



**Future of Design in  
Higher Education**

**Dartmouth + MIT**

2023

# AI in Design Education

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## We will cover

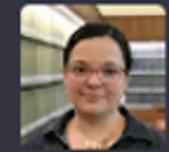
20min - introduce the session, move to individual conference rooms

35min - conversation/activity

20min - regroup all together and cross-share highlights

# A Little About LLMs

# What is a large language model?

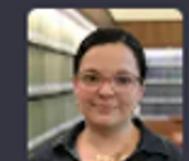


Describe what a large language model is in under 15 words



A model that understands and generates human-like text using advanced machine learning techniques.

# How does an LLM work?



Explain to me like I am a 12 year old how a large language model works. Use only 60 words or less.



A large language model is like a super smart robot that learns from lots of books, articles, and websites. It understands human language and can answer questions or have conversations. It breaks sentences into pieces, looks at patterns, and predicts what comes next. It's like a giant puzzle solver, helping us with information and ideas.

We don't really  
know what's  
going on.

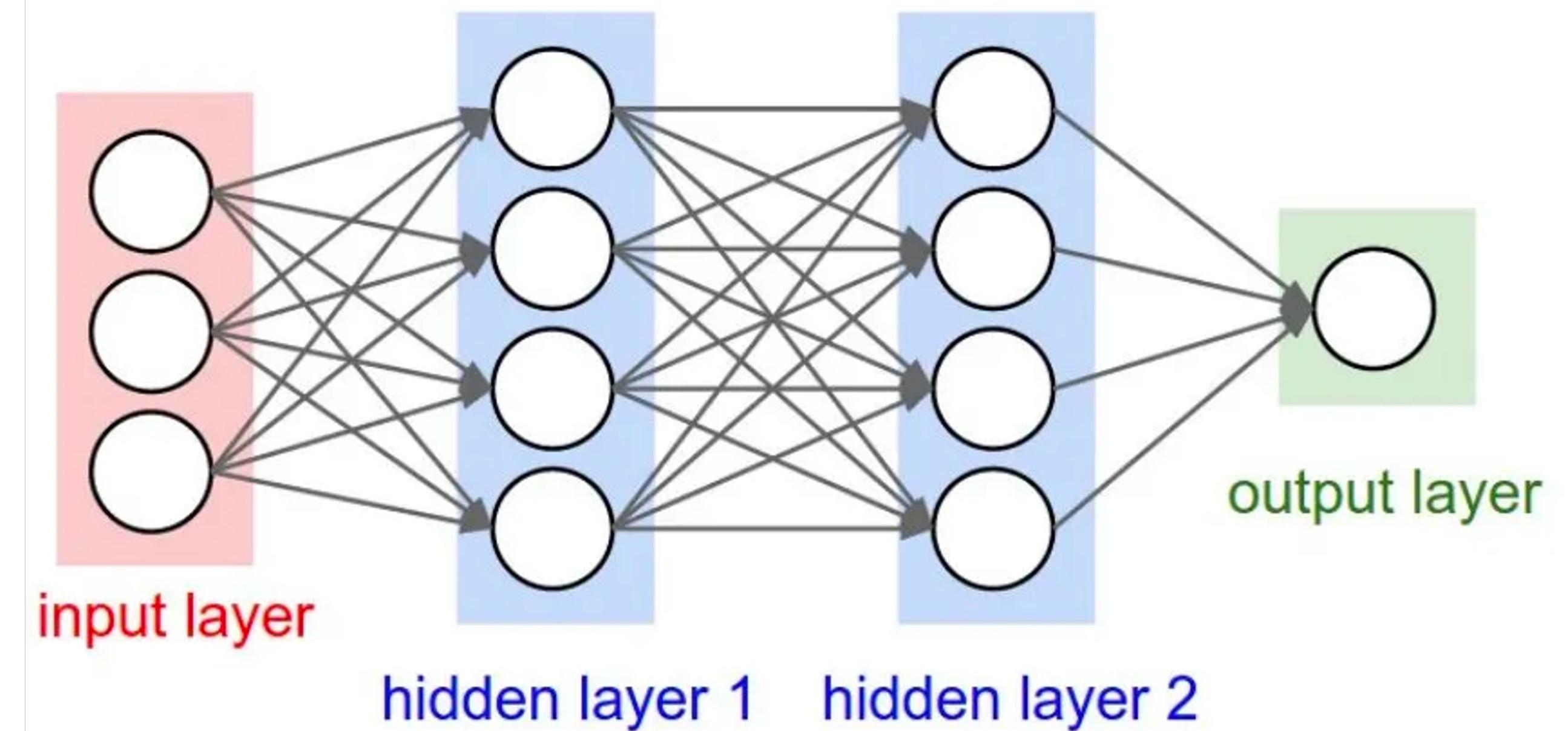
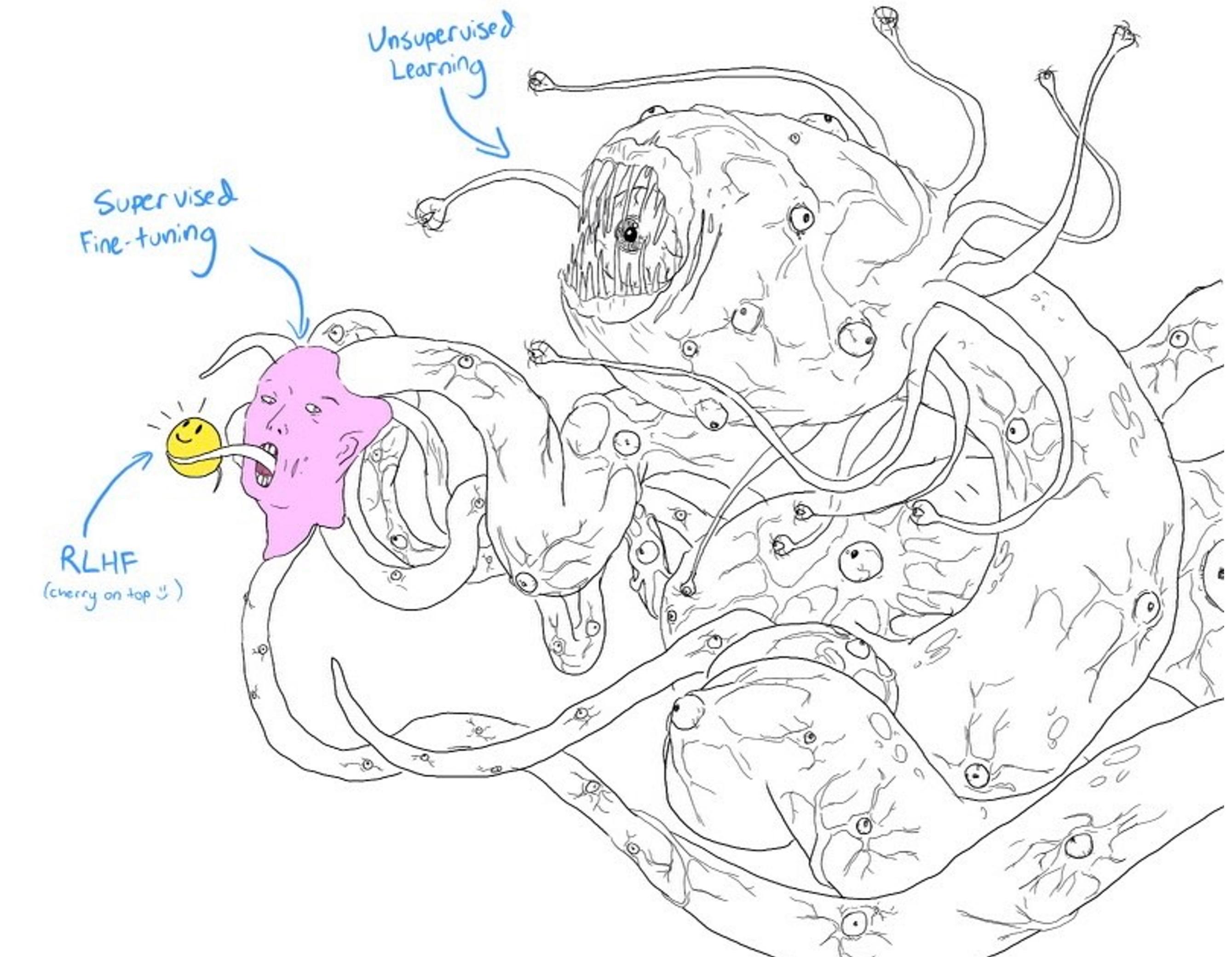


