

# A practical demonstration with ChatGPT

UNDERSTANDING PROMPT ENGINEERING



Alex Banks  
Founder & Educator

# A practical demonstration with ChatGPT



You

I want to lose fat but gain muscle. Give me a list of foods I should be eating.



# A practical demonstration with ChatGPT



You

I want to lose fat but gain muscle. Give me a list of foods I should be eating.



ChatGPT

To lose fat and gain muscle, it's important to focus on a balanced diet that includes a variety of nutrient-dense foods. Here's a list of foods that can support your goals:

1. **Protein-Rich Foods:** Essential for muscle growth and repair.
  - Lean meats like chicken, turkey, and lean beef.
  - Fish, especially fatty fish like salmon, which is also rich in omega-3 fatty acids.
  - Eggs, a complete source of protein.
  - Dairy products like Greek yogurt, cottage cheese, and milk.
  - Plant-based proteins like lentils, chickpeas, quinoa, and tofu.

# A practical demonstration with ChatGPT



You

I want to blend: British and Greek cuisine for my breakfast, American and Portuguese for my lunch, and Kenyan and Turkish for my dinner. Write me a descriptive menu, a shopping list with quantities/amounts alongside detailed cooking instructions for each meal.



# A practical demonstration with ChatGPT



You

I want to blend: British and Greek cuisine for my breakfast, American and Portuguese for my lunch, and Kenyan and Turkish for my dinner. Write me a descriptive menu, a shopping list with quantities/amounts alongside detailed cooking instructions for each meal.



ChatGPT

Creating a fusion menu that blends different cuisines for each meal is an exciting culinary adventure. Here's a detailed menu, shopping list, and cooking instructions for your British-Greek breakfast, American-Portuguese lunch, and Kenyan-Turkish dinner.

## Breakfast: British-Greek Fusion

**Menu:** Greek Yogurt with Honey and Berries, Full English Breakfast Elements, and Greek-style Olive Bread



# A practical demonstration with ChatGPT



## 1. Greek Yogurt with Honey and Berries:

- Wash and slice berries.
- In bowls, serve Greek yogurt topped with berries and a drizzle of honey.

## 2. Full English Breakfast Elements:

- Grill or fry the bacon and sausages until cooked.
- In a pan, fry eggs to your preference.
- Grill halved tomatoes and sliced mushrooms with a bit of olive oil, salt, and pepper.

## 3. Serve all components together with slices of olive bread.

## Lunch: American-Portuguese Fusion

**Menu:** Cheeseburger with Piri Piri Sauce and Sweet Potato Fries

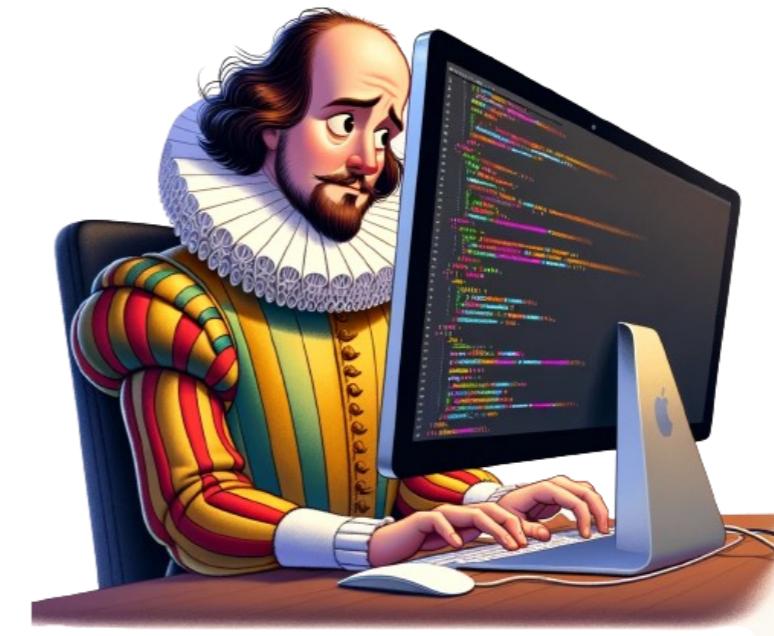
**Shopping List:**

# A practical demonstration with ChatGPT



You

Turn my meal plan into a 3 verse poem written in the style of William Shakespeare. Turn the inspiration of my poem into a webpage on cooking. Please write the code for a landing page titled "Alex's Cooking". Put the poem in the center of the page. Include an email signup field with a 'Subscribe' button.



