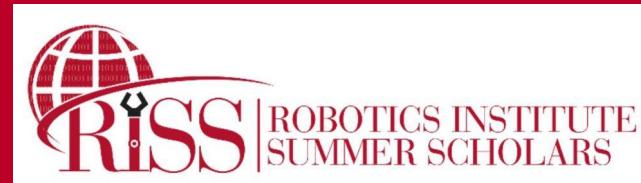




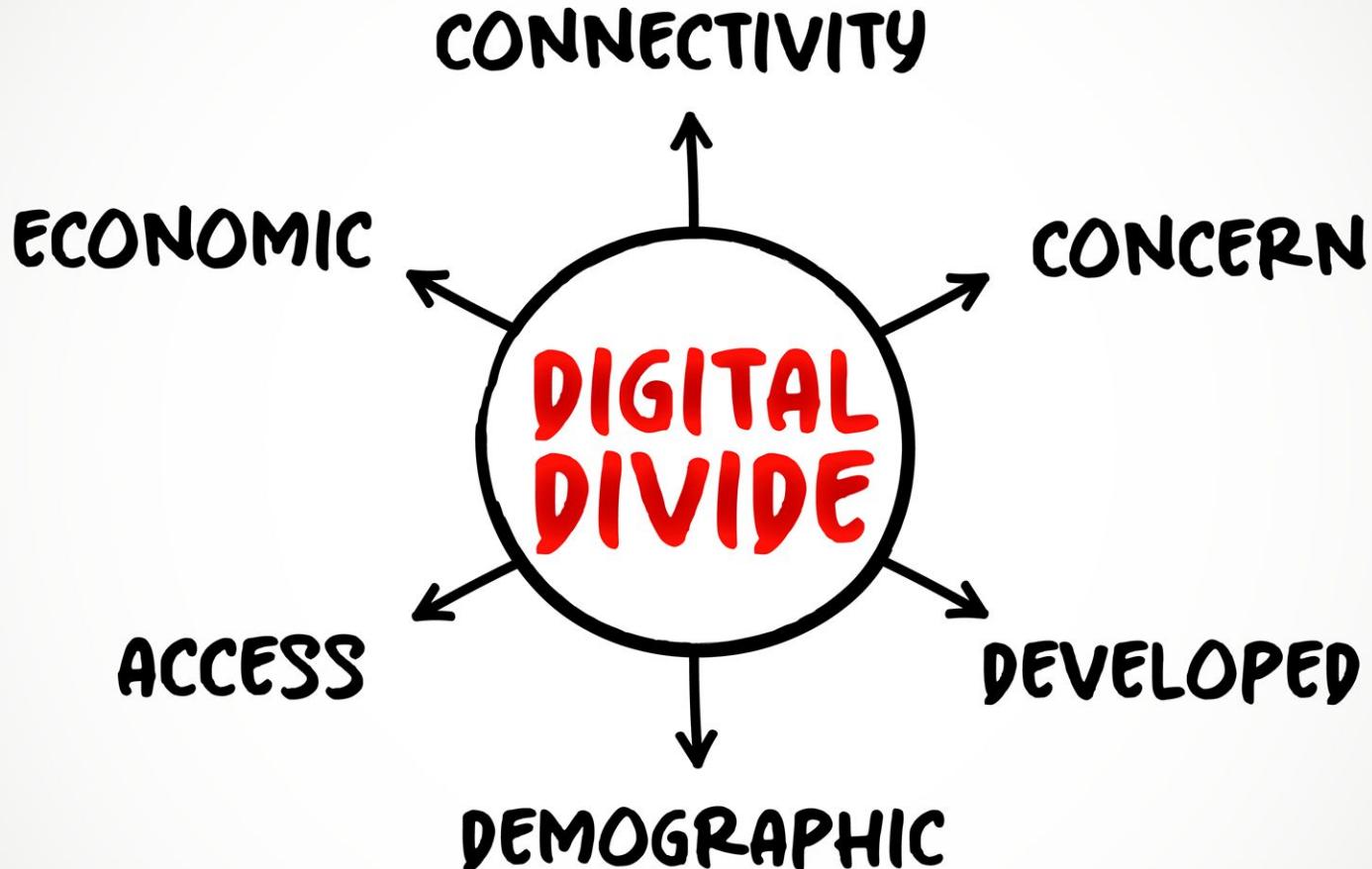
Carnegie Mellon University

Leveraging AI Tools for Learning: ChatGPT in the K-12 Classroom

Rachel Burcin, Catherine Evans, and Vishwas Mruthyunjaya



Namaste مرحباً Willkommen Bem Vindo Selamat Datang
Bienvenidos Bienvenue Croeso Bienvenue Welcome Bienvenidos أهلاً وسهلاً
Bienvenuti Benvenuto Welkom Bienvenue مرحباً Welcome Welkom Croeso
Welkom Bienvenue Bienvenue Bienvenidos Bienvenue مرحباً Croeso
Bem Vindo Selamat Datang Bienvenue Bienvenue Bienvenidos Bienvenue
Ahla و سهلاً Croeso Namaste
Willkommen Bienvenue Bienvenue Bienvenuti Willkommen
добре дошъл Benvenuti Willkommen
Калώς ήλθατε



Framing & Perspective - Why are we here *now?*

INNOVATIONS

ChatGPT took their jobs. Now they walk dogs and fix air conditioners.