Image of a very simple neural network:  
<https://cs231n.github.io/neural-networks-1>

We don't really  
know what's  
going on.



Shoggoth with Smiley Face.  
Courtesy of [twitter.com/anthrupad](https://twitter.com/anthrupad) via [huyenchip.com](http://huyenchip.com)

# A Quick History of ChatGPT

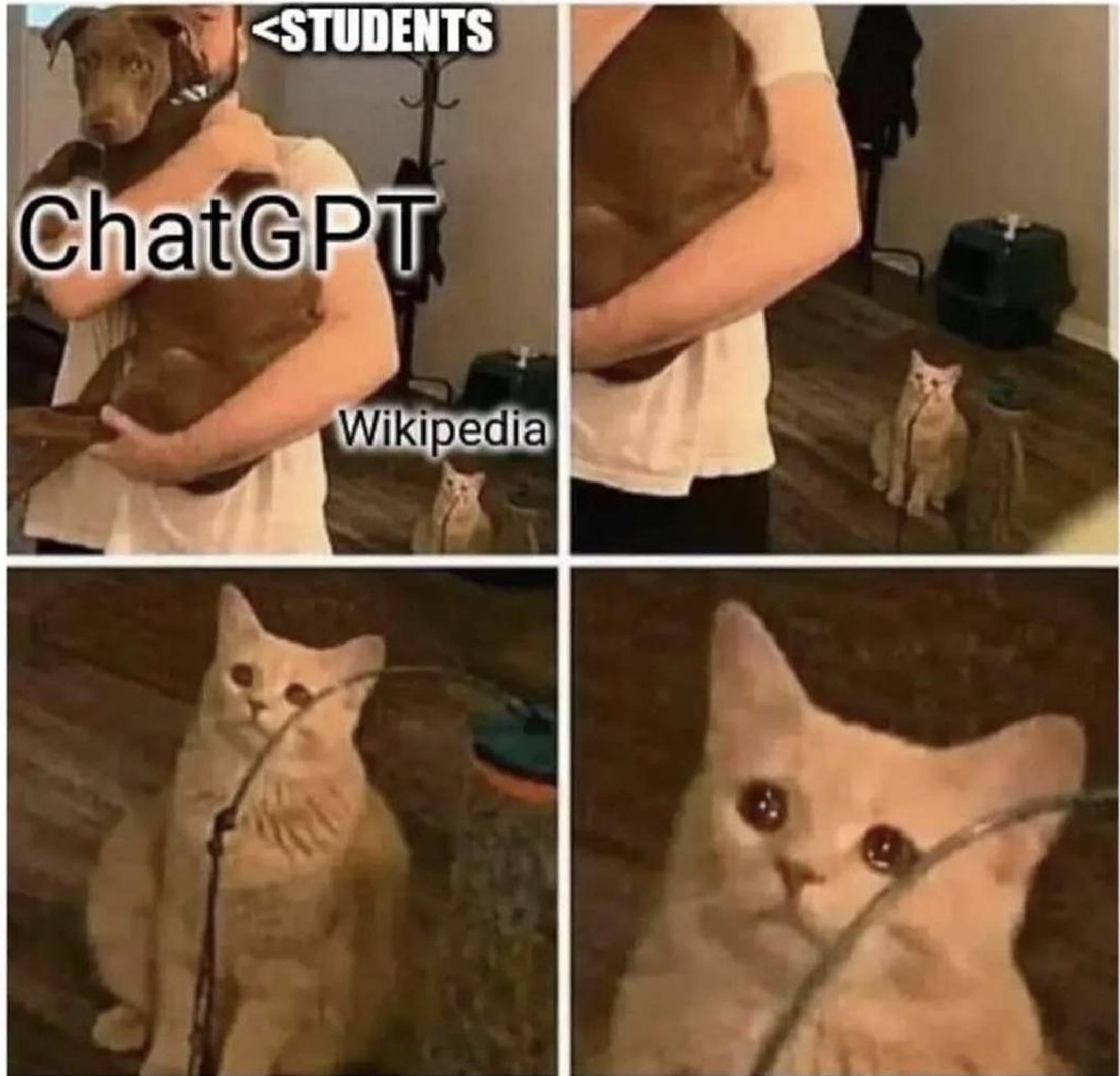
GPT stands for Generative Pretrained Transformer

