Harnessing ChatGPT for Academic Innovation: An Interactive Exploration

("Beyond the Cheating Freak-out")

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Although not required, if you want to try stuff yourself, be sure to have ChatGPT opened and ready to use.
Go to: **https://chat.openai.com/**
Note: If just setting it up for the first time, you will need to register/sign-up with an email address and a mobile/cell phone number (for verification).
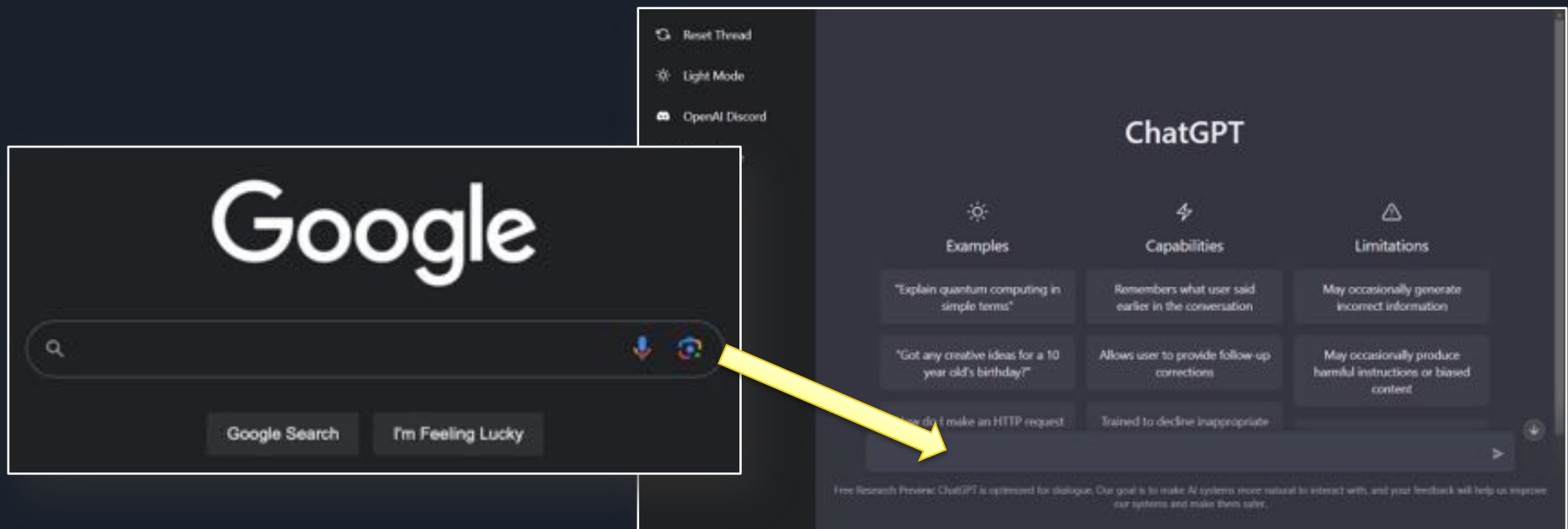
Welcome and Agenda

"I wanna try it!" – NO!

- Part 1 (The Model): I tell you a story….you listen.

- Part 2 (Using the Model): We all try flying ChatGPT

- Part 3 (Expanding the Model): Examples expanding the model

So, what IS ChatGPT?…

ChatGPT is _not_ a search engine

- We have been raised on the Google search box
- You see the search box and you search....

...and often we are disappointed with the results.

ChatGPT *"search engine plus some bits of AI"*

- We see a search box and we search…
- <u>And</u> we play around with the AI.

First, summarize 6 main types of vision research. Second, write a short story outlining the history of vision research in the style of Dr Seuss.

I am a 55-year-old man who wants to lose some weight, name 5 healthy snacks.

what if I was vegan?

~~ChatGPT is a search engine~~

~~ChatGPT *"search engine plus some bits of AI"*~~

Those are the wrong mental models!

ChatGPT is much cooler than that!