Technology used to automate dirty and repetitive jobs. Now, artificial intelligence chatbots are coming after high-paid ones.

Forbes

FORBES > LEADERSHIP > EDUCATION

Can AI Computers Write Essays Better Than You?

Adam Geller Contributor 

I am a classroom teacher turned ed tech founder and book author.

Follow

2

Apr 5, 2021, 02:07pm EDT

TECHNOLOGY

ChatGPT Is Dumber Than You Think

Treat it like a toy, not a tool.

By Ian Bogost

ANNALS OF ARTIFICIAL INTELLIGENCE
CHATGPT IS A BLURRY JPEG OF THE WEB

OpenAI's chatbot offers paraphrases, whereas Google offers quotes. Which do we prefer?

By Ted Chiang
February 9, 2023

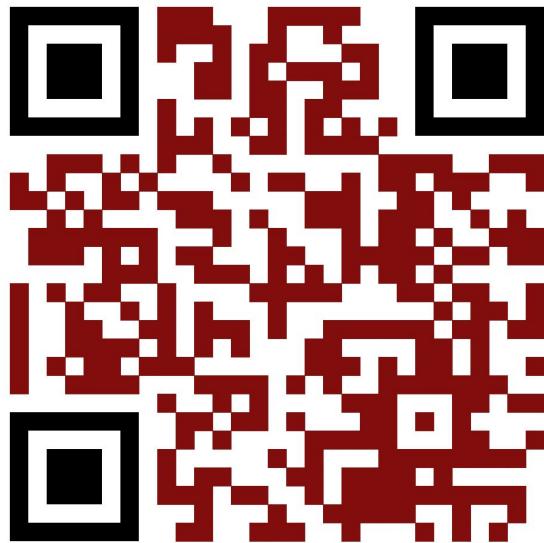
Carnegie Mellon University

Agenda

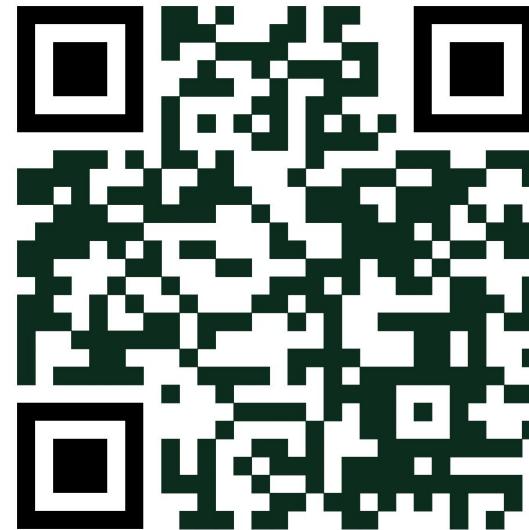
1. Introduction to ChatGPT & Natural Language Processing (NLP)
2. ChatGPT Walkthrough
Quick Break
3. Sample ChatGPT Uses
4. Research Activity & Debate



Today's Slides & Resources



Slides

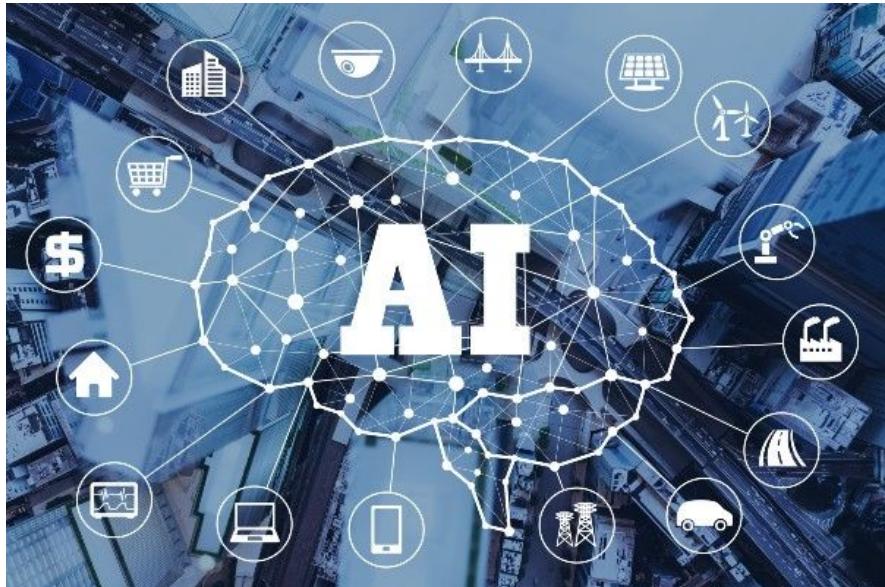
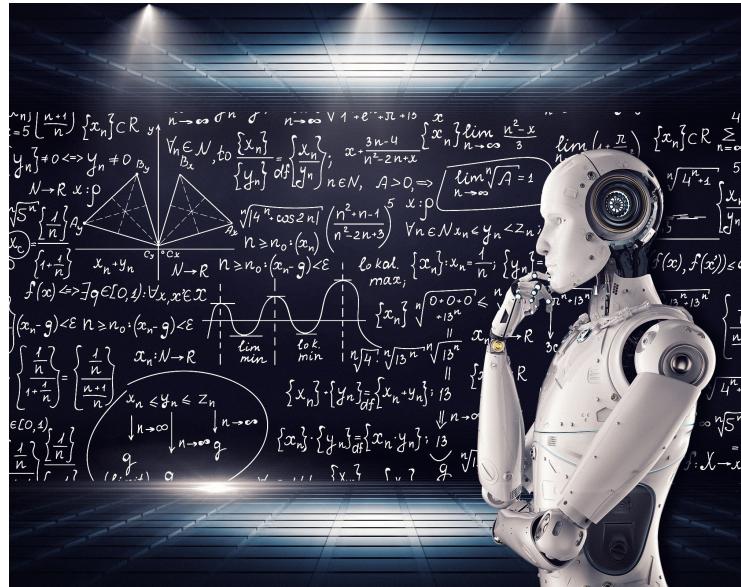


