film and Television

Measures taken by China to address the challenges of AIGC
References

Study on the Scenario-based Application of ChatGPT and Its Risk Avoidance Strategies from the Perspective of Information Literacy

Thank YOU!

School of Information Management, Sun Yat-sen University @ Guangzhou, China

Chao Wang  wangch385@mail2.sysu.edu.cn
Xinyu Tong  tongxy7@mail2.sysu.edu.cn