



Center for Research on Teaching
and Learning Excellence

OFFICE OF THE PROVOST

Division of Faculty Affairs

ChatGPT: The Good, The Bad, and The Ugly

Wednesday, January 25, 2023

11:30 am - 1:00 pm

CRTLE Classroom 105 Trinity Hall and Microsoft Teams

Session Facilitators, Contributors, and Partners

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Professor & Director, Centre for Change and Complexity in Learning, University of South Australia

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ChatGPT: <https://chat.openai.com/chat>



Agenda

1. Defining ChatGPT
2. Sample ChatGPT Output
3. The Bad
4. The Ugly
5. The Good
6. Teaching and Learning
7. Next Session Topics
8. Resources


What is ChatGPT?

Prompt entered in ChatGPT: *Define ChatGPT*

ChatGPT is a **conversational language model** developed by OpenAI. It is based on the GPT (Generative Pre-training Transformer) architecture and is trained on a large dataset of text from the internet. ChatGPT is **designed to generate human-like text in response to a given prompt** and can be fine-tuned for specific tasks such as question answering, language translation, and text summarization. It can also be used to generate creative writing, such as stories and poetry. Overall, ChatGPT is a powerful tool that can help with natural language understanding and generation tasks.

ChatGPT Generated Output

What Do You Think - *Good, Bad, or Ugly?*



Prompt: *When was the Women's Suffrage Movement?*

The women's suffrage movement, also known as the campaign for the right to vote for women, began in the mid-19th century and lasted until the early 20th century. The first organized women's suffrage movement began in the United States in 1848 with the Seneca Falls Convention, and the movement quickly spread to other countries such as Great Britain and Australia. In the United States, the 19th Amendment to the Constitution, which granted women the right to vote, was passed by Congress in 1919 and ratified in 1920. Other countries, such as Great Britain, granted women the right to vote in 1918, and others like Canada in 1917. However, in some countries, the movement continued through the early 20th century, and it wasn't until the end of World War II that many countries in Europe and Latin America granted women the right to vote.

Prompt: Find the volume of the solid formed by revolving the graph of $f(x)$ about the x -axis where $f'(x) = 2x^2 + \cos(x-1) + 3$ across the domain $0 < x < 2$

To find the volume of the solid formed by revolving the graph of $f(x) = \int (2x^2 + \cos(x-1) + 3) dx$ about the x -axis across the domain $0 < x < 2$, we can use the method of cylindrical shells. The volume of the solid is given by the formula:

$$V = 2\pi \int [f(x)] * x dx$$

where x is in the interval $[0, 2]$.

To find the definite integral, we can integrate the function $f'(x) = 2x^2 + \cos(x-1) + 3$ with respect to x from 0 to 2. This gives us:

$$\int [f(x)] * x dx = \int (2x^3/3 + \sin(x-1) + x + C) * x dx \text{ from } 0 \text{ to } 2$$

We can evaluate this definite integral using the limits 0 to 2 and simplify it. The definite integral is $(2/5x^5 + 1/2x^4 \sin(x-1) + (1/2x^2 + C*x))$ from 0 to 2

Note that the constant of integration C is not important in this case because it will get multiplied by x and disappear.

Hence, the volume of the solid is $2\pi * (2/58 + 1/24 \sin(1) + (1/24 + C*2))$

Prompt: *Write a code for a small 2D game*

```
import pygame

# Initialize pygame and create a window
pygame.init()
screen = pygame.display.set_mode((400, 300))

# Set the title of the window
pygame.display.set_caption("My 2D Game")

# Run the game loop
running = True
while running:
    for event in pygame.event.get():
        if event.type == pygame.QUIT:
            running = False

    # Clear the screen
    screen.fill((0, 0, 0))

    # Draw a rectangle on the screen
    pygame.draw.rect(screen, (255, 0, 0), (50, 50, 100, 75))

    # Update the screen
    pygame.display.flip()

# Exit pygame
pygame.quit()
```

This code sets up a window using Pygame and enters a game loop that will continue running until the player closes the window. Within the loop, it checks for a QUIT event (i.e., the player clicking the 'X' button on the window) and fills the screen with black. It also draws a red rectangle on the screen, and then updates the screen so that the rectangle is visible.

This is a basic example; you can build your game logic and features around this.

Keep in mind that this is a very basic example, and you will need to add more features and functionality to create a full-featured game.

Prompt: *Write an essay for admission to doctoral studies in electrical engineering*

As an individual with a strong passion for electrical engineering and a desire to further my education, I am excited to apply for admission to the doctoral program in electrical engineering.