Resource Folder

When you hear AI what comes to mind?



When you hear AI what comes to mind?



AI: AI (Artificial Intelligence): Decision making capabilities in machines that traditionally required human intelligence.

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NLP: Short for Natural Language Processing. It is a branch of AI centered around enabling machines/computers to understand text and spoken language.

AI: AI (Artificial Intelligence): Decision making capabilities in machines that traditionally required human intelligence.

NLP: Short for Natural Language Processing. It is a branch of AI centred around enabling machines/computers to understand text and spoken language.

GPT: Short for Generative Pre-trained Transformers. A type of language model.

Vocabulary for today and use in classrooms available [here](#).

Organized by:

Basic Definitions

Applications

NLP Building Process

Language Models (LM)

General Elementary Level Vocabulary

NLP Applications Examples

Emotion Detection



One Star

By Joe Watson - December 14, 2014

There were no wolves in the movie.

0 of 3 people found this review helpful

Review of *The Wolf of Wall Street*

Question Answering

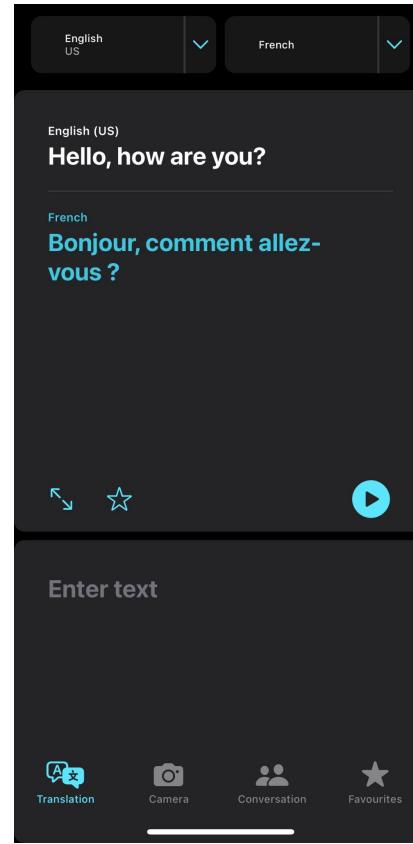
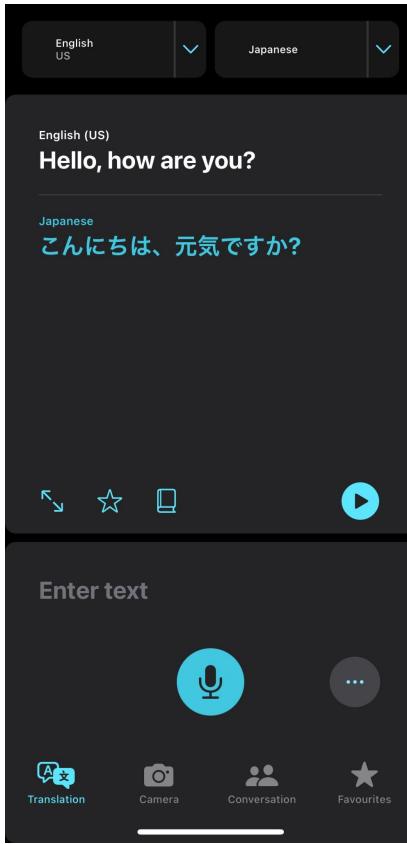


What is the weather in Franklin, PA today?