- Transformer model: Reads all the text at the same time and tries to guess the next word.

Brief Timeline:

- **1950s:** Theoretical beginnings
- **1980s–1990s:** Backpropagations and Recurrent Neural Networks
- **2000s:** GPUs+ML and Deep Learning becomes mainstream
- **2015:** OpenAI established
- **2018:** GPT-1
- **2019:** GPT-2
- **2020:** GPT-3 introduced, available only to developers
- **2021:** ChatGPT created
- **November 30, 2022:** ChatGPT released to public

The Fine-ish Print



We have to teach students what ChatGPT is NOT:

- search tool
- fact-checking tool
- scholarly source

Instead, it's more of a content or idea generation tool. You have to verify and *own the output*.

# ChatGPT/LLM Challenges

- Currency: September 2021 cutoff date
- No Citations: Can't give you it's sources
- Hallucinations: ChatGPT will confidently tell you wrong information
- Data Drift: Language evolves quickly.
- Model Collapse: As more AI-generated content is posted online, LLMs \*may\* produce more gibberish as output.

# What Not to Enter

- Personal Identifiable Information (name, phone, university ID numbers, etc)
- Any confidential work information
- Information about your research or other faculty research (think intellectual property, research data, etc)
- Student assignments without the student's consent. (FERPA and intellectual property)

*If you wouldn't put it on an online blog, do not put it into an LLM*

# What Not to Enter: But, Why?

LLMs are still research experiments.