# A practical demonstration with ChatGPT

## Poem: A Culinary Ode by Alex

### Verse 1: Breakfast's Dawn

sql

 Copy code

```
In morn's soft light, a feast doth wake,  
Greek yogurt, berries, honey's take.  
Full English fare with olive bread,  
In Shakespeare's tongue, our hunger's fed.  
Eggs, bacon, boughs of mushrooms dear,  
Tomatoes grilled, the day doth cheer.  
A blend of isles, Hellenic taste,  
In British morn, no time we waste.
```



# A practical demonstration with ChatGPT

## HTML Code for "Alex's Cooking" Landing Page

Here's a simple HTML template for your landing page:

html

 Copy code

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Alex's Cooking</title>
    <style>
        body { text-align: center; font-family: 'Times New Roman', serif }
```

# A practical demonstration with ChatGPT



## Alex's Cooking

### A Culinary Ode by Alex

In morn's soft light, a feast doth wake,  
Greek yogurt, berries, honey's take.  
Full English fare with olive bread,  
In Shakespeare's tongue, our hunger's fed.  
Eggs, bacon, boughs of mushrooms dear,  
Tomatoes grilled, the day doth cheer.  
A blend of isles, Hellenic taste,  
In British morn, no time we waste.

Enter your email

Subscribe

# A practical demonstration with ChatGPT



**Embracing**



**Expanding**



**Weaving**

# A practical demonstration with ChatGPT



**Embracing**



**Expanding**



**Weaving**

# A practical demonstration with ChatGPT



# A practical demonstration with ChatGPT



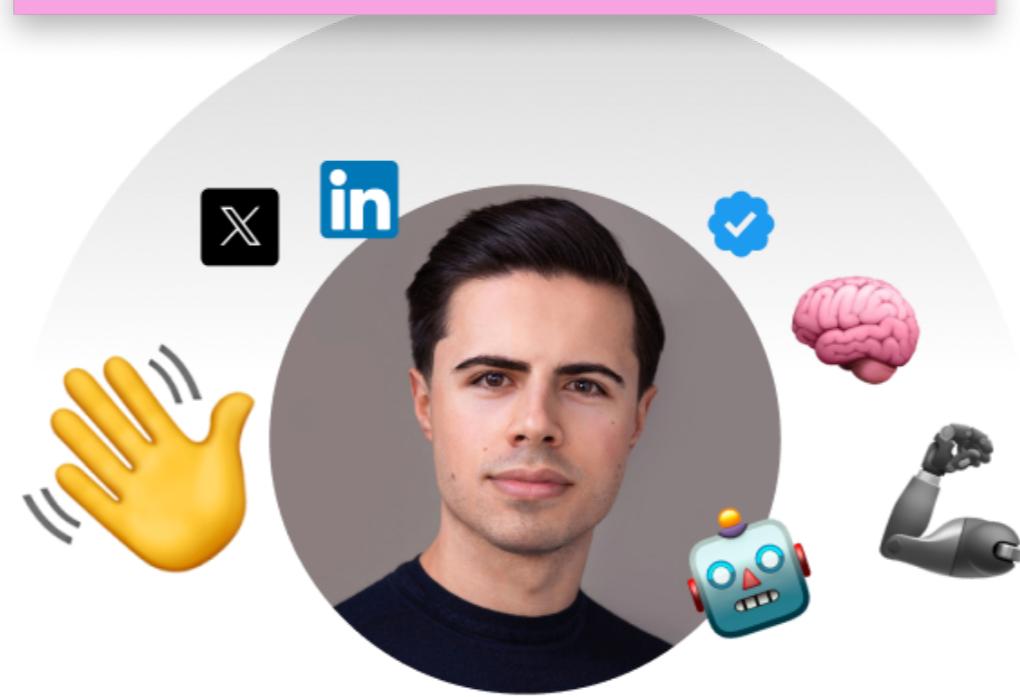
**“Write me an essay on cooking.”**



- **Sparring back and forth**
- **Sharing ideas**
- **Making new connections**

# Welcome!

# Alex Banks



# Getting the most out of ChatGPT

**Basic Prompt = Basic Answer**



**Summarising Text**

**Thoughtful Prompt = Thoughtful Answer**



**Creating Content**



**Writing Code**

<sup>1</sup> Images: DALLE-3

# Beyond traditional chatbots

?



**Traditional chatbots → predefined responses**



**ChatGPT → human conversation**

<sup>1</sup> Images: DALLE-3