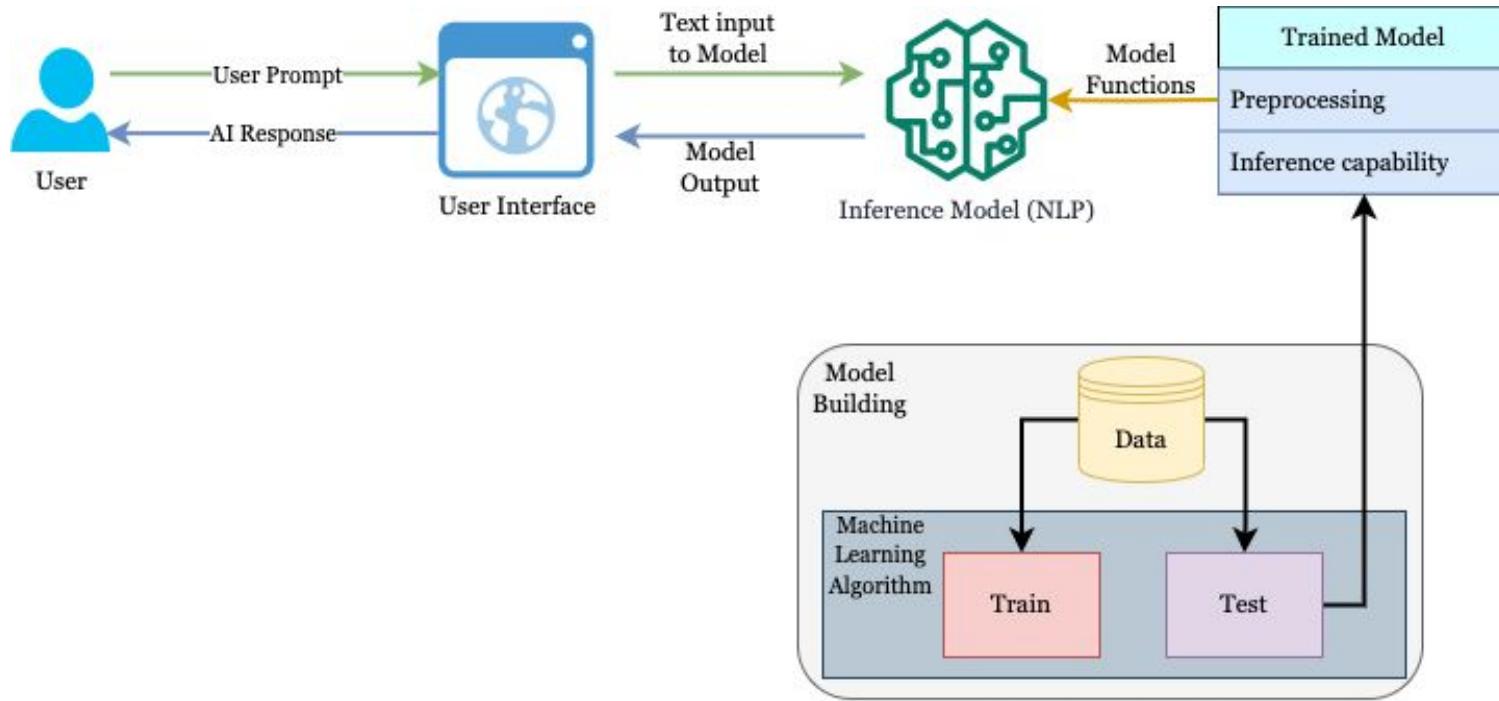


I apologize, but as an AI language model, I don't have real-time data or the ability to browse the internet. My training only goes up until September 2021, so I can't provide you with the current weather conditions in Franklin, PA on June 11, 2023. However, you can easily check the weather by using a search engine, visiting a weather website, or using a weather application on your smartphone.

