BASIC PROMPT ENGINEERING WITH CHATGPT: AN INTRODUCTION

MODULE 5: Emerging trends around LLMs and their applications

OVERVIEW

The field of LLMs and how they are integrated with other systems is increasing rapidly. By April 2023 – just six months after the release of ChatGPT – capabilities like Auto-GPT were already beginning to emerge that substantially expanded what is possible with LLMs. And creative users are continuously exploring new ways of using ChatGPT and extending its capabilities. By the time you take the course, there will most likely be tools and capabilities that are not available at the time of writing.

This module is designed to give you the opportunity to explore the rapidly emerging landscape around how LLMs are being used, as well as explore for yourself how ChatGPT can be used in innovative ways. It also introduces you to some of the more creative ways of using ChatGPT. It consists of just three exercises:

The first exercise is designed to learn about novel ways in which ChatGPT and other LLMs are being developed and used through your own research. You should not use ChatGPT directly for this exercise as it will not have the necessary knowledge in the data it utilizes, although you are encouraged to use it to develop your ideas and thinking about how to research emerging trends.

In the second exercise you are asked to explore examples of practical and creative uses of prompts for use with ChatGPT. In this exercise you will also be introduced to a number of useful techniques that we haven't yet covered in the course.

The third exercise asks you to build on the second one and experiment with ChatGPT to explore its novel use. Here, your creativity, imagination, and ingenuity with playing with the platform are all important in learning how to be creative with prompt engineering.

By the end of this module, you should be able to talk with confidence about emerging and innovative uses of ChatGPT and other LLMs, and have a number of innovative tricks and techniques under your belt.

The module should take between 2 – 6 hours to complete.

LEARNING OBJECTIVES

By the end of this module you will be able to:

5.1. Describe emerging developments around the capabilities and uses of LLMs and the technologies that are making use of them.

5.2. Describe and utilize an array of innovative prompt ideas and structures.

5.3. Develop your own highly creative prompts for ChatGPT.

FLOW

OVERVIEW

Intro blurb (above)

Intro video:

- This module focuses on developing your understanding of the cutting edge of ChatGPT development and use, as well as LLMs more broadly.
- It also gives you the opportunity to experiment with creative prompts.
- In the first exercise you should not use ChatGPT, just because you're expected to explore developments that happened beyond ChatGPT's training data.
- In the last exercise you should flex your creative muscles and get imaginative with your prompts!

EXERCISE: Exploring the cutting edge of LLM development and use (30 points)

This exercise asks you to research and provides your thoughts on emerging uses of LLMs and ChatGPT. You are encouraged to use ChatGPT to stimulate your thinking and the questions you ask in this assignment. However, you should be aware that ChatGPT will be unable to provide direct responses to the cutting edge of how LLMs are being developed and used. Rather, you will be expected to use Google and other sources for your research.

Your aim is to find out about and explore innovative developments, whether these are innovations in LLM development and use, innovations in how ChatGPT is being used, creative uses of ChatGPT, or other instances of cutting-edge innovation – for instance Auto-GPT, or BabyAGI, or ChatGPT alternatives (there are many other examples). The primary requirements is that you discover and explore something that has emerged as a novel technology or use within the past six months.

You should provide a summary of your findings as a 1 – 3 minute audio or video submission.

This exercise should take you no longer than 1 – 2 hours.

You will be given full points for successfully completing this exercise. Points may be removed at a future date if it appears that you did not spend as much time and effort as expected on the exercise.

EXERCISE: Novel prompt ideas and structures (40 points)

There are a rapidly growing number of resources online that list novel prompts, prompt structures, and prompt tricks. In this exercise you will take some time to extend your knowledge and use of some of the creative ways in which ChatGPT can be used.

You should expect to spend 2 – 3 hours on this exercise.

- Spend some time searching online resources of prompt ideas and suggestions.
- You should also use the following page that provides additional information on some of the key capabilities of ChatGPT.
- Compile a list of 10 prompts or prompt templates that you can use in the future as examples of useful prompt approaches and structures. These can include prompts that you have developed, prompts inspired by others, or a cut and paste job on prompts that others have suggested. You might include prompts because they are good examples of business-oriented prompts, because they tap into ChatGPT's capabilities in innovative ways, or simply because you find them intriguing – remember, this is your list.
- Submit your list of ten prompts below.

You will be given full points for successfully completing this exercise. Points may be removed at a future date if it appears that you did not spend as much time and effort as expected on the exercise.