# **Let's practice!**

**UNDERSTANDING PROMPT ENGINEERING**

# What is a prompt?

## UNDERSTANDING PROMPT ENGINEERING



Alex Banks  
Founder & Educator

# The essence of a prompt

Every day, we use prompts without even realizing it



<sup>1</sup> Images: DALLE-3, Pixabay, Apple

# The anatomy of a prompt

Traits of an effective prompt:

- Clear - provide relevant context
- Specific - avoid unnecessary information
- Open-ended - surface non-obvious insights



<sup>1</sup> Images: Midjourney, Pixabay, DALLE-3

# A simple example - clear

AL

I'm an 8th-grade math teacher preparing to teach trigonometry.



<sup>1</sup> Image: DALLE-3

# A simple example - specific

AL

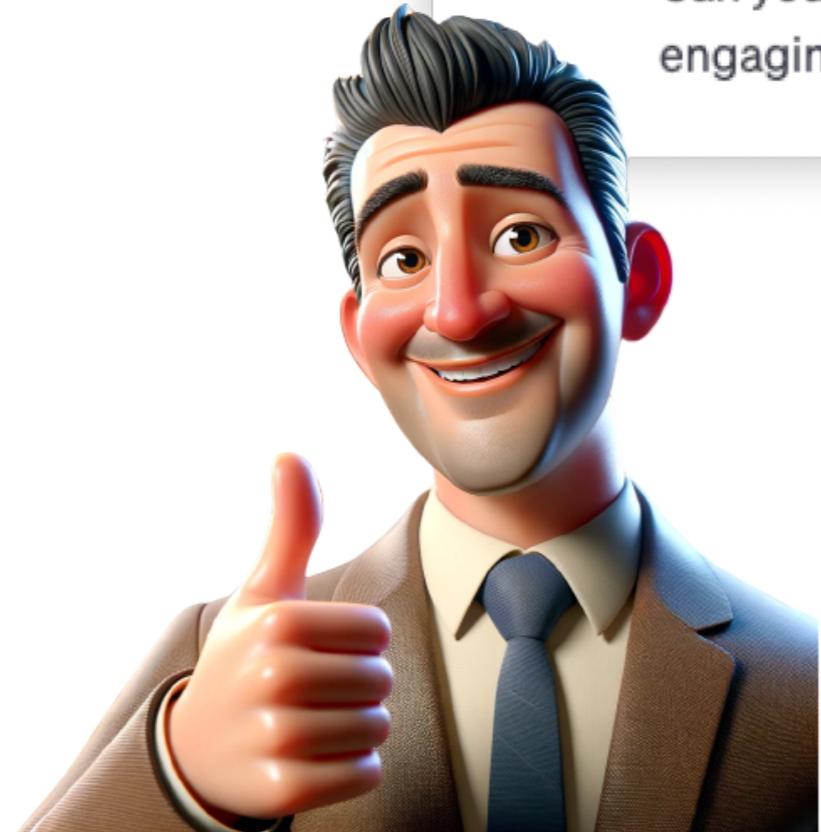
I'm an 8th-grade math teacher preparing to teach trigonometry.

Design a lesson plan tailored for a 60-minute session with 20 students.



<sup>1</sup> Image: DALLE-3

# A simple example - open-ended



AL

I'm an 8th-grade math teacher preparing to teach trigonometry.

Design a lesson plan tailored for a 60-minute session with 20 students.

Can you also recommend some creative, real-world examples to make the lesson more engaging for the students?

<sup>1</sup> Image: DALLE-3

# A simple example



**Lesson Plan: Introduction to Trigonometry**

Bookmark Like Dislike

**Grade Level:** 8th grade

**Duration:** 60 minutes

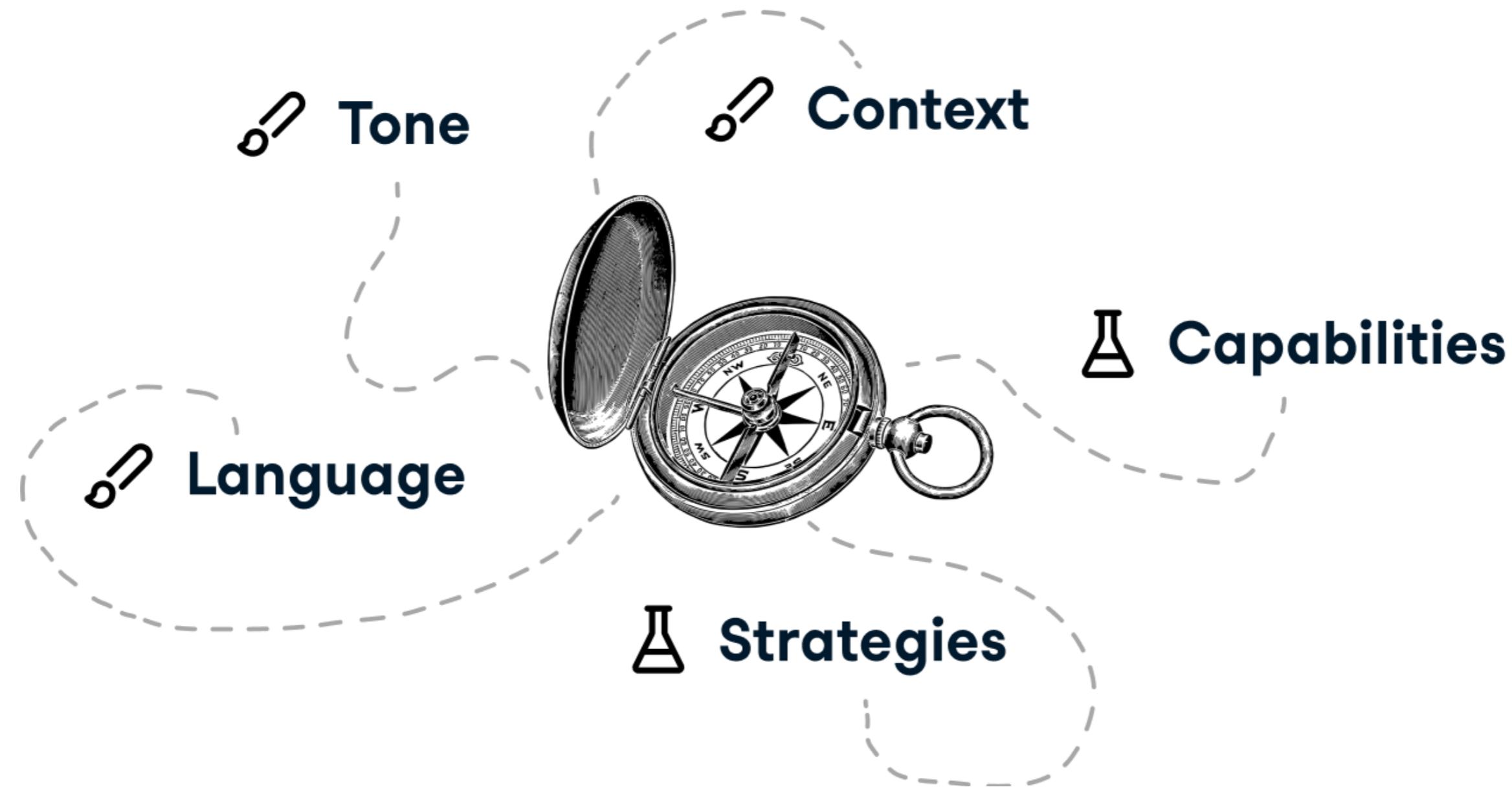
**Objective:**

- Students will understand the basic concepts of trigonometry, including sine, cosine, and tangent.
- Students will apply trigonometric concepts to solve real-world problems.

**Materials:**

- Whiteboard and markers
- Projector and screen
- Handouts with trigonometric ratios
- Calculators
- Real-world examples for applications

# The art and science of prompt engineering



<sup>1</sup> Image: Midjourney

# Common pitfalls when crafting prompts

What to avoid:

- Overloading - too much (irrelevant) information
- Ambiguity - vague prompts mean generalized answers
- Over-complication - using jargon, complex phrasing, or technicalities

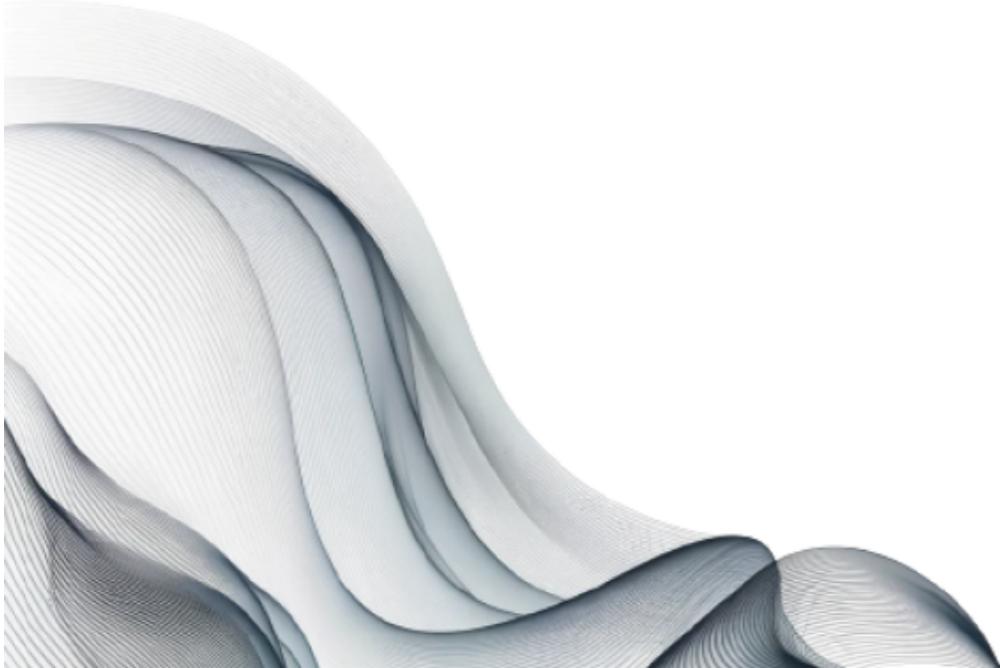


