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Professor Garbrick

IST 110

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L01: Intro to GenAI: Part 1

Step 1: Complete these tutorials:

- In a Word Doc, submit a screenshot of the completion screen for each tutorial.

1. The technology behind ChatGPT

100% COMPLETE

▼ HOW CHATGPT WORKS

How does ChatGPT work? - video ✓

How did ChatGPT come to be? - video ✓

Remember ✓

Learn More ✓

Lesson 3 - Remember

Lesson 4 of 4

Learn More

PennState University Libraries

Generative AI: ChatGPT and Beyond

A guide to the various artificial intelligence (AI) algorithms that use deep learning techniques and massively large data sets to understand, summarize, generate and predict new content.

Generative AI & Large Language Models (LLMs)

Connecting LLMs

ChatGPT

Google Gemini

Perplexity AI

Reddit

Substack

ResearchHub

More Generative AI Resources

Citing LLMs

Resources for Institutions

What are LLMs?

Large Language Models (LLMs) refer to large general-purpose language models that can be pre-trained and then fine-tuned for specific purposes. They are trained to solve common language problems, such as text classification, question answering, document summarization, and text generation. The models can then be adapted to solve specific problems in different fields using a relatively small set of field datasets via fine-tuning.

The ability of LLMs to learn the knowledge from one task and applying it to another task is enabled by transfer learning. LLMs predict the probability of next word based, given an input string of text. Based on the language in the training data. Besides, instruction-tuned language models predict a response to the instructions given in the input. These instructions can be "summarize a text", "generate a poem in the style of X", or "give a list of keywords based on semantic similarity for X".

LLMs are large, not only because of their large size of training data, but also their large number of parameters. They display different behaviors from smaller models and have important implications for those who develop and use AI systems. To develop effective LLMs, researchers must address complex engineering issues and work alongside engineers or have engineering expertise themselves.

Want to learn more about AI terms? Take a look at the [AI Glossary](#).

Recently, there is interest in [Summarize a text](#) and [Give a list of keywords based on semantic similarity for X](#).

2. How does ChatGPT aim to prevent harmful use?

100% COMPLETE

▼ PREVENTING HARM

How does ChatGPT try to prevent harmful use? - video ✓

How to make hallucination less likely ✓

Review ✓

Learn More ✓

Lesson 3 - Review

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3. What is generative AI?

100% COMPLETE

▼ WHAT IS GENERATIVE AI?

What is Generative AI? - video ✓

Review: discriminative vs generative AI ✓

Multimedia AI tools ✓

Review ✓

Learn More ✓

Lesson 3 - Review

Lesson 4 of 4

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4. Using ChatGPT effectively

100% COMPLETE

▼ USING CHATGPT

Using ChatGPT effectively - video ✓

Prompting ChatGPT ✓

ChatGPT can help with planning your library research ✓

How to cite ChatGPT ✓

Beyond ChatGPT ✓

Other apps built on the same technology ✓

Lesson 3 - Review

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- Open at least one GenAI tool and in the same Word Doc, submit a screenshot of your use of it. (Requires you to use at least one GenAI tool)

The screenshot shows a ChatGPT chat window with a blue header bar that says "Prompt Engineering" and "GPT-4o". The chat area contains a blue message box with the prompt: "summarize prompt engineering in a paragraph - What is prompt engineering?". Below the prompt, there is a detailed response from GPT-4o explaining what prompt engineering is, how it works, and why it is important. The response is divided into several paragraphs and includes a "View more" button at the bottom. Below the main response, there are two smaller chat messages from GPT-4o, each with a "Poe" button next to it. The first smaller message asks "What is Prompt Engineering?" and provides a concise definition. The second smaller message asks "can you summarize it in an easier way" and provides a simplified explanation.

summarize prompt engineering in a paragraph - What is prompt engineering?