Useful ChatGPT Capabilities and prompt strategies

One of the amazing things about ChatGPT is that it can interpret and respond to text in many ways that seem to mimic a person's ability to infer what someone is asking without there being explicit instructions.

Because of this, the best way to learn is to experiment. However, there are some ChatGPT general capabilities and prompt strategies that it's worth being aware of:

Using delimiters to define parts of a prompt and a specific output structure

Delimiters are character sequences that are used to separate out instructions in prompts, and too allow for complex prompt structures. For instance "<" and ">" can be used as delimiters, or a single asterisk ("*"), or a series of single quotes in a row, or pretty much any character sequence that isn't likely to be used otherwise in a prompt. You can even use a numbered list.

ChatGPT is adept at interpreting delimiters in a prompt. But you can also explicitly instruct ChatGPT to respond in a specific way to delimited text.

For example, here's a prompt template for including emoji's in text summaries:

"For the following text entries, I would like you to replace anything between the delimiters '<' and '>' with an emoji"

Here's another example of the same, using a different delimiter:

"For the following text entries, I would like you to replace anything between triple single speech marks with an emoji"

A more sophisticated use of delimiters is to ask ChatGPT to follow a specific format or a set of rules or expectations in responses. The two following examples demonstrate a sophisticated level of delimiter-use, where the delimiters ("[" and "]" in this case) define different parts of the desired output:

I would like you to write a short essay about the book The Hitchhiker's Guide to the Galaxy

[Summary]: Provide a concise summary of the book

[Character Analysis]: Analyze the character of Arthur Dent in the book

[Thematic Discussion]: Discuss the theme of dispossession in the book

This second example illustrates how ChatGPT can respond to a prompt structure that includes a series of conditional statements:

Book: The Algebraist by Iain M. Banks

[IF: {Genre: 'Science Fiction'}

   THEN: {Task: 'Discuss technological advancements in the narrative'}

   ELSE IF: {Genre: 'Romance'}

   THEN: {Task: 'Analyze the development of the relationship between the protagonists'}

   ELSE: {Task: 'Provide a general summary of the book'}]

Asking ChatGPT for different output formats

Although ChatGPT output is always text (at the moment), you can ask for this to be formatted in different ways, including:

- Plain Text
- Question and Answer
- Bulleted or Numbered Lists
- Dialogue

- Script/screenplay format
- Poetry or song lyrics
- Tables
- HTML (if you are building a website for example
- LaTeX Code (for formatting documents using LaTeX)
- Various programming languages (e.g. Python, JavaScript, C++, PHP, SQL)

Translation

ChatGPT's translation capabilities are impressive. You can cut and paste text from multiple languages and ask it to translate into other languages, or ask it to provide responses in different languages. Unlike many automatic translators, ChatGPT output does a good job of capturing the sense and meaning of the text.

You can also ask ChatGPT to clarify text that isn't clear, either because it is in a dialect or because it is very poorly written.

For instance, this is a passage from Iain M. Banks' book Feersum Endjinn which includes a character that speaks phonetically:

Woak up. Got dresd. Had brekfast. Spoke wif Ergates thi ant who sed itz juss been wurk wurk wurk 4 u lately master Bascule, Y dont u ½ a holiday? & I agreed & that woz how we decided we otter go 2 c Mr Zoliparia in thi I-ball ov thi gargoyle Rosbrith.

I fot Id bettir clear it wif thi relevint oforities furst & hens avoyd any truble (like happind thi lastime) so I went 2 c mentor Scalopin.

Certinly yung Bascule, he sez, i do beleave this is a day ov relativly lite dooties 4 u u may take it off. ½ u made yoor mattins calls?

O yes, I sed, which woznt stricktly tru, in fact which woz pretti strikly untru, trufe btold, but I cude always do them while we woz travelin.

Wots in that thare box yoor holdin? he asks.

Itz a ant, I sez, waven thi box @ his face.

ChatGPT can produce a clear translation of this, even though it has never been exposed to this particular form of speech – that's impressive! (I'll leave it to you to try this).

Producing brochures, marketing material and other forms of formal writing

ChatGPT does a very good job of taking technical information or a set of ideas and transforming them into material that can be used for marketing, brochures, or web pages.

For example, try this prompt template with technical product details from a website like Amazon or Ikea (noting that it's also a good use of delimiters):

> Please translate [technical details] into a short product description that will be clear and compelling to customers browsing a website
>
> [technical details]: (cut and paste details here)

Summarizing text and ideas

ChatGPT is extremely good at summarizing text. It can either intuitively work out how you would like input summarized, or it will respond to specific constraints.