<sup>1</sup> Image: Midjourney

# Prompt evolution - refinement is key

Prompts aren't static, they're dynamic

- Iterative process
- Feedback-driven nature
- Continuous loops of improvement



Find your flow...

<sup>1</sup> Images: DALLE-3

# Prompt evolution - refinement is key

AL

Please provide more real-world applications of trigonometry within navigation and astronomy.



<sup>1</sup> Image: DALLE-3

# Prompt evolution - refinement is key

AL

Please provide more real-world applications of trigonometry within navigation and astronomy.



Certainly! Trigonometry plays a crucial role in navigation and astronomy, as it helps determine positions, distances, and angles in both terrestrial and celestial contexts. Here are more real-world applications within these fields:



1. **Marine Navigation:** Trigonometry is used by sailors to determine their ship's position, especially when they can see landmarks or celestial bodies. The angle between a celestial body (e.g., the Sun, stars) and the horizon can be used to calculate latitude and longitude.
2. **Aircraft Navigation:** Pilots use trigonometry to calculate their altitude, heading, and the distance to their destination. Instruments like altimeters, sextants, and GPS systems rely on trigonometric principles.
3. **GPS Systems:** The Global Positioning System (GPS) relies heavily on trigonometry. Satellites in the GPS network transmit signals, and the time it takes for these signals to reach a GPS receiver is used to calculate the receiver's position through trilateration, a geometric method based on distances and angles.

# **Let's practice!**

**UNDERSTANDING PROMPT ENGINEERING**

# The next level

UNDERSTANDING PROMPT ENGINEERING



Alex Banks

Founder & Educator

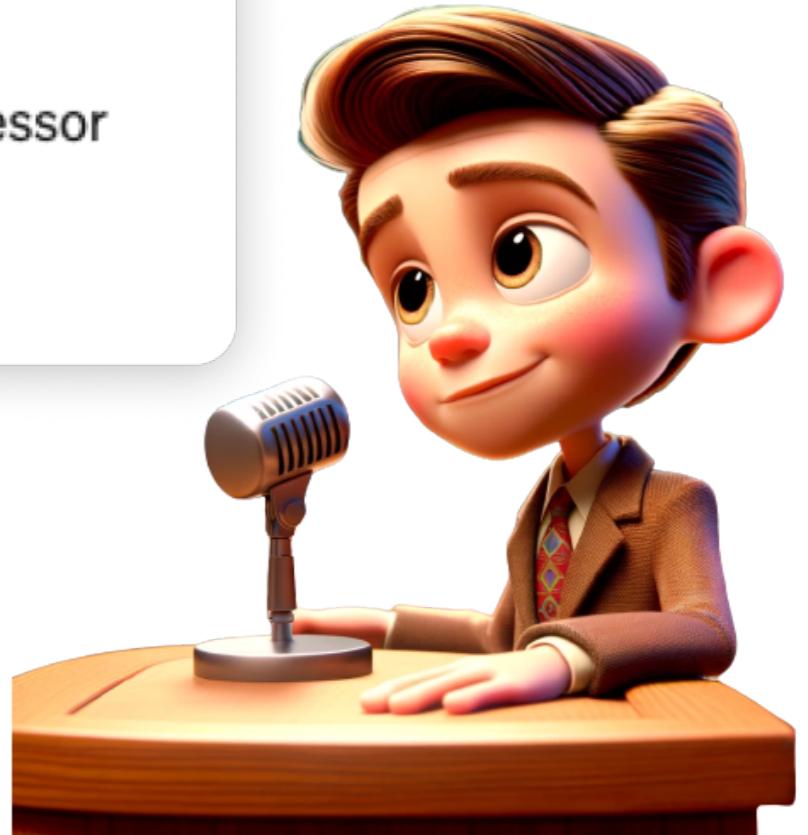
# Infusing persona



You

Write me a speech to give an address at my university. Highlight:

- My experience as a computer science major
- Reference the abundance of staff & academic resources available during the course