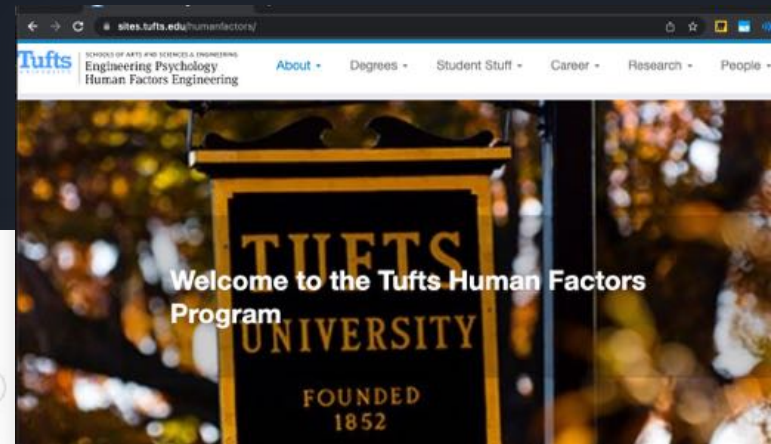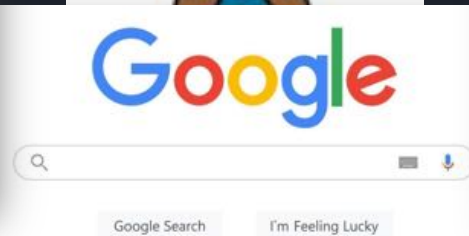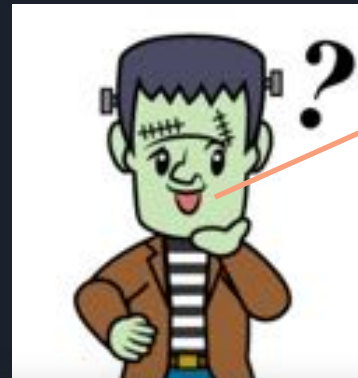Today: a different way of thinking about ChatGPT...

So, how does ChatGPT work?...

How *doesn't* ChatGPT work?

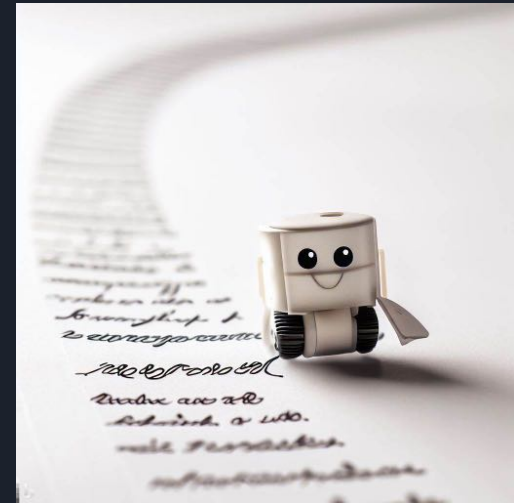- It is NOT a search engine… it never gives you results "from the web"

Tell me about Tufts University Human Factors Engineering program.

The Human Factors Engineering program at Tufts University was founded in…
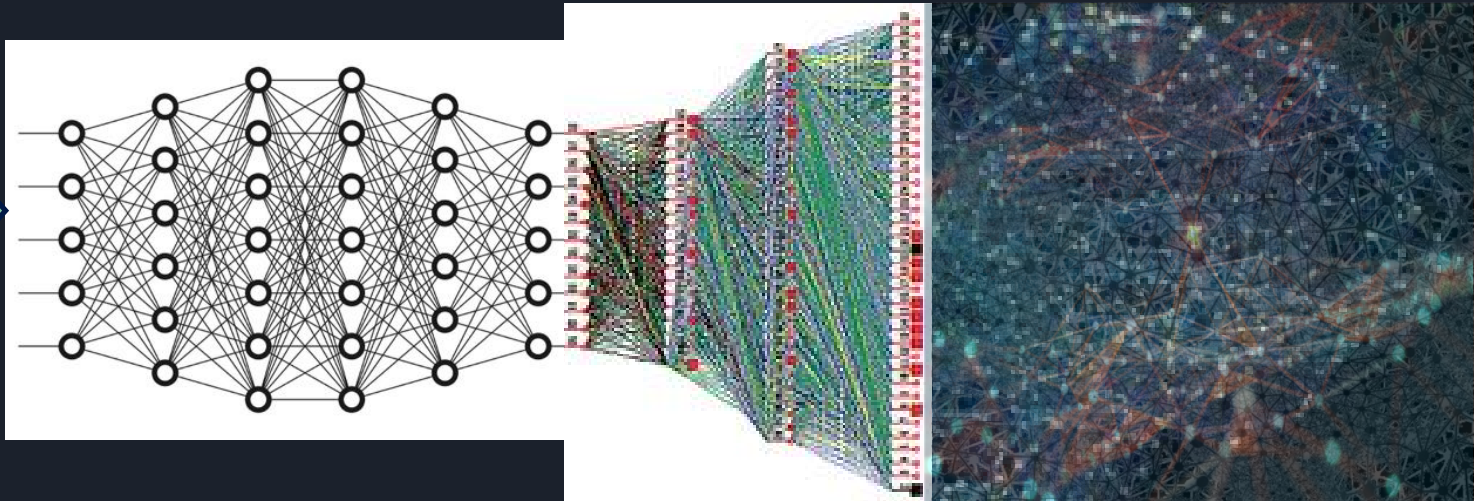
How *does* ChatGPT work?

- *"Sometimes it just makes things up"* (Hallucinations)
- That is literally all it ever does!