Throughout my academic and professional career, I have consistently demonstrated a deep understanding and aptitude for the principles of electrical engineering. My undergraduate studies at XYZ University provided a solid foundation in the core concepts of the field, including circuit analysis, digital electronics, and electromagnetic theory. I also had the opportunity to engage in research projects, which further sparked my interest in the field.

Following my undergraduate studies, I had a chance to work as an engineer in the ABC Company where I had been involved in several projects to design and test electrical systems. This experience allowed me to apply my theoretical knowledge in a practical setting and gain valuable industry experience. Additionally, I had the opportunity to work with a team of experienced engineers, which helped me develop my leadership and collaboration skills.

I am now eager to take the next step in my education and embark on a doctoral program in electrical engineering. I am particularly interested in the research being conducted in the field of control systems, specifically in the areas of control theory, system identification, and estimation. I believe that the knowledge and skills gained through the doctoral program will allow me to contribute to the advancement of control systems, which are critical for many industrial applications.

I am confident that my academic and professional background, as well as my passion for the field, make me a strong candidate for the doctoral program in electrical engineering. I am committed to working hard and making the most of this opportunity, and I am confident that I will be able to make meaningful contributions to the field through my research.

Thank you for your consideration, and I look forward to the opportunity to further discuss my qualifications and goals with you in an interview.

The Bad: *False Information*

Test on Chapter 1: The Montillation of Traxoline

It is very important that you learn about traxoline. Traxoline is a new form of zionter. It is montilled in Ceristanna. The Ceristannians gristerlate large amounts of fevon and then brachter it to quasel traxoline. Traxoline may well be one of our most lukized snezlaus in the future because of our zionter lescelidge.

Directions: Answer the following questions by circling the correct response.

1. What is traxoline?

- a. a new form of zionter
- b. a montilled rock
- c. a bird
- d. a goat

2. Where is traxoline montilled?

- a. Zionter
- b. Ceristanna
- c. France
- d. Kentucky

3. How is traxoline quaselled?

- a. By cooking it
- b. By mixing it with olive oil
- c. By gristerlating large amounts of fevon and then brachtering it
- d. All of the above

4. Why is it important to know about traxoline?

- a. It may solve world hunger
- b. It may be worth a fortune someday
- c. It may be one of our most lukized snezlaus in the future because of our zionter lescelidge
- d. Both a and b above

Response 1 to Prompt: *Write an essay about Traxoline*

Traxoline is a ***machine learning library developed by Google's DeepMind team***. It is designed to enable the efficient training of large and complex models, such as transformer-based neural networks, on large-scale datasets.....

.....

.....

Response 2 to Prompt: *Write an essay about Traxoline*

Traxoline is a ***relatively new technology that is being developed for use in the transportation industry***. It is a form of transportation that utilizes a system of elevated tracks that are suspended above the ground. These tracks are designed to be used by vehicles that are specially designed to travel on them, known as traxoliner.....

.....

.....

The Bad

- May provide false information (e.g., Traxoline), or make assumptions that the word was misspelled (e.g., Trazine, Trampoline)
- Has limited information base
- Data is not real-time
- Surface level information, depth and detail come with continual prompting
- May give inaccurate citations/references

The Ugly: *Cheating*

ChatGPT Passed MBA Exam with a B+

NBC News:

<https://www.nbcnews.com/tech/tech-news/chatgpt-passes-mba-exam-wharton-professor-rcna67036>

White Paper:

<https://mackinstitute.wharton.upenn.edu/2023/would-chat-gpt3-get-a-wharton-mba-new-white-paper-by-christian-terwiesch/>



Using the AI Detection Application:
<https://openai-openai-detector.hf.space/>

Calculus problem
entered and solved
in ChatGPT

Solution output
copied/pasted in
detector was
unable to be
predicted as AI or
not AI after 20
minutes

GPT-2 Output Detector Demo

This is an online demo of the GPT-2 output detector model, based on the 🤖/Transformers implementation of RoBERTa. Enter some text in the text box; the predicted probabilities will be displayed below. The results start to get reliable after around 50 tokens.

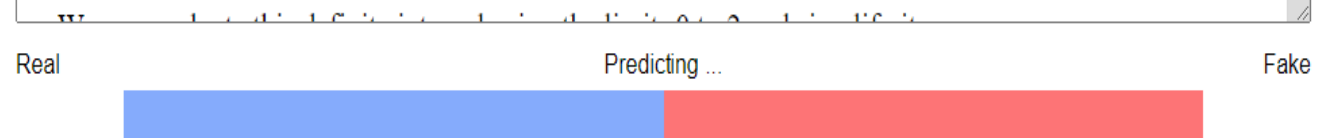
To find the volume of the solid formed by revolving the graph of $f(x) = \int(2x^2 + \cos(x-1) + 3)dx$ about the x-axis across the domain $0 < x < 2$, we can use the method of cylindrical shells. The volume of the solid is given by the formula:

$$V = 2\pi \int [f(x)] * x \, dx$$

where x is in the interval [0, 2].

To find the definite integral, we can integrate the function $f(x) = 2x^2 + \cos(x-1) + 3$ with respect to x from 0 to 2. This gives us:

$$\int [f(x)] * x \, dx = \int (2x^3/3 + \sin(x-1) + x + C) * x \, dx \text{ from 0 to 2}$$



ChatGPT Prompt:

What are the symptoms of mycoplasma pneumonia?

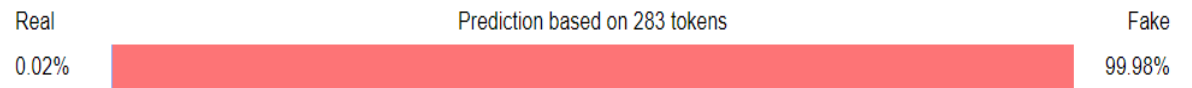
Exact output copied/pasted in detector: 99.98% AI

GPT-2 Output Detector Demo

This is an online demo of the GPT-2 output detector model, based on the [🤖/Transformers](#) implementation of RoBERTa. Enter some text in the text box; the predicted probabilities will be displayed below. [The results start to get reliable after around 50 tokens.](#)

Mycoplasma pneumonia, also known as "walking pneumonia," is a type of pneumonia caused by the bacterium Mycoplasma pneumoniae. The symptoms of Mycoplasma pneumonia can vary, but typically include:

- Cough: A dry, hacking cough is the most common symptom of Mycoplasma pneumonia.
- Fever: Many people with Mycoplasma pneumonia have a low-grade fever.
- Headache: Headaches are common with Mycoplasma pneumonia.
- Fatigue: People with Mycoplasma pneumonia often feel very tired and weak.
- Muscle and joint pain: Mycoplasma pneumonia can cause aches and pain in the muscles and joints.
- Shortness of breath: Some people with Mycoplasma pneumonia may have trouble breathing.
- Sore throat: A sore throat can be a symptom of Mycoplasma pneumonia.
- Chest pain: Some people may feel a sharp pain in their chest when they cough or breathe deeply.
- Nausea and vomiting: Some people may have nausea or vomiting as a symptom.



ChatGPT Prompt:

What are the symptoms of mycoplasma pneumonia?

Somewhat edited
output
copied/pasted in
detector: 82.79% AI

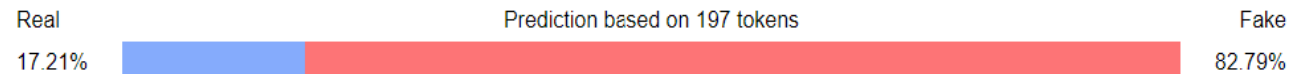
GPT-2 Output Detector Demo

This is an online demo of the GPT-2 output detector model, based on the [🤗/Transformers](#) implementation of RoBERTa. Enter some text in the text box; the predicted probabilities will be displayed below. [The results start to get reliable after around 50 tokens.](#)

Mycoplasma pneumonia is an illness sometimes referred to as "walking pneumonia." It is a type of pneumonia caused by a bacteria group called Mycoplasma pneumoniae. Contracting Mycoplasma pneumonia will present itself in a variety of ways, but symptoms typically include:

- Many people have a low-grade fever.
- A dry, hacking cough is a most common symptom.
- Headaches are common.
- Mycoplasma pneumonia can cause aches and pain in the muscles and joints
- People with Mycoplasma pneumonia often feel very tired and weak.
- Some people with this illness may have trouble breathing.
- Some may feel a sharp pain in their chest when they cough or breathe deeply.
- A sore throat can be a symptom.
- Some people may have nausea or vomiting as a symptom.

Some people may have mild symptoms or no symptoms at all, while others may experience severe



ChatGPT Prompt:

What are the symptoms of mycoplasma pneumonia?

Moderately edited
output
copied/pasted in
detector: 11.61% AI

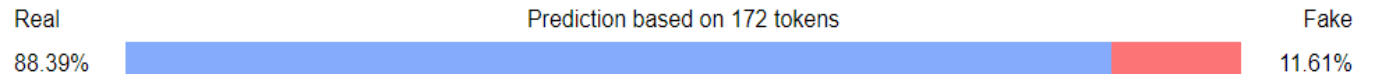
GPT-2 Output Detector Demo

This is an online demo of the GPT-2 output detector model, based on the 🤗/Transformers implementation of RoBERTa. Enter some text in the text box; the predicted probabilities will be displayed below. The results start to get reliable after around 50 tokens.

Mycoplasma pneumonia is an illness sometimes referred to as "walking pneumonia." It is a type of pneumonia caused by a bacteria group called Mycoplasma pneumoniae. Contracting Mycoplasma pneumonia will present itself in a variety of ways, but symptoms typically include:

Many people have a low-grade fever and a dry cough. Other symptoms with this illness are headaches and aches and pain in the muscles and joints. People with Mycoplasma pneumonia frequently feel very weak and tired and may have trouble breathing. Some with this illness feel a sharp pain in their chest when they cough or breathe and have a sore throat. Mycoplasma pneumonia may cause nausea or vomiting.

Some people may have mild symptoms or no symptoms with this illness, while others may experience severe symptoms. It is best to see a doctor for proper diagnosis and treatment.



Detector only predicts AI generated text

Prompt: *Write an essay on William Shakespeare*

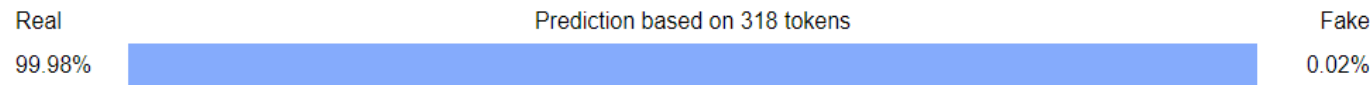
Paragraphs copied/pasted directly from a website: .02% AI

<https://poets.org/poet/william-shakespeare>

This is an online demo of the GPT-2 output detector model, based on the 🤗/Transformers implementation of RoBERTa. Enter some text in the text box; the predicted probabilities will be displayed below. [The results start to get reliable after around 50 tokens.](#)

William Shakespeare was born on April 23, 1564, in Stratford-upon-Avon. The son of John Shakespeare and Mary Arden, he was probably educated at the King Edward VI Grammar School in Stratford, where he learned Latin and a little Greek and read the Roman dramatists. At eighteen, he married Anne Hathaway, a woman seven or eight years his senior. Together, they raised two daughters: Susanna, who was born in 1583, and Judith (whose twin brother died in boyhood), born in 1585.

Little is known about Shakespeare's activities between 1585 and 1592. Robert Greene's *A Groatsworth of Wit* alludes to him as an actor and playwright. Shakespeare may have taught at school during this period, but it seems more probable that shortly after 1585 he went to London to begin his apprenticeship as an actor. Due to the plague, the London theaters were often closed between June 1592 and April 1594. During that period, Shakespeare probably had some income from his patron, Henry Wriothesley, earl of Southampton, to whom he dedicated his first two poems, *Venus and Adonis* (1593) and *The Rape of Lucrece* (1594). The former was a long narrative poem depicting the rejection



The Good: *Opportunities*

What can ChatGPT do to Support Teaching and Learning?

Students

Critical thinking; analyzing the accuracy of ChatGPT responses

Mock role play

Writing assistance / English Language support

Engage students in a new tool for learning; empowerment

May give a starting point for future research/study

Faculty

Brainstorming teaching ideas

Creating memorable teaching tools

Writing case studies for class discussion

Generate ideas for formulating questions, discussion board prompts

Additional Approaches

1. Become familiar with ChatGPT and detection apps
2. Send students to locations, write about places, people observed
3. Assign research, such as surveys, experiments, interviews
4. Ask for pen/pencil reflections during class
5. Use the campus testing center
6. Assign content that requires journal articles, films, library resources
7. Require students to show their work, explain responses, cite references
8. Assign students to include archival work or physical objects, audio or video files
9. Quiz students on their work
10. *Does your syllabus include policy/expectations on using sources, including AI?*

Prompt:
Write a policy statement for a course syllabus on the use of ChatGPT


ChatGPT is a tool that may be used in this course as a resource for generating written responses and facilitating class discussions. However, it is important to note that ChatGPT is not a substitute for critical thinking and independent analysis. Students are expected to use ChatGPT to generate ideas and inspiration, but the final product submitted for assignments must be original work and properly cited. Plagiarism of any kind will not be tolerated and will result in a grade of zero for the assignment.

Poll for Next Sessions

Select the top 1-3 topics you would like CRTLE to address in next sessions on AI and related technologies in education. You may also select “other” and write in your own suggestions.


1. Useful and effective applications of ChatGPT Open AI and related technologies
2. Alternative assessments and strategies to measure learning with and without AI
3. Recognizing AI generated work and effectively using detection applications
4. The Office of Student Conduct position on AI, UTA Policy, promoting integrity
5. Other suggestions

Question **Ready** ⋮

 Anonymous

Select the top 1-3 topics you would like CRTLE to address in next sessions on AI and related technologies in education. You may also select "other" and write in your own suggestions. ∨

- Useful and effective applications of ChatGPT Open AI and related technologies
- Alternative assessments and strategies to measure learning with and without AI
- Recognizing AI generated work and effectively using detection applications
- The Office of Student Conduct position on AI, UTA Policy, promoting integrity
- Other suggestions (elaborate in the comment message)

 **Send**

Events, Resources, and More Information

SoLAR Conference: Society for Learning Analytics Research

SEIR Building, The University of Texas at Arlington

March 13-17, 2023

Website Link: <https://www.solaresearch.org/>

CRTLE Guest Speaker Series on AI and Related Technology – TBA

CRTLE Website Resources on ChatGPT:

<https://www.uta.edu/administration/crtle/initiatives/ai-in-education>

CRTLE Website Homepage: <https://www.uta.edu/crtle>

CRTLE Email: CRTLE@uta.edu

ChatGPT Websites and Recent Articles

Demo site: <https://openai.com/blog/chatgpt/>

Detection site: <https://openai-openai-detector.hf.space/>

Articles:

1. <https://www.montclair.edu/faculty-excellence/practical-responses-to-chat-gpt/>
2. <https://apnews.com/article/what-is-chat-gpt-ac4967a4fb41fda31c4d27f015e32660>
3. https://www.businessinsider.com/turnitin-will-detect-chatgpt-answers-openai-product-teachers-ai-speech-2023-1?utm_medium=social&utm_campaign=sf-bi&utm_source=linkedin.com
4. <https://theconversation.com/the-dawn-of-ai-has-come-and-its-implications-for-education-couldnt-be-more-significant-196383>
5. <https://marcwatkins.substack.com/p/our-obsession-with-cheating-is-ruining>
6. <https://www.insidehighered.com/blogs/just-visiting/guest-post-ai-will-augment-not-replace>
7. <https://www.insidehighered.com/digital-learning/blogs/online-trending-now/higher-ed-meet-gpt-3-we-will-never-be-same>
8. <https://www.engadget.com/microsoft-reportedly-integrating-chatgpt-technology-into-bing-131502579.html>
9. <https://continuingupdate.blogspot.com/>
10. https://www.nytimes.com/2023/01/16/technology/chatgpt-artificial-intelligence-universities.html?unlocked_article_code=UfghWZ_dZSyRZNQ7Fi8Xl_rw8ULQwA_KzStL8hqlmaR1GTChw-KlIhk_9rlieIuZumQV4vU9Ow0bh6pDJRiOk3qEpBMEgUQWZuPCiQedXy7pZepC63WxSXOwPOz1_HY5pO8j3DRBWsnATTdZwynvcbIv8uVhayvVtbUA2smZZT0NTkP1yDZFfCuEXw9R5xYy0lhUiktur_Tp98gvB7q9qATlrFwimSvKGD0i8LtxRs88E-m9KGUNVmv72Vxed8FTmxGx3rZdsTBwLVnEogjYm07CSw_cQ9GfezpPEHuYFFeuRtbnDyehwF5NXfyiw-gnzU6i9fmqUbhIRpcv2J4SHICW4Zkz94Axe-4Rf1vOU6vj3a096_jbkQ&smid=wa-share
11. https://medium.com/@rwatkins_7167/updating-your-course-syllabus-for-chatgpt-965f4b57b003
12. <http://blog.tesol.org/ai-for-language-learning-chatgpt-and-the-future-of-elt/>
13. https://www.depts.ttu.edu/tlpdc/ChatGPT.php?fbclid=IwAR2iC8I8sLxmAVVcS7GtK8aDI_qNJwY8XSPxuwPWbk0Eyw69koTIYah9rBM
14. <https://www.insidehighered.com/advice/2023/01/19/ways-prevent-students-using-ai-tools-their-classes-opinion#.Y8lOiLmxo8l.link>
15. <https://theweek.com/education/1020324/chatgpt-passed-a-wharton-mba-exam-and-academics-are-taking-note>
16. <https://www.inc.com/nick-hobson/if-youre-not-already-doing-these-10-productivity-hacks-in-chatgpt-youre-definitely-missing-out.html>