- The course focus on AI with special acknowledgement to Professor Moody and Professor Slughorn



<sup>1</sup> Image: DALLE\_3

# Infusing persona



**ChatGPT**

Ladies and gentlemen, esteemed faculty members, fellow students, and distinguished guests,

I stand before you today with a sense of pride and accomplishment as I reflect on my journey as a computer science major here at our esteemed university. It is a privilege to address you all, and I would like to take this opportunity to share my experiences and express my gratitude.

Throughout my time as a computer science major, I have been fortunate to witness the incredible growth and development of our university's academic resources and support services. These invaluable resources have played a crucial role in shaping my educational journey and fostering my growth as a computer scientist.

# Infusing persona



You

Write me a speech to give an address at my university, in the style of Ernest Hemingway. Highlight:

- My experience as a computer science major
- Reference the abundance of staff & academic resources available during the course
- The course focus on AI with special acknowledgement to Professor Moody and Professor Slughorn

< 2 / 2 >



<sup>1</sup> Image: Pixabay

# Infusing persona



**ChatGPT**

Ladies and gentlemen, fellow students, and esteemed faculty,

I stand before you today, a humble computer science major, ready to share my journey through the labyrinthine corridors of academia, where the hunt for knowledge is as relentless as the fiercest bull in Pamplona.

In my time at this fine institution, I have traversed the treacherous terrain of algorithms and data structures, hacking my way through the dense underbrush of code, searching for that elusive treasure chest of wisdom. It has been a journey fraught with challenges, a journey that has tested my mettle, and a journey that has left me with a profound appreciation for the abundant resources and support that this university has provided.



<sup>1</sup> Image: Pixabay

# Making it personal



You

Here's an example of my email writing style:

"Hi Denise,

It was great catching up today! Loved hearing more about Archie's surprise birthday party.

I'd love to help set up on 24th. Let me know if I can bring anything.

See you tomorrow!

Best,

Alex"

Now craft a response to the following email from Denise:

# Useful ways to structure your prompt



You

Here's a breakfast I love:

- "1. 3-egg omelette
- 2. Smoked salmon
- 3. 1 medium avocado"

Now give me examples of alternatives I might enjoy.

---

Food suggestions:

- 1.
- 2.
- 3.

---

Drink suggestions:

- 1.
- 2.
- 3.



<sup>1</sup> Image: DALLE-3

# Training techniques

**Zero-shot**



**One-shot**



**Few-shot**



<sup>1</sup> Image: DALLE-3

# Training techniques



You

If my favorite films are 'Gladiator' and 'Sex and the City', what other movies should I watch?



<sup>1</sup> Images: Wikipedia

# Training techniques



**ChatGPT**

Your favorite films, "Gladiator" and "Sex and the City," are quite different in terms of genre and style, so recommending other movies will depend on what aspect of these films you enjoy. Here are some recommendations based on different aspects of each film:

If you like "Gladiator" for its epic historical drama and action:

1. "Braveheart" - This film, directed by Mel Gibson, is another epic historical drama with plenty of action, set in medieval Scotland.
2. "Troy" - If you enjoy ancient history and epic battles, this film based on the Trojan War could be a good choice.
3. "300" - A visually striking and action-packed movie that retells the Battle of Thermopylae in ancient Greece.
4. "Ben-Hur" - A classic historical epic that features chariot races and a gripping story set in ancient Rome.

# Training techniques

If you like "Sex and the City" for its witty humor and contemporary urban setting:

1. "The Devil Wears Prada" - This comedy-drama set in the fashion industry offers sharp humor and a glimpse into the world of high fashion.
2. "Bridget Jones's Diary" - A romantic comedy with a witty and relatable protagonist navigating life and love in London.
