AI Prompt Generation

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This article discusses the limitations and advantages of using a generative AI chatbot, and reviews best practices on interacting with them.

Before You Start

You will need the following before you can complete this task:

- A valid PennKey
- An M365 Account

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Benefits of Using Chatbots

AI Chatbots can help with many types of tasks, and answering questions:

- Generating Ideas

- Answering questions:

    - "How do I ___"

    - "What is ___"

    - "What does __"

- Help with

    - Coding

    - Writing

    - Excel

- Testing validity effectiveness

Limitations

Chatbots like Microsoft Copilot or ChatGPT were trained, largely, on data from the web. This can result in all the credibility and authenticity issues that we find when navigating information online. Limitations to be aware of include:

- **Scope of Knowledge**: Since chatbots are trained on existing data, their responses are constrained by the scope, quality, and recency of the data they've been trained on. This can lead to outdated or incorrect responses.

- **Misinformation**: AI models can come up with fake information, generating confident but unfounded or incorrect statements, sometimes referred to as "hallucinations" in media. Users might receive information that appears credible but is actually incorrect, misleading, or lacks context, requiring manual verification to ensure accuracy.

- **Bias and Fairness**: Training data can contain biases, which the AI might inadvertently learn and reproduce. This can lead to biased responses, affecting the fairness and impartiality of the information provided.

- **Misunderstanding Prompts**: AI can misinterpret user intent or the context of queries, leading to responses that are accurate in isolation but unhelpful to the user. AI may also struggle with complex, ambiguous, or highly specialized topics where expert human judgment is crucial.

Advantages

Chatbots are more than a search tool like Google. Based on the billions of documents comprising its training data, it is quite good at predicting what should come next in a conversation. Some examples include:

- **Generates Human-Like Responses**: Chatbots can create various types of content, including **poems, songs, stories, and reports**. Its responses are tailored to mimic natural language, making interactions more engaging and relatable.

- **Non-English Language Support**: Most of the "frontier" chatbots support a variety of languages and can even serve as decent translators.

- **Tailored Conversations**: Chatbots provide better answers with more context, but that doesn't mean you need to think about your prompt upfront. It's often more effective to carry out the conversation, correct errors or add context as you need to. You might not get the right answer the first time, but ultimately the chatbot can help guide you to personalized results that meet your needs.

- **Use files, images, or your voice for your prompts:** Frontier model chatbots such as Copilot and ChatGPT 4o allow you to send and receive information in a variety of datatypes. Upload files, talk to the chatbot, or drag images onto the conversation. These different datatypes will be used as reference, and the chatbot will have different ways of interpreting these assets for you.

6 Recommendations

Following these recommendations will help you achieve results more quickly and effectively.

Clarify Your Objective

Before engaging with a chatbot, take a moment to **clearly define your purpose**. Are you seeking assistance with drafting emails, conducting research, or having informative conversations? Knowing your objective helps the AI provide more relevant and accurate responses.

Be Clear and Succinct

When making requests, **be concise and specific**. For example: "Generate a sample offer letter for a writing position." Clear instructions lead to more accurate results. Avoid vague or ambiguous queries.

Organize Information

If you're providing context or background information, **organize it logically**. This helps the chatbot understand the context better and ensures a more focused response.

Describe the Type of Answer you Want

One of the key differences from the past: Frontier chatbots think in terms of translating from query to response. Just like you can ask for a translation from English to Spanish, you can ask for a translation from a bullet-point list into headings with full paragraphs, or from image to a description of the image. Telling the chatbot what you want to receive can be a very powerful tactic.

Verify Your Facts

While chatbots can provide information, it's **essential to verify facts independently**. Cross-check details from reliable sources to ensure accuracy. Remember that you are responsible for your work. Chatbots hold no copyright or legal right over the content they produce. They also do not ensure 100% accuracy. Always doublecheck facts and apply critical thinking.

Break Down Complex Tasks

For **complex tasks**, break them into smaller steps. Instead of asking for a complete essay or solution, **request help with specific sections**. This approach allows the chatbot to address individual components more effectively.

Re-prompting

Sometimes, chatbots may need **additional context or clarification**. If it asks for more information (re-prompting), provide relevant details to guide its responses. Be patient and responsive during the conversation.

> Remember that including context is crucial for achieving your desired outcomes!

Step-by-Step Examples

These examples may help you think of good queries:

Idea Generation

- "Brainstorm creative ways to improve office productivity."

- "Generate unique ideas for a new mobile app."
- "Suggest innovative marketing strategies for a small business."

"How do I ___"

- "How do I troubleshoot a network connectivity issue?"
- "How do I optimize my website for search engines?"
- "How do I create a pivot table in Excel?"

"What is ___"

- "What is blockchain technology?"
- "What is the concept of quantum entanglement?"
- "What is the purpose of a REST API?"

"What does __"

- "What does the term 'machine learning' refer to?"
- "What does the '404 error' mean in web development?"
- "What does the acronym 'HTML' stand for?"

Writing Help

- "Assist me in drafting a persuasive cover letter for a job application."
- "Provide tips for improving clarity and conciseness in an academic essay."
- "Help me create engaging dialogue for a fictional short story."

Excel Help

- "Guide me through creating a formula to calculate average sales in Excel."
- "Explain conditional formatting rules for highlighting specific cells."
- "Demonstrate how to use pivot tables to analyze data."

Coding Help

- "Write a Python script that generates a Fibonacci sequence."
- "Outline the essential components of an HTML webpage."
- "Describe the typical structure of a JavaScript function."

Testing Validity Effectiveness

- "Explain how to design effective unit tests for a software application."
- "Discuss strategies for validating user input in a web form."
- "Describe A/B testing and its impact on website optimization."

From Ideation to Editing: Workflow examples

	Exploration	Ideation	Outline/Planning	Crafting	Revising
Administrative	Is there a function in Excel that will copy a new entry and paste it into a different table?	I want to make it easier to do a predefined set of tasks in Excel. What are some ways I could accomplish that?	I am writing a macro for Excel and I want to copy one row from a table in Sheet 1 and paste it at the top of a table in Sheet 2. Please list the action steps my macro needs to take.	I am writing a macro that does { my outline }. Please write the code for me.	That macro almost works, but it pastes in the wrong row. Can you change this to paste in Row 5?
Writing	You are facilitating a conversation about the potential of Large Language Models and whether we have reached 'singularity'. How should I prepare?	How can I frame the conversation in a way that focuses on fact and a rational approach to this highly charged question?	Please provide an example structure for an open debate involving 10 people about the potential of AI and whether we have reached 'singularity'?	Write a brief overview of the state of Machine Learning Technology and the concept of singularity.	Can you include content about why some people are already anticipating singularity? And please make it shorter.
Coding	I want to keep track of any changes to a public web URL and mark any changes in an easy-to-read format. I want to see, like in git, when changes are made to the content (I don't care about code-related changes to the CSS or webpage)	I'm writing a python function to pull data from a website and then update an excel file on my local machine. What packages should I use?	You suggested a file for one previous version, but I'd like to create a small database that stores multiple versions, and I want to track multiple URLs.	Write a function that refines the raw text or response from a URL into the main content. I need to be able to apply this across multiple websites, so the function needs to take a generic approach that will work consistently - but only store the main content, not the nav menu or the sidebars, or anything like that.	That function is too restrictive and is blocking important content in some cases. Can you make it more inclusive?

Questions?

Reach out to your Wharton Computing Representative if you need help, or have any questions.