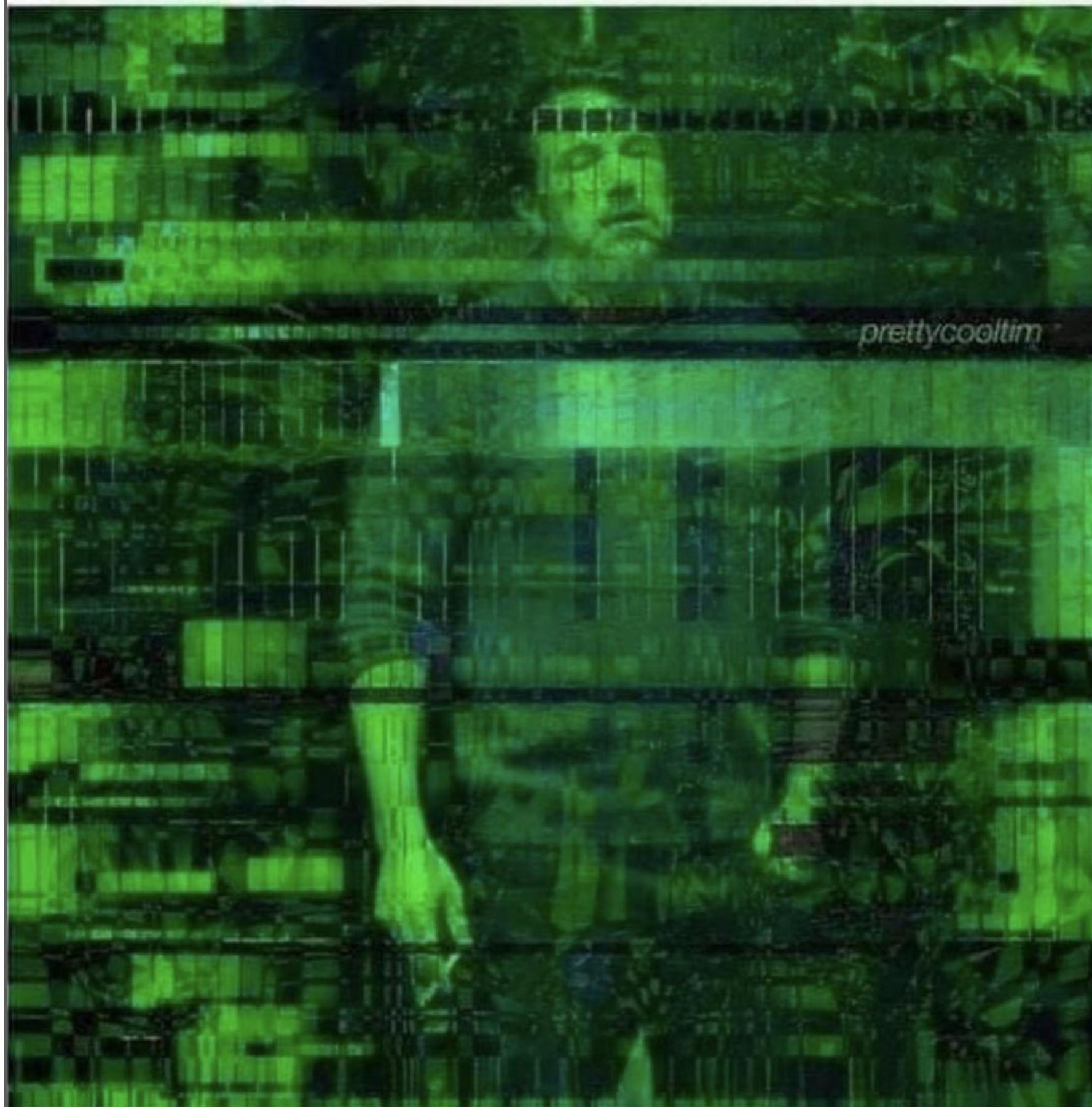
- May 2<sup>nd</sup>: Samsung Bans ChatGPT Among Employees After Sensitive Code Leak

Not confident in data privacy practices

- April 6<sup>th</sup>: Tesla workers shared sensitive images recorded by customer cars

# Prompt Tips to Make Your Life Easier

ChatGPT after having to deal with humans every day



## A Few Best Practices

- Be specific
- Define things like context, background, audience, format, etc
- Ask in the affirmative
- Layer your complex questions as multiple simple questions

# Format: Outline Expanders

# Outline Expanders

## 1/4



Act as an outline expander. Generate a bullet point outline based on the input that I give you and then ask me for which bullet point you should expand on. Create a new outline for the bullet point that I select. At the end, ask me for what bullet point to expand next.



Sure, I can help you with that! Please provide me with the initial bullet point outline, and I'll ask you which bullet point you'd like to expand on. Once you've selected a bullet point, I'll generate a new outline for that specific point. Let's get started!



# Outline Expanders

2/4



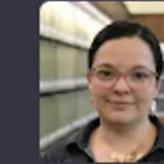
Create an outline for teaching undergraduate students the design process.



Certainly! Here's an outline for teaching undergraduate students the design process:

- I. Introduction to Design Process
  - A. Definition and importance of design process
  - B. Overview of the stages involved
  - C. Connection to real-world applications
  
- II. Stage 1: Problem Identification and Analysis
  - A. Understanding the problem statement
  - B. Defining project goals and constraints
  - C. Conducting research and gathering information
  - D. Identifying user needs and expectations
  
- III. Stage 2: Ideation and Concept Generation

# Outline Expanders 3/4



II.A.



Sure! Here's a more detailed outline for expanding on the bullet point II.A.  
"Understanding the problem statement":

- II. Stage 1: Problem Identification and Analysis
  - A. Understanding the problem statement
    - 1. Importance of clear problem definition
    - 2. Analyzing problem context and scope
    - 3. Identifying key stakeholders and their needs
    - 4. Defining project objectives and goals
    - 5. Conducting initial research to gain insights
    - 6. Formulating problem statements and constraints

# Outline Expanders

## 4/4



Write a paragraph for A. Understanding the problem statement  
1. Importance of clear problem definition. Use 100 words or less.