Prompt engineering is the process where you guide generative artificial intelligence (generative AI) solutions to generate desired outputs. Even though generative AI attempts to mimic humans, it requires detailed instructions to create high-quality and relevant output. In prompt engineering, you choose the most appropriate formats, phrases, words, and symbols that guide the AI to interact with your users more meaningfully. Prompt engineers use creativity plus trial and error to create a collection of input texts, so an application's generative AI works as expected.

What is a prompt?

A prompt is a natural language text that requests the generative AI to perform a specific task. Generative AI is an artificial intelligence solution that creates new content like stories, conversations, videos, images, and music. It's powered by very large machine learning (ML) models that use deep neural networks that have been pretrained on vast amounts of data.

The large language models (LLMs) are very flexible and can perform various tasks. For example, they can summarize documents, complete sentences, answer questions, and translate languages. For specific user input, the models work by predicting the best output that they determine from past training.

However, because they're so open-ended, your users can interact with generative AI solutions through countless input data combinations. The AI language models are very powerful and don't require much to start creating content. Even a single word is sufficient for the system to create a detailed response.

That being said, not every type of input generates helpful output. Generative AI systems require context and detailed information to produce accurate and relevant responses. When you systematically design prompts, you get more meaningful and usable creations. In prompt engineering, you continuously refine prompts until you get the desired outcomes from the AI system.

Read about generative AI »

Read about large language models (LLMs) »

Why is prompt engineering important?

Prompt engineering jobs have increased significantly since the launch of generative AI. Prompt engineers bridge the gap between your end users and the large language model. They identify scripts and templates that your users can customize and complete to get the best result from the language models. These engineers experiment with different types of inputs to build a prompt library that application developers can reuse in different scenarios.

Prompt engineering makes AI applications more efficient and effective. Application developers typically encapsulate open-ended user input inside a prompt before passing it to the AI model.

View more

GPT-4o Poe

What is Prompt Engineering?

Prompt engineering is the practice of crafting detailed and specific instructions to guide generative AI systems in producing desired outputs. It involves designing prompts—natural language inputs that provide context and intent—so AI models can generate meaningful and relevant results. By selecting appropriate formats, phrases, and structures, prompt engineers refine the interaction between users and AI, ensuring high-quality responses. This process often requires creativity, trial and error, and iterative refinement to build reusable prompt templates that enhance efficiency and user experience. Prompt engineering is crucial for improving AI applications, offering developers greater control, improving user interactions, and enabling scalable, flexible solutions.

can you summarize it in an easier way

GPT-4o Poe

What is Prompt Engineering?

Prompt engineering is the process of writing clear and specific instructions (called prompts) to help AI systems produce the right results. A "prompt" is just a piece of text that tells the AI what to do, like summarizing a document or answering a question. Prompt engineers carefully design these instructions to make the AI more accurate, useful, and easy to use. This helps developers control the AI, improve user experience, and makes the AI work better in different situations.

Step 2: Look up "Prompt Engineering" What is it

- Look up "Prompt Engineering" What is it

‘Prompt engineering is the process of writing clear and specific instructions (called prompts) to help AI systems produce the right results. A "prompt" is just a piece of text that tells the AI what to do, like summarizing a document or answering a question. Prompt engineers carefully design these instructions to make the AI more accurate, useful, and easy to use. This helps developers control the AI, improves user experience, and makes the AI work better in different situations.’ (ChatGPT)

<https://aws.amazon.com/what-is/prompt-engineering/>
<https://chatgpt.com/auth/login?next=%2Fauth%2Flogin>

Step 3: Find a Prompt template.

- Would this template help you get more useful information from the GenAI tool? Why or why not?

Yes, this template would help me get more useful information from the GenAI tool. It focuses on a medical topic, pulmonary health, and organizes the content concisely. When asked for a leaflet, it highlights the lifestyle changes for better lung health. This allows the AI to create suitable information for the community.

Moreover, the breakdown into three main topics (exercise, diet, and mindfulness) with specific bullet points helps the AI provide clear advice.

Lastly, the emphasis on using simple language makes it accessible to everyone. This improves the quality and usefulness of the information that was generated.

