

Using GPT and Python to Enhance Product Functionality

Tariq Hook

What is GPT?

- Generative Pre-trained Transformer
- Advanced natural language processing model
- Understands and generates human-like text
- Versatile for various tasks

What is a LLM?

- Large Language Models
- Pre-trained on massive text data
- Understands structure and nuances of human language
- Generates contextually appropriate responses

Example 01: Customer Support Chatbot

- Automate customer support interactions
- Answer user questions and provide assistance
- Example: A chatbot that helps users navigate an e-commerce website, providing product recommendations and resolving issues.

Example 02: Content Generation Tool

- Generate creative content for blogs, social media, or marketing materials
- Produce summaries, paraphrases, or translations
- Example: A web-based content generator that creates blog posts, social media captions, and more based on user input.

Example 03: Personalized News Digest

- Curate personalized news digests for users
- Summarize and categorize news articles
- Example: An app that delivers a daily digest of summarized news articles tailored to each user's interests.

Example 04: Code Autocompletion Tool

- Provide code suggestions and autocompletion
- Detect errors and suggest possible fixes
- Example: An integrated development environment (IDE) plugin that offers code suggestions, detects errors, and provides programming tips.

Training Instruction-tuned LLMs

- Models trained to follow instructions in prompts
- Provide clear instruction within input
- Example: "Translate the following English text to French: 'Hello, how are you?'"

Importance of Clear Instructions

- Be explicit with instructions
- Specify format, scope, and details
- Example: "Summarize the following article in 3 bullet points: [Article URL]"

Creating Structured Output

- Generate HTML, JSON, or other formats
- Instruct model to provide response in desired format
- Example: "Convert the following text into JSON: 'Name: John, Age: 30'"

Giving the Model Time to Think

- Adjust token limit to control processing time
- Longer token limits for more detailed responses
- Balance response time and depth of output

What is Prompt Engineering?

- The process of designing effective prompts to guide GPT's responses
- Involves refining input and instructions to achieve desired output
- An essential skill for leveraging GPT's capabilities

Tips for Effective Prompt Engineering

1. Be Explicit
 - Clearly specify the task, format, and scope
 - Avoid ambiguity
2. Use Instruction-based Tuning
 - Encapsulate your intent within the instruction
 - Guide the model to desired output
3. Experiment with Prompts
 - Try different phrasings and approaches
 - Iterate and learn from the model's responses

Tips for Effective Prompt Engineering (Continued)

- Use symbols to separate different sections
- Help the model recognize distinct parts of instruction
- Use symbols like "###" or "|||"
- Separate different sections within input
- Example: "|||Translate||| 'Hello, how are you?' |||Summarize||| [Article URL]"

Setting up Roles

- Use roles like System, User, and Assistant
- Create interactive exchanges
- Example:
 - a. System: You are an assistant helping a user find a good restaurant.
 - b. User: I'm looking for a romantic Italian restaurant nearby.
 - c. Assistant: ...

Iterative Prompt Development and Agile Process

- Refine input through trial and error
- Experiment with different approaches
- Learn from output and continuously improve

What is Gradio?

- An open-source Python library
- Simplifies creating UIs (User Interfaces) for machine learning models
- Allows for rapid prototyping and sharing of models

Gradio Features

- Intuitive, easy-to-use API
- Supports various input and output types (e.g., text, images, audio)
- No web development knowledge required
- Shareable links for model demos

Gradio and GPT

- Ideal for showcasing GPT-based applications
- Quick integration of GPT-generated content in UIs
- Test and iterate on GPT models with real-time user feedback