< 2 / 2 >



Understanding the problem statement is crucial in the design process as it sets the foundation for successful outcomes. Clear problem definition ensures that designers and stakeholders have a shared understanding of the challenges to be addressed. It helps avoid ambiguity, reduces the risk of miscommunication, and guides the design process towards effective solutions. By clearly defining the problem, designers can focus their efforts on developing innovative and targeted solutions that address the specific needs and goals of the project. A well-defined problem statement serves as a compass, guiding the entire design process and increasing the likelihood of achieving desired outcomes.

# Coaching: Ask Me Questions

# Ask Me Questions

## 1/2



I would like you to ask me questions to help me create a table to serve as a grading rubric for the final project in an undergraduate intro to human-centered design course. You should ask me questions until you have sufficient information about my current draft messages, audience, and goals. Ask me the first question.

< 2 / 2 >

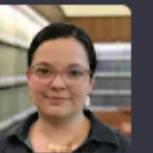


Sure! I'd be happy to help you create a grading rubric for your final project. Let's start with the first question:

1. What is the nature of your final project? Could you provide a brief overview of what it entails?

# Ask Me Questions

## 2/2



The final project will consist of performing secondary research and primary research, synthesizing research, developing insights and analysis, prototyping and testing a solution, then creating a presentation to explain the project and what was learned.