<https://libguides.scu.edu.au/genAI/promptengineering>

Text generation, e.g.: ChatGPT, Copilot, Gemini, etc.

You are a medical professional specialising in pulmonary health and need to create a leaflet promoting lifestyle changes to the community. The goal is to highlight lifestyle actions and activities which will contribute to improved lung health and a decrease in lung diseases. The target audience includes all age groups. **(Context)**

Break the leaflet content up into 3 main topics: exercise, diet and mindfulness and include at least 3 bullet points for every topic. **(Task)**

Structure it so it will fit on one A4 size page. It should be written in a language which can be understood by people with no medical expertise. It should be visually appealing, eye-catching and include an attention provoking title. Suggest images and design elements. **(Output/Style)**

Click to view generated text

Output from ChatGPT3.5

Title: "Breathe Easy: A Guide to Healthy Lungs for All Ages"

Exercise for Lung Health:

1. **Aerobic Activities:** Engage in activities like brisk walking, cycling, or swimming to boost lung capacity and improve circulation.
2. **Deep Breathing Exercises:** Practice deep diaphragmatic breathing to strengthen respiratory muscles and enhance lung function.
3. **Yoga and Tai Chi:** These activities promote lung flexibility and strengthen the respiratory system while providing a calming effect.

Image Idea: Illustration of people enjoying outdoor activities like walking, cycling, and doing yoga.

Diet for Healthy Lungs:

1. **Antioxidant-rich Foods:** Include fruits (berries, citrus), vegetables (broccoli, spinach), and nuts to protect your lungs from oxidative stress.
2. **Omega-3 Fatty Acids:** Consume fatty fish (salmon, mackerel) and flaxseeds to reduce inflammation and support lung health.
3. **Hydration:** Drink plenty of water to keep mucus thin and help your lungs function optimally.

Image Idea: Collage of colorful fruits, vegetables, and nuts arranged in a lung shape.

Mindfulness for Respiratory Wellness:

1. **Deep Relaxation Techniques:** Practice meditation and deep breathing exercises to reduce stress, which can positively impact lung health.
2. **Avoiding Tobacco and Air Pollutants:** Be mindful of your environment, avoid smoking, and reduce exposure to pollutants for healthier lungs.
3. **Adequate Sleep:** Ensure 7-9 hours of quality sleep to allow your body to repair and regenerate, supporting overall respiratory function.

Image Idea: Tranquil scenes of people meditating or enjoying a good night's sleep.

Conclusion: Remember, small changes in your lifestyle can lead to significant improvements in your lung health. Incorporate these habits into your daily routine for a breath of fresh air and a healthier life.

Design Elements: Use a clean and bright color scheme with lung-friendly shades like blues and greens. Incorporate lung-shaped icons or symbols throughout the leaflet for visual appeal. Ensure a clear and easy-to-read font.

Dis

Step 4: Explain: what is the C.R.E.A.T.E framework.

1.

- Character
- Request
- Examples
- Adjustments
- Type of Output
- Extras

2.

- Context
- Result
- Explain
- Audience
- Tone
- Edit

- write a paragraph about which version you prefer and why.

I prefer the first one for several reasons. Firstly, it shows better emotional intelligence with ‘C’ for ‘Character.’ While the second one is more logical, it may not work well for human interactions: creating a date plan or figuring out how to ask out a guy with a bubbly personality. Secondly, ‘E’ for ‘Examples’ provide samples of the tone you want, which serves as evidence that helps the AI generate better examples/summaries. This is more effective than ‘R’ for ‘Result,’ which can come across as too generic when outlining goals. Finally, I loved how specific ‘A’ for ‘Adjustment’ and ‘T’ for ‘Type of Output’ are. ‘Adjustment’ highlights the need for specific details, such as clarifying misunderstandings for AI and the need for iterations. ‘Type of Output’ clarifies that AI can present information in several formats: lists, paragraphs, graphs, and bullets. These can convey different kinds of data to AI. In contrast, ‘T’ for ‘tone’ in the other framework limits the description to just a few words.