3. "How to Be Single" - This film explores the lives of single women in New York City and offers a mix of humor and romance.
4. "The Intern" - A heartwarming comedy-drama that takes place in a modern office environment, starring Robert De Niro and Anne Hathaway.
5. "Confessions of a Shopaholic" - If you enjoy the fashion and shopping elements of "Sex and the City," this romantic comedy might appeal to you.

# A helping hand for problem-solving

## Chain-of-thought (COT) prompting

- Zero-shot - No structure provided. ChatGPT solves on its own
- One/few-shot - Roadmap of steps ChatGPT can follow to solve problems

**Zero-shot COT**

“Break down this problem step-by-step. Really think about it.”

**One-shot COT**

“Here’s an example of a framework I use to problem solve: [insert steps]



Use this framework to solve the following problem:

[insert problem]

<sup>1</sup> Image: DALLE-3

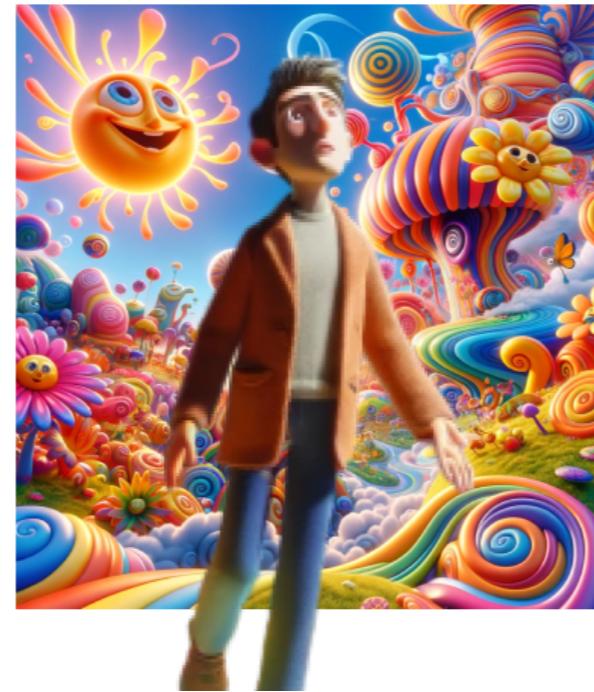
# Limitations

- Biases - The model presents stereotypes or misinformation
- Hallucinations - The model confidently states incorrect information
- Overfitting - The model is only as good as the data it's trained on

**Biases**



**Hallucinations**



**Overfitting**



<sup>1</sup> Images: DALLE-3

# Anticipating complex workflows



You

Let's draft a startup plan focused on sustainable technology.

Focus on solving a really tough problem the world is currently suffering from.



<sup>1</sup> Image: DALLE-3

# Anticipating complex workflows



You

Let's draft a startup plan focused on sustainable technology.

Focus on solving a really tough problem the world is currently suffering from.



ChatGPT

Certainly! Developing a startup plan focused on sustainable technology to address a critical global issue is an admirable and impactful endeavor. Let's outline a comprehensive plan for a startup that aims to tackle the problem of plastic pollution, one of the pressing environmental challenges facing the world today.



<sup>1</sup> Image: DALLE-3

# **Let's practice!**

**UNDERSTANDING PROMPT ENGINEERING**