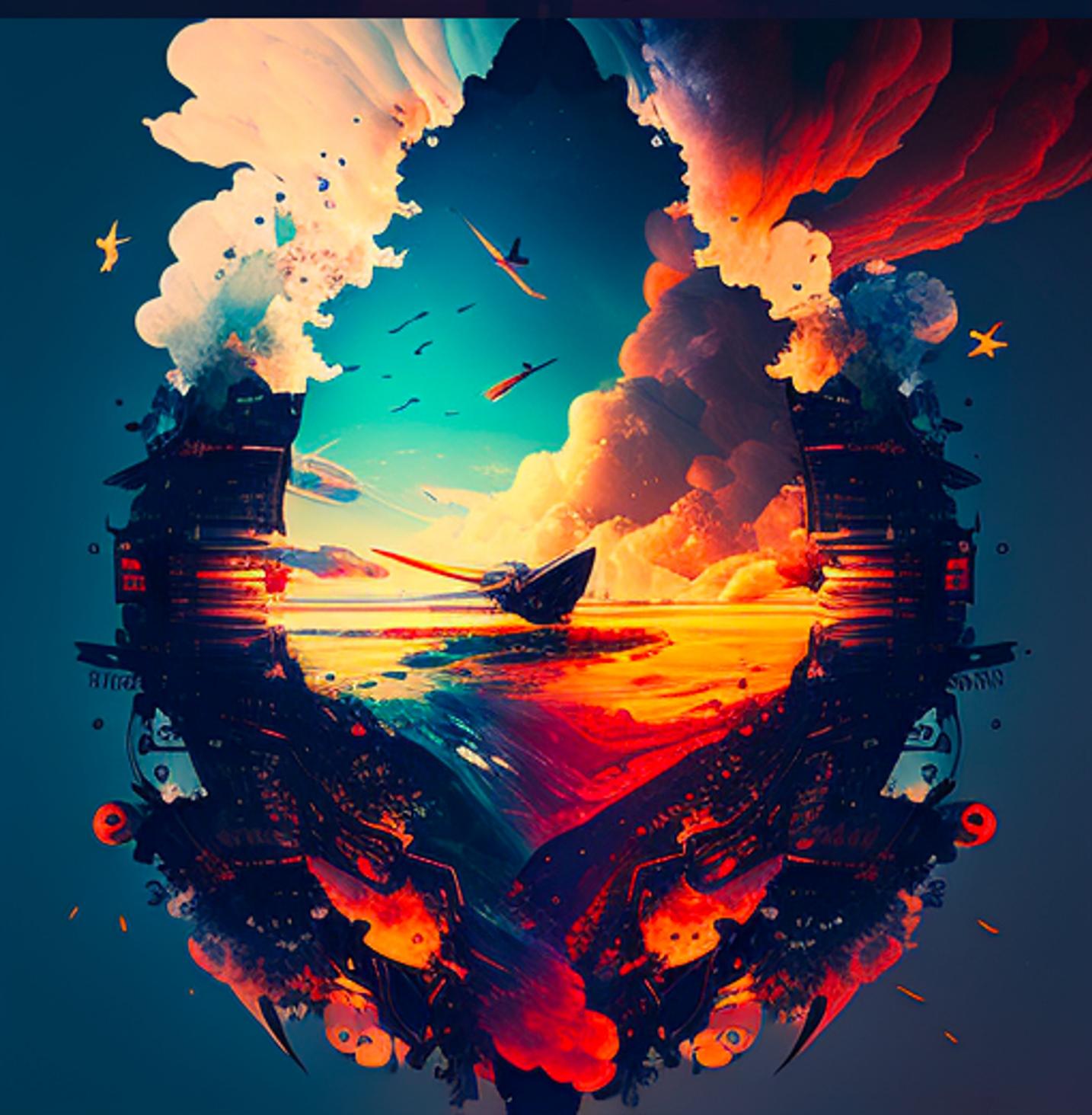


Great! It sounds like your final project encompasses various stages and tasks. To better understand your project, let's move on to the next question:

2. Who is the intended audience for your final project presentation? Are they fellow students, instructors, or professionals in the field of human-centered design?

Let your creativity be  
your AI superpower

Midjourney prompt -  
sky is the limit::2.5 anime::1 dusk::1 DSLR::1 --v 4



# How to use AI to help your design process?

Introduce AI to my students: a level playing field

AI is your co-pilot.  
Not Auto-Pilot.

# Student Project Example 1



Jacob Basnage



**Adobe Firefly + Photoshop**  
Prompt: *Interior design living room  
with couch but everything is made of  
bamboo steamer.*

# Student Project Example 2

Check the student's homework pdf



AI-Generated



My Final Design

**Microsoft Bing**

**DALL-E 2**

**Photoshop**

Jameson David Neyman

# Write + Brainstorm Ideas

Best free option: [ChatGPT](#) (Suggest registering before the workshop)

Best option if ChatGPT is down: [OpenAI Playground](#)

Another free option [Google Bard](#)

Another free option is [Microsoft Bing](#)

# Make Images

Open Source Free Option: Download [Stable Diffusion](#)

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Need to pay: [DALL-E](#)

Best option: [Midjourney](#) (not free, around \$100 for the basic plan per year)

Free for now: [Adobe Firefly Beta](#) (Suggest registering before the workshop)

Created by  
Midjourney



**Created by  
Adobe Firefly**



# Make Website

Mixo: <https://app.mixo.io/ai-website-builder>

# Make Videos

<https://www.d-id.com/>

Example

# Policy for Discussion

Shall we ask students to cite which platform they used in the process? How to cite?

How do we record the process?

...

# Policy for Discussion?

Within this class, you are welcome to use foundation models (ChatGPT, GPT, DALL-E, Stable Diffusion, Midjourney, GitHub Copilot, and anything after) in a totally unrestricted fashion, for any purpose, at no penalty. However, you should note that all large language models still have a tendency to make up incorrect facts and fake citations, code generation models have a tendency to produce inaccurate outputs, and image generation models can occasionally come up with highly offensive products. You will be responsible for any inaccurate, biased, offensive, or otherwise unethical content you submit regardless of whether it originally comes from you or a foundation model. If you use a foundation model, its contribution **must be acknowledged** in the hand-in; you will be penalized for using a foundation model without acknowledgment. Having said all these disclaimers, the use of foundation models is encouraged, as it may make it possible for you to submit assignments with higher quality, in less time.

The university's policy on plagiarism still applies to any uncited or improperly cited use of work by other human beings or submission of work by other human beings as your own.