- ChatGPT is an automated text generator
- Every word you see is generated "afresh"

How ChatGPT was trained

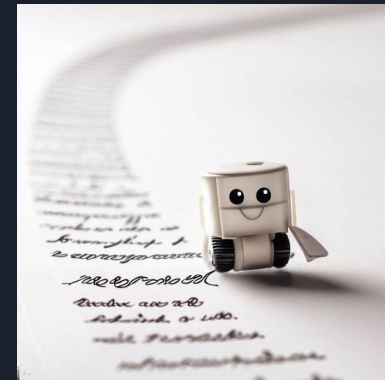- OpenAI gathered a huge corpus of texts
- "What's the next word:…."
- 180 billion parameters in its neural-network "brain"

After leaving the house, Harry ran down the _____ → *street*

After entering the cave, Harry ran down the _____ → *tunnel*

We need a new "mental model"

ChatGPT is a "Transversal Glider"

It lets you glide through different dimensions or spaces

"Bread-Space"

Glide through "Bread-Space"

Write a short essay about the croissant.

Present the history of baking as a haiku

I want a bread recipe that would be like how it was made in Roman times. First, give me a brief introduction to the recipe's history and then give me the actual recipe.

Glide through "Chocolate-Space"

What are 8 types of chocolate?

Summarize the health benefits of chocolate and include citations.

Explain quantum mechanics using chocolate-related concepts.

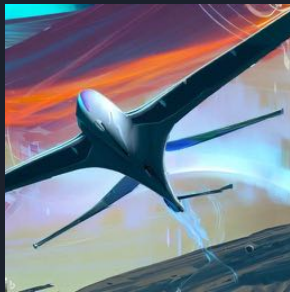# Transversing Bread and Chocolate Spaces

Give 3 examples of chocolate breads. And for each one briefly discuss its history.

How can I bake chocolate bread on a campfire?

ChatGPT as a Transversal Glider

- Glide into, through, and between dimensions and spaces
- Output will be determined by:

Location (context): Dimensions of interest
Heading: "summarize…", "poem…", "recipe…", "outline…",
"pros and cons…", "grant proposal…", "email…",
Winds: What dimensions, approaches, or structures *matter*?

*"Enrich"
or
"Thicken"
some
dimensions*

I want to design a behavior change intervention that will reduce cancer rates. Give me four ways I might do that. And, within each of those ways, give me three examples.

Vs

There are many kinds of behaviour change interventions. Group all them into 6 clusters. Name each cluster, summarize it, and give a few examples within each.

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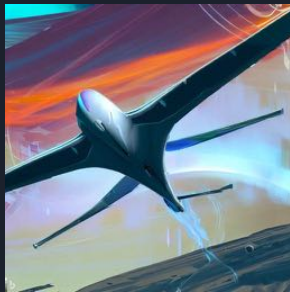
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"Enrich" or "Thicken" some dimensions

Give me a two-week exercise plan to build lean muscle.

Vs

Pretend you are a medical doctor, a nutritionist, and an expert on exercise and personal training. I am a 23-year-old non-binary individual. Give me a two-week eating and exercise plan to build lean muscle. And, I hate push-ups and tofu.

Part 2 (Using the Model): We all try flying!

- Develop *something* new:
  - Class/module/course
  - **Research project**
  - Collaboration
  - Product
  - Marketing/outreach campaign

Set the location, heading, and winds! And FLY!

"funnel technique" — Start with broad areas and drill down

- ### Class/module/course:

    I am a professor at UNI in the department of DEP. I do work in AREAS. I am passionate about PASSIONS. I am developing a new course for STUDENTS. This course will cover TOPICS. Provide a brief paragraph summary of this course followed by a class-by-class breakdown of topics I should cover.

- ### Research project

    I am a professor at UNI in the department of DEP. I do work in AREAS. I am passionate about PASSIONS. I am developing a new new line of research investigating the broad area of AREA1 and AREA2. Provide 6 novel research projects at the intersection of those areas. For each, highlight its potential importance or relevance.

- ### Collaboration

    I am a professor at UNI in the department of DEP. I do work in AREAS. I am passionate about PASSIONS. I am interested in developing a new collaboration with researchers from other departments around my university. Provide 6 likely depts with whom I can collaborate. For each, highlight potential research topics.

- ### Product

    What do you know about COMPANY? Provide a summary. Also, provide 6 clusters of types-of-customers that company has (name and describe each cluster). Then summarize the company's main competitors and summarize each competitor's relative (dis)advantage.

- ### Marketing/outreach campaign

    Give me 5 ways that I could get more PEOPLEtype to get more involved with AREAorCAUSE

Part 3 (Expanding the Model)

- "Prompt Engineering"
- Continue to dig!
- ChatGPT can code too!

  I have accelerometer data from a device stuck to a big CNC machine. How might I analyze this?

  I want to generate an animation of moving waves on an ocean – can you help me do that?

- ChatGPT can learn skills, analyze data, edit text

  When I say "suggest some questions" I want you to review everything…. And suggest questions that I might want to ask now

  Group our customers into 6 segments. Name and describe each one. Then create 8 MCQ questions that can best separate our customers into their different types/segments.

- Good video: https://tinyurl.com/5fk2uuwe
- ChatGPT and end-of-humanity

  Thanks!