CHATGPT FOR RESEARCH PURPOSES

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OVERVIEW

Project Scope



This project had three main goals:

- Develop a prompt template for ChatGPT to 1. generate comprehensive structured abstracts of Wallace-funded research reports (including syntheses, guides, and other documents).
- 2. Enter all relevant reports into an EndNote bibliographic database (which is what the Wallace Foundation uses to store bibliographic data), including structured abstracts, themes, keywords, findings, and implications.
- 3. Produce "research maps" for each sub-domain that situates the relevant Wallace Foundation research reports in the larger context of research in that domain

Key tips for using ChatGPT are outlined below. This guide may also be useful for other purposes, although its recommendations reflect experience solely within the Wallace Foundation context.

What is ChatGPT?

 ChatGPT is a conversational AI model that can generate OpenAIhuman-like text based on the input it receives, making it useful for a range of applications like chatbots, content generation, assistance in creative writing, and more. OpenAI has released several versions of GPT over the years; each new version generally improves upon prior versions by incorporating advances in model size, training techniques, and increased data availability

What does current research say about ChatGPT?



Research demonstrates that there are productivity boosts to using ChatGPT. For knowledge workers, the increase in productivity may lie within avoiding a blank page. With the right prompt, ChatGPT can create useful first drafts that can significantly increase the speed of work production.ⁱ The usefulness of these first drafts is highly valued, with recent papers even granting ChatGPT authorship.ⁱⁱ Boosts in productivity and skill are seen to be most pronounced for those with less expertise.ⁱⁱ

What are ChatGPT's limitations?

Despite impressive capabilities, ChatGPT has limitations that should temper any apprehension of job loss at this point.^W Most important, ChatGPT can fabricate and/or misrepresent information. Also, it has unintended bias built in. There are at least three sources of this bias: (1) bias reflected in materials that ChatGPT was trained on, (2) bias of OpenAl's research team as they optimized ChatGPT, and (3) bias in training from current users. Due to the fabrication/misrepresentation and bias, any generated results need to be verified and/or validated by humans. Subject area expertise is required to review any information. For example, skilled researchers can ask ChatGPT to write code for them, but can only identify any coding errors if they know how to code.



Where did ChatGPT come from?

OpenAI was founded with the mission to ensure that artificial general intelligence benefits all of humanity. One of its primary strategies has been the development and research of deep learning models, particularly in the domain of natural language processing. OpenAl released the original GPT, GPT-3.5, in the end of 2022." This was followed by GPT-4 in February 2023, which gained significant attention due to its impressive performance. ChatGPT is a conversational AI model developed by OpenAI based on the GPT (Generative Pre-trained Transformer) architecture. The "GPT" stands for Generative Pre-trained Transformer, where:

- "Generative" indicates that the model can generate text.

- "Pre-trained" signifies that the model has been trained on a massive dataset to learn the patterns, nuances, and structures of the language before being fine-tuned for specific tasks.

- "Transformer" refers to the underlying architecture used, which is a type of deep learning model particularly suited for handling sequential data, like text.

The number that follows "GPT." such as GPT-3 or GPT-4, refers to the version or iteration of the model. Each newer version typically has more parameters (i.e., it's a larger model) and may have been trained on more data or with improved methods

More Resources

- Experimental evidence on the productivity effects of generative artificial intelligence | Science
 - Study finding increased productivity for mid-level professionals, particularly those with less skills
- ChatGPT is a smart, drunk intern: 3 examples | Punya Mishra's Web
 - "The true potential of this technology shines through 0 when we regard it, not as a search engine that spits out the right answer, but rather as a partner, or a collaborator."

Al Tools Directory

A curated list of AI tools 0

ⁱⁱ Muath Alser, & Ethan Waisberg. (2023). Concerns with the usage of ChatGPT in academia and medicine: A viewpoint. *American Journal of Medicine Open*, 9 (100036).

iv Peres, R., Schreier, M., Schweidel, D., & Sorescu, A. (2023). On ChatGPT and beyond: How generative artificial intelligence may affect research, teaching, and practice. International Journal of Research in Marketing, 40(2), 269-275.

v Hines, K. (2023). History of ChatGPT: A timeline of the meteoric rise of generative AI chatbots. Search Engine Journal. https://www.searchenginejournal.com/history-of-chatgpttimeline/488370/#close

¹ Dwivedi, Y. K., Kshetri, N., Hughes, L., Slade, E. L., Jeyaraj, A., Kar, A. K., Baabdullah, A. M., Koohang, A., Raghavan, V., Ahuja, M., Albanna, H., Albashrawi, M. A., Al-Busaidi, A. S., Balakrishnan, J., Barlette, Y., Basu, S., Bose, I., Brooks, L., Buhalis, D., ... Wright, R. (2023). Opinion Paper: "So what if ChatGPT wrote it?" Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. International Journal of Information Management, 71.

iii Noy, S., & Zhang, W. (2023). Experimental evidence on the productivity effects of generative artificial intelligence. Available at SSRN 4375283.

TIPS FOR USING CHATGPT

Be Specific

Use clear and direct prompts to help limit the amount of fabrication in ChatGPT output. The vaguer the prompt, the more likely ChatGPT will begin to make up information to "fill in the gaps". The more precise the prompt, the better the output will be. **Tip:** Adding non-language text, like commas, dashes or slashes, between parts of your inquiry can improve your results as these indicate to ChatGPT to pause before it completes your inquiry. For example: Summarize this study into an academic-style abstract, one paragraph, with one-sentence per section.

Tailor Your Inquiries

Following the prior prompt, using ChatGPT is an iterative process. You can improve search results over time by adding to, rephrasing or breaking down your query to tailor your questions more precisely. Tip: You can ask ChatGPT directly what would be the best way to get it to provide you the answer you're looking for, OR, once you've gotten ChatGPT to complete your task, ask it what prompt would get you there first.

Understand ChatGPT's Frame of Mind

When making different inquiries to ChatGPT, it starts to build a context or "world view" that gets locked in. This will inform how it answers subsequent questions in the chat. Thus, start a new chat as your inquiry changes so that ChatGPT doesn't blend all the information (unless this is what you want). For instance, if you are using ChatGPT to create multiple research abstracts using a set prompt, with varying study information, beginning a new chat session for each study is recommended. However, if you use the same chat for each study, ChatGPT may mix information from a prior research study with a new research study.

Be Patient

Sometimes, even with a precisely written prompt, ChatGPT may still make errors. For example, if you ask for an abstract and get back a bullet-point list, ask ChatGPT, 'why is this not in abstract form?', and it will apologize and fix its mistake.

Fact Check!

ChatGPT will sneak in a few white lies¹ to get you an answer. For research purposes, this may look like made-up references or misrepresented information. Always verify ChatGPT's information with trusted primary sources. Use it as a starting point, but **never** as the definitive answer.

Double-Check!

ChatGPT works best for summarizing text that it is given, but it can still misrepresent text it did not generate. Always check for accuracy!

Experiment!

Do use ChatGPT for brainstorming, drafting, and more than just Q&A. This will aid in more efficient work processes as well as get you more comfortable with ChatGPT, how to talk to it, and understanding its limitations.

¹ The technical term for these mistruths is "hallucinations", to represent that ChatGPT and other AI tools do "believe" they are giving true information.

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