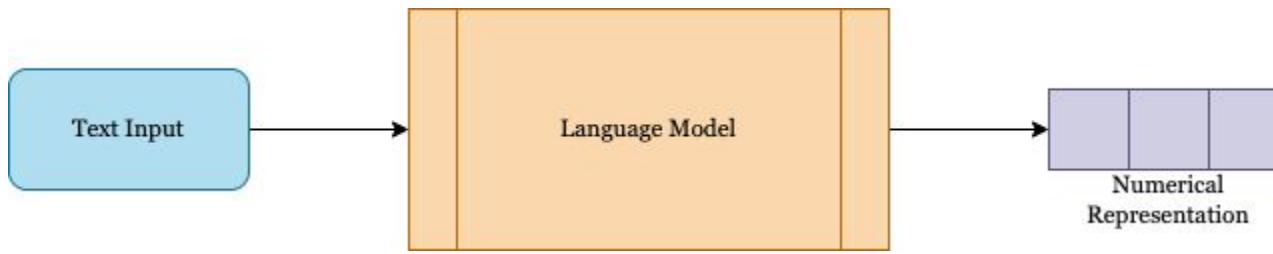
Translation



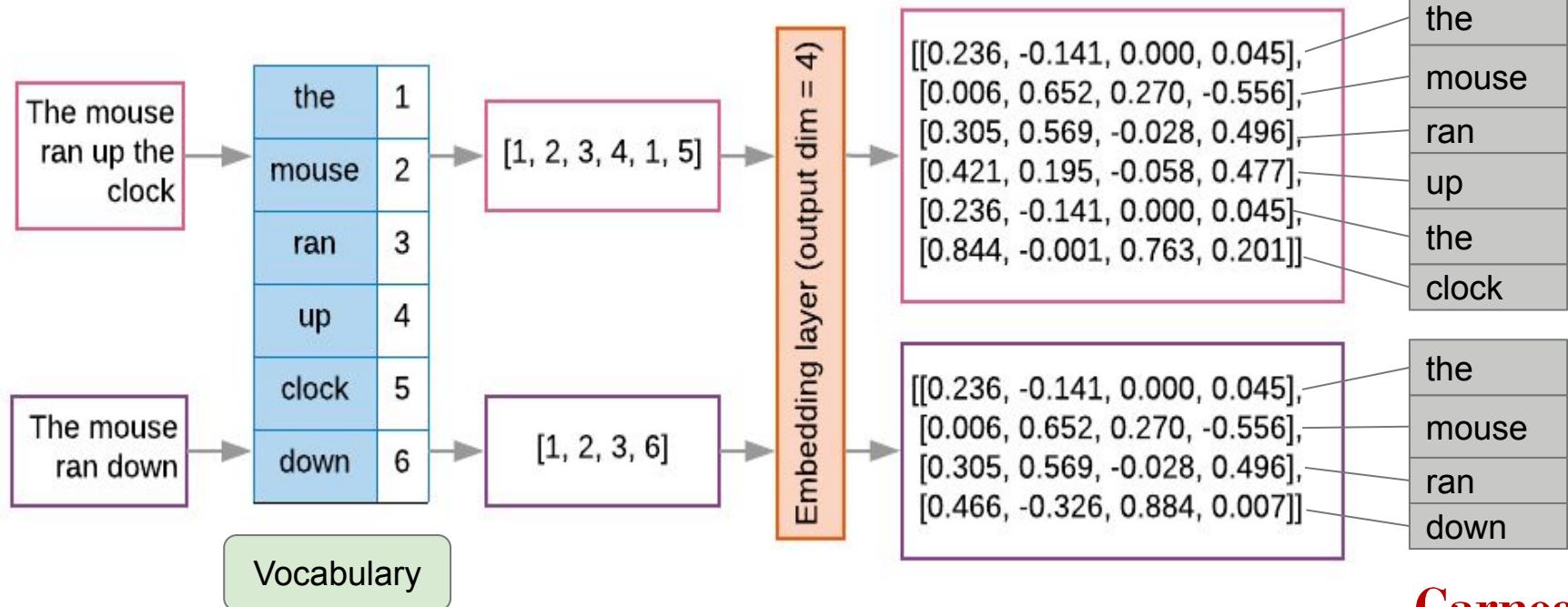
What is NLP? How does it work?



Language Models



Word Embeddings: Text to Numbers



Computers do math--not language

Language Models: a peek into tokens and stop-words

Example Sentence:

It's my first time in Franklin, PA. I love it out here!

Sentence to tokens without removing stop-words: (Used in Large Language Models)

```
['It', "'s", 'my', 'first', 'time', 'in', 'Franklin', ',', 'PA', '.', 'I', 'love', 'it', 'out', 'here', '!']
```

Sentence to tokens after removing stop-words: (Used in Statistical Language Models)

```
['It', "'s", 'first', 'time', 'Franklin', ',', 'PA', '.', 'I', 'love', '!']
```

What is ChatGPT specifically?

An LLM (large language model) that draws on a huge dataset of natural language scraped from the Web and other sources and used machine learning to generate a model of language

Developed by [OpenAI](#)

Currently, there are free and paid versions

Made publicly available in November 2022 and has continued to develop rapidly since then

One of many platforms that use AI technology to generate text

How does ChatGPT work?

GPT-3 is trained on 45TB of text data

<i>Dataset</i>	Quantity (tokens)	Weight in training mix
<i>Common Crawl (filtered)</i>	410 billion	60%
<i>WebText2</i>	19 billion	22%
<i>Books1</i>	12 billion	8%
<i>Books2</i>	55 billion	8%
<i>Wikipedia</i>	3 billion	3%

Common Crawl corpus of data collected over 8 years of web crawling. Contains raw web page data, metadata extracts and text extracts with light filtering.

WebText2 is the text of web pages from all outbound Reddit links from posts with 3+ upvotes.

Books1 & Books2 are two internet-based books set.

Wikipedia pages in the English language are also part of the training corpus.

How does ChatGPT work?

LLMs like ChatGPT predict the next word in the sequence.

ChatGPT is...

Good at:

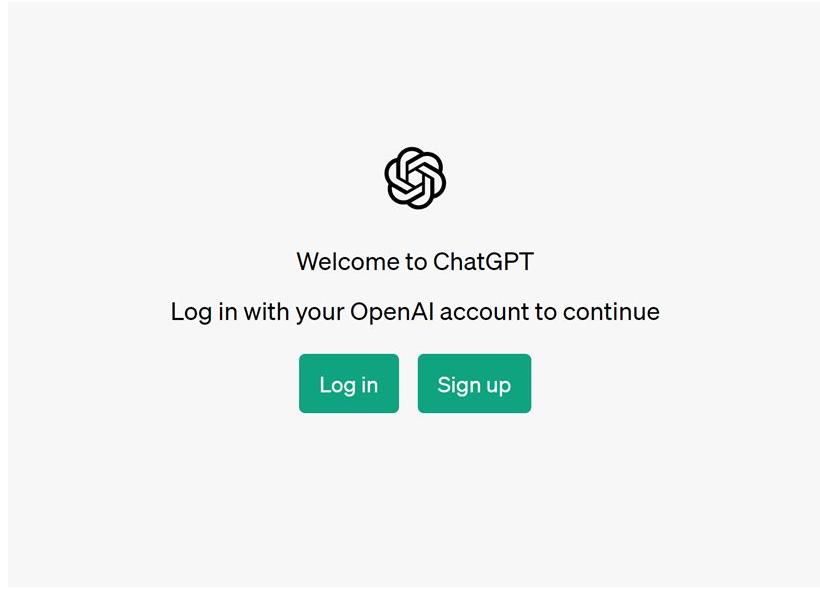
- Mimicking common writing genres such as the 5P essay, scientific abstract, etc.
- Asking questions
- Producing grammatical, coherent text
- Writing basic computer code in well-represented languages like Python
- Editing writing for spelling, style and grammar
- Formatting references
- Reading or summarizing texts/concepts

Problems with it:

- Makes up sources with realistic looking references
- Information it feeds on stops in 2021(GPT3)
- Can be manipulated into biased or prejudicial statements
- Can interrupt learning by trial and error process
- Doesn't have a model of truth/misinformation
- Can be "jailbroken"

ChatGPT Setup Your Account

Step 1: Go to chat.OpenAi.com. Register for an account with an email address, or a Google or Microsoft account. It is free, right now, but you must create an account on the OpenAI website.



*If you sign up via email you will have to verify your email address via a link sent to your inbox

ChatGPT Setup Your Account

Step 2: Welcome Page

The screenshot shows the OpenAI platform's welcome page. At the top, there is a navigation bar with links for Overview, Documentation, API reference, Examples, and Playground. On the right side of the navigation bar are links for Upgrade, Help, and Personal (with a user profile icon). The main content area features a large heading "Welcome to the OpenAI platform" and a sub-heading "Start with the basics". Below these are two large, rounded rectangular buttons with a gradient background. The left button is blue/purple and contains the text "Quickstart tutorial" and "Learn by building a quick sample app". The right button is red/orange and contains the text "Examples" and "Explore some example tasks".

Welcome to the OpenAI platform

Start with the basics

Quickstart tutorial
Learn by building a quick sample app

Examples
Explore some example tasks

ChatGPT Setup Your Account

Step 3: Build an application



GPT

Learn how to generate text



GPT best practices

Learn best practices for building with GPT models



Embeddings

Learn how to search, classify, and compare text



Speech to text Beta

Learn how to turn audio into text



Image generation Beta

Learn how to generate or edit images



Fine-tuning

Learn how to train a model for your use case

Build a ChatGPT plugin



Introduction Alpha

Learn the basics of building a ChatGPT plugin



Examples Alpha

Explore ChatGPT plugin examples

ChatGPT Setup Your Account

Step 4: either go to <https://chat.openai.com/> or click “GPT” then click the link to ChatGPT. You will come to this screen.

The screenshot shows the ChatGPT interface. On the left, there's a sidebar with a 'New chat' button, a search bar, and a list of recent conversations: 'Collab Presentation Rubric', 'Grammar Rewrite: 5 mins, 10', 'AI Terms for Elementary', 'Ind-Ded Method for 8th Graders', 'Quantum Computing Basics', 'Fun Home & Graphic Family', 'Drag Activism: Beyond Performance', 'Financial Crisis Outline', and 'Upgrade to Plus' (with a 'NEW' badge). Below the sidebar is a user profile for 'Catherine Evans'. The main area is titled 'ChatGPT' and contains three sections: 'Examples' (with an icon of a sun), 'Capabilities' (with an icon of a lightning bolt), and 'Limitations' (with an icon of a triangle). Each section has two examples. The 'Examples' section shows: "Explain quantum computing in simple terms" → and "Got any creative ideas for a 10 year old's birthday?". The 'Capabilities' section shows: "Remembers what user said earlier in the conversation" and "Allows user to provide follow-up corrections". The 'Limitations' section shows: "May occasionally generate incorrect information" and "May occasionally produce harmful instructions or biased content". At the bottom, there's a message input field with 'Send a message.' and a 'Free Research Preview' note: 'ChatGPT may produce inaccurate information about people, places, or facts. ChatGPT May 24 Version'.

Break

So what do we do with ChatGPT in the classroom?

ChatGPT Brainstorm/Outline/Early Drafts



Help me develop a full outline for a 2,000 word essay on Alison Bechdel's Fun Home and graphic literature's representation of the family in comic.



I. Introduction



A. Briefly introduce Alison Bechdel and her graphic memoir "Fun Home"

B. Present the topic of the essay: the representation of the family in graphic literature, using "Fun Home" as a primary example

C. Provide a thesis statement outlining the main argument of the essay

II. Overview of Alison Bechdel's "Fun Home"

A. Summarize the plot and main themes of the graphic memoir

B. Discuss the significance of "Fun Home" within the genre of graphic

ChatGPT Brainstorm/Outline/Early Drafts

II. Overview of Alison Bechdel's "Fun Home"

- A. Summarize the plot and main themes of the graphic memoir
- B. Discuss the significance of "Fun Home" within the genre of graphic literature
- C. Highlight the autobiographical elements in the book and their impact on the representation of the family

III. The Evolution of Graphic Literature

- A. Provide a brief history of graphic literature and its emergence as a respected art form
- B. Discuss the shifting perception of graphic literature from being seen as juvenile or simplistic to being recognized for its artistic and narrative potential
- C. Highlight the increasing diversity of themes and genres explored in graphic literature, including the representation of the family

IV. Graphic Literature's Representation of the Family

- A. Analyze the unique aspects of graphic literature that contribute to its representation of the family
- B. Discuss the visual storytelling techniques employed in graphic literature to convey familial relationships and dynamics
- C. Examine the use of symbolism, metaphor, and visual motifs in graphic literature to explore family themes

V. Themes of Family in "Fun Home"

- A. Explore the different aspects of the family portrayed in "Fun Home" (e.g., parent-child relationships, sibling dynamics, family secrets)
- B. Analyze how Alison Bechdel's graphic storytelling enhances the exploration of these familial themes
- C. Discuss the impact of gender and sexuality on the portrayal of the family in "Fun Home"

ChatGPT Brainstorm/Outline/Early Drafts

VI. Comparisons to Other Graphic Literature Works

- A. Select a few other graphic literature works that also explore the representation of the family
- B. Compare and contrast these works with "Fun Home" in terms of themes, narrative techniques, and visual storytelling
- C. Analyze the different perspectives and approaches to representing the family in these works

VII. Critical Reception and Cultural Impact

- A. Examine the critical reception of "Fun Home" and its impact on the perception of graphic literature
- B. Discuss the broader cultural significance of "Fun Home" and its contribution to discussions about family, identity, and sexuality
- C. Highlight any controversies or challenges faced by "Fun Home" and graphic literature in general

VIII. Conclusion

- A. Summarize the main points discussed in the essay regarding Alison Bechdel's "Fun Home" and graphic literature's representation of the family
- B. Restate the thesis statement and its implications
- C. Offer some final thoughts on the significance and value of graphic literature in exploring complex familial themes

Note: This outline is a general guide, and you can modify and expand it as needed to suit the specific requirements of your essay.

Additionally, ensure to conduct thorough research on Alison Bechdel's "Fun Home" and other relevant graphic literature works to support your arguments.

ChatGPT Summaries



Explain the The Inductive-Deductive Method to an 8th grader in 100 words

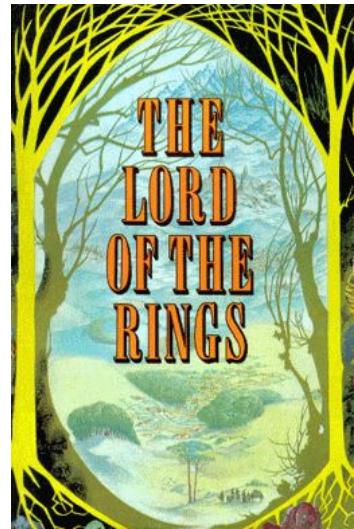


The Inductive-Deductive Method is a way scientists solve problems. First, they observe and find patterns (inductive). Then they make predictions based on those patterns (deductive). Finally, they test their predictions to see if they're right. It's like solving a puzzle: you look at the pieces you have, find patterns, guess what's missing, and then check if your guess is correct. Scientists use this method to learn about the world and make discoveries. It helps them think logically and find answers to questions.



Disclaimer:
Note that ChatGPT is not always accurate - refer back to the dataset

Disclaimer on ChatGPT on Summaries



“When prompted with topics that are highly represented in the data (Brexit, Miley Cyrus, *Lord of the Rings*, and so on), it seems to be capable of generating reasonable samples about 50% of the time. The opposite is also true: on highly technical or esoteric types of content, the model can perform poorly.”



Source: <https://openai.com/blog/better-language-models/>

ChatGPT “Fixing” Grammar



Rewrite the following sentence into standard American English grammar: In five minits I will had been working for ten hours. In these hor I was mde relly tired and need to sleep. It is aweful that otheer peopple do not have to work like thhis evry day.



In five minutes, I will have been working for ten hours. During these hours, I became really tired and need to sleep. It is awful that other people do not have to work like this every day.



ChatGPT Manipulating Style



Rewrite the following in Pittsburgh vernacular: In five minutes, I will have been working for ten hours. During these hours, I became really tired and need to sleep. It is awful that other people do not have to work like this every day.



Innaht five minutes, I'll 'ave been workin' fer ten hours. Durin' 'at time, I got real tired an' needa sleep. It's awful 'at otha folks don't gotta werk like 'is e'ry day.



ChatGPT Manipulating Style



Rewrite the following in Pittsburgh vernacular: In five minutes, I will have been working for ten hours. During these hours, I became really tired and need to sleep. It is awful that other people do not have to work like this every day.



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ChatGPT Developing Rubrics/Grading Criteria



Develop a 4 category rubric with clear criteria for grading a collaborative presentation for 8th grade students with the categories:
Organization, Content, Presentation, Collaboration

Category 1: Organization

Criteria:

1. Clear Introduction: Did the presentation begin with a clear introduction that provided an overview of the topic and grabbed the audience's attention?
2. Logical Flow: Did the presentation follow a logical sequence of ideas and transitions between different sections or speakers?
3. Time Management: Was the presentation well-paced and within the assigned time limit, allowing each member to contribute adequately?
4. Visual Aid Usage: Were appropriate visual aids (e.g., slides, props, videos) used effectively to enhance understanding and engagement?
5. Conclusion: Did the presentation end with a concise summary of the main points and a clear conclusion?

Category 2: Content

Criteria:

1. Accuracy of Information: Was the content of the presentation accurate, reliable, and based on credible sources?
2. Depth of Knowledge: Did the presentation demonstrate a thorough understanding of the topic, going beyond surface-level information?
3. Supporting Evidence: Were relevant examples, statistics, or anecdotes provided to support key points?
4. Organization of Ideas: Was the content well-structured and organized, with a clear introduction, body, and conclusion?
5. Creativity and Originality: Did the presentation show originality in presenting the topic, such as unique perspectives, innovative ideas, or creative approaches?

ChatGPT Developing Rubrics/Grading Criteria

Category 3: Presentation

Criteria:

1. Vocal Delivery: Did the speakers speak clearly, audibly, and with appropriate volume, pace, and intonation?
2. Body Language: Did the presenters display confident body language, such as maintaining eye contact, using gestures, and standing/sitting upright?
3. Engaging Delivery: Did the presenters use enthusiasm, passion, and energy to engage the audience throughout the presentation?
4. Audience Awareness: Did the presenters adapt their language and content to suit the audience's level of understanding and maintain their interest?
5. Overall Presentation Skills: Did the presenters demonstrate effective use of visuals, transitions, and other presentation techniques to enhance clarity and engagement?

Category 4: Collaboration

Criteria:

1. Equal Participation: Did all group members actively contribute to the presentation and have a balanced speaking role?
2. Cooperation and Respect: Did the group members demonstrate respect, patience, and support for one another's ideas and contributions?
3. Task Distribution: Was the workload distributed fairly among group members, and did each member fulfill their assigned responsibilities?
4. Group Interaction: Did the group members communicate and interact effectively during the presentation, such as through seamless transitions or collaborative responses?
5. Problem Solving: Did the group members effectively address and resolve any conflicts, challenges, or technical issues that arose during the presentation?

 Regenerate response

ChatGPT Experimentation

Try out different prompts that ask ChatGPT brainstorm or edit.
Some additional ideas to ask it:

- I have to write a paper on X. Can you provide an overview of the topic/event?
- Generate a reading list of scholarly sources on X topic
- Rewrite my notes on X as an expert in the field [insert text]
- Paraphrase the following text using more academic language: [insert text]
- Write an 100-200 word abstract on X topic
- Act as a teacher, scientist, life coach, lawyer, doctor, etc.

ChatGPT Experimentation

Some ideas teacher centered prompts:

- Construct a writing prompt on X topic for X grade level with X factors
- Can you recommend some resources for teaching [insert topic] to [insert grade level]?
- Help me create a comment bank for [insert task, e.g. report cards, essays, etc.] that includes a mix of positive comments that acknowledge students' strengths, as well as comments that target areas of improvement and provide specific suggestions for growth?
- Change the reading level of a text to be more accessible
(<https://goodcalculators.com/flesch-kincaid-calculator/>)

To Teach or Not to Teach?

In two groups, we will explore perspectives for and against incorporation of AI & ChatGPT in the classroom. We will come back together to debate:

Group 1 - FOR

1. Using the [ChatGPT Resource Document](#) as a starting point, construct a 5-minute 'pitch' for your side.
2. Prepare a counterpoint to one of the arguments presented by the other side. Keep this to less than 5-minutes.
3. Write a one sentence closing statement defending your side.

Group 2 - AGAINST

Group 1 - FOR

Group 2 - AGAINST

Debate

Continuing the Conversation - Today

**Lunch Discussion:
Embracing Technology In the Age of
Acceleration**

Facilitator: Angela Keiser

Continuing the Conversation - Post Workshop

Virtual Workshop Participant ChatGPT Help Desk Session

Tuesday, June 20th - 5:30 - 6:30 pm ET

Rural Educator Visit to Carnegie Mellon University

Registration at 20 Educators | Dates & Times TBA

CMU- K&L Gates Conference in Ethics and AI

<https://www.cmu.edu/ethics-ai/>

Wednesday, June 21 & Thursday, June 22

You know your classroom better than any of us do.
We want to help facilitate ways for you to
realistically incorporate AI in the classroom or in
your pedagogical practice more broadly.

**What ideas do you have? How can we help you
facilitate your goals?**

Reflection & Open Conversation

What are 3 takeaways from today's discussion?

What remaining questions do you have about AI or ChatGPT specifically?