It can also summarize rough notes – which is great where you would like a polished summary of crude notes you've taken on a subject.

For example, try this template:

> Please summarize [text] in less that [word limit] at a level that a [target audience] would understand.
>
> [text]:
>
> [word limit]:
>
> [target audience]:

If you want some near-indecipherable notes to test it on, try these:

> "singularity, can't see beyond, Kurzweil, AI, recursive improvement, exponential acceleration of ability, incredible progress over short time, Ai exceeds human capacity for intelligence, could be amazing, will certainly change life as we know it, dangerous? What about Skynet? Will AI kill us all or be our savior? Not sure any of this is plausible. But worth thinking about just in case. Crazy stuff!"

Identifying and using sentiment

ChatGPT is somewhat limited with how it infers and uses sentiment (or emotion), but it can both identify sentiment in inputs and use it in responses.

For instance, this prompt template asks ChatGPT to infer the sentiment in something someone's written:

> Please identify the primary sentiment in the following passage:
>
> [Add text]

And this one asks ChatGPT to rewrite a passage with a different primary sentiment:

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Please rewrite [text] in a way that emphasizes [sentiment]

[text]:

[sentiment]: (e.g. positive, negative, neutral, anger, joy, sadness, sorrow, fear, surprise, happiness, enthusiasm contentedness etc…)

This is an example of tone adjustment, and is extremely useful in working with ChatGPT to write everything from emails to job applications to reviews that requite a specific tone.

Inferring from text

More broadly, ChatGPT is able to infer quite a bit from inputted text. For instance, you might ask it to infer the biases of the writer, or their worldview (and even philosophy), or the main topics and themes of a piece of writing, or the intent of the author. There are a lot of things you could add to this list.

Brainstorming

ChatGPT is adept at brainstorming if you are stuck with where to go with a task or project, or are looking for inspiration. For instance, the following prompt template generates three brainstorming ideas within a specified domain:

Please generate three creative ideas in the area of [area] that will help kickstart a brainstorming session on a new project.

[area]:

One intriguing approach to brainstorming with ChatGPT – and something that has other applications – is to ask ChatGPT to take on a specific persona and enter into a Socratic dialogue with you. The persona may be descriptive (e.g. a physicist who is interested in philosophy) or a real person (like Marie Curie or Octavia Butler). It may even be an amalgam of people.

For instance, try this prompt template:

From now on, please respond as if you are [persona]. Start a Socratic dialogue with me about [topic]

[persona]:

[topic]:

Project development

Whether you are developing a new business or marketing plan, writing a grant proposal, developing a new project, or even mapping out a dissertation, ChatGPT has the ability to help with the process.

There are many prompt structures that can be used here, but this is just one for developing a new idea for a startup:

Please develop a concept, a pitch, and a business plan, for [startup idea]

[startup idea]:

These are just some ways in which prompt engineering can be used to get the most out of ChatGPT – there are many others, and even more that I suspect haven't been discovered yet.

EXERCISE: Amazing prompts! (30 points)

In this exercise you will be asked to further experiment with creative and novel ways of using ChatGPT by:

1. Identifying creative and imaginative goals; and
2. Playing with novel ways of developing prompts to achieve them.

You are be encouraged to use all resources available to you for inspiration around both goals and novel methods of achieving them (including, of course, everything you've learned here). Be wild, crazy and playful – have fun! This is an exercise where much of the learning comes from trying things and seeing where you get to.

As a starter, here are some seed ideas:

- A conversation with a persona who is an amalgam of a famous philosopher, a famous scientist, and a famous religious leader.
- A plan for launching a business and solving a global challenge or becoming a billionaire (you decide!)
- A roadmap for bringing about social change.
- A motivational ChatGPT personality.
- A ChatGPT personality that you can brainstorm ideas with.
- A universal problem solver.
- A way of exploring the world with a character out of a book or a movie as a guide.
- A budget planner.
- A step by step guide to creating a successful club.
- A personal tutor.

This is primarily an honor system-based assignment where you are expected to spend a minimum of 2 hours playing with ChatGPT in creative ways.

When you are finished, write briefly about your prompt, the experience developing it, the types of responses ChatGPT gave you, and how it might be useful to others.

If you use ChatGPT to help write this, make this clear, and explicitly confirm that you carried out the assignment and state what your contributions and ChatGPT's contributions were.

You will be given full points for successfully completing this exercise. Points may be removed at a future date if it appears that you did not spend as much time and effort as expected on the exercise.