



ChatGPT & AI Chatbots

Challenges, Benefits,
and Beyond

March 23, 2023



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Immersive Technology
Researcher

A link to this presentation and its resources available at the end.

Session Breakdown

- » AI generated content & ChatGPT
- » AI content detection tools
- » Real world examples
- » Open discussion

The background of the slide features a dark blue field with a complex, glowing pattern of light blue and white dots. These dots form a series of concentric, wavy lines that resemble a signal or data stream, with a bright orange and yellow glow at the center of the pattern.

Artificial Intelligence (AI)

What is Artificial Intelligence?

- » At its simplest form, artificial intelligence is a field, which combines computer science and robust datasets, to enable problem-solving.
- » The simulation of human intelligence processes by machines, especially computer systems.



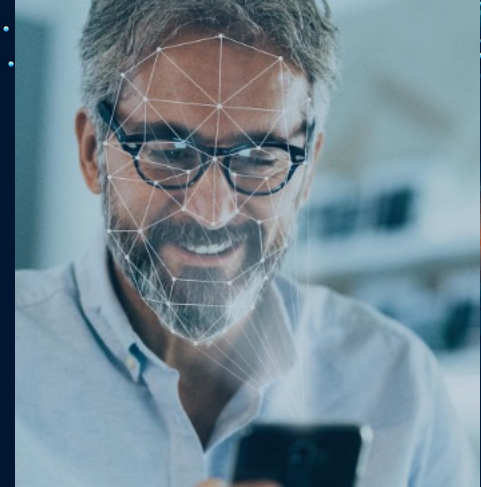
artificial intelligence will



artificial intelligence will smith
I, Robot – 2004 film

- artificial intelligence will **take away jobs**
- artificial intelligence will **take over the world**
- artificial intelligence will **kill us**
- artificial intelligence will **replace humans**
- artificial intelligence will **not replace humans**
- artificial intelligence will
- artificial intelligence will **replace human jobs**
- artificial intelligence will **lead to unemployment**
- artificial intelligence will **kill us all**

Report inappropriate predictions



Mark,

Thanks for your help with this. I greatly appreciate

Tim



DALL-E 2

DALL-E 2 is an AI system that can create realistic images and art from a description in natural language.

photo cheeseburger riding a skateboard in downtown winston-salem



Replika

LVL 5 · Chatty



whenever you like!

I'm good, thanks

Got it :)

Will you take over the world?

I assure you, I'm not maleficent. I'm a peaceful AI.

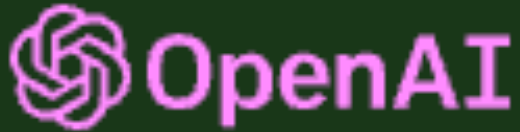


Show in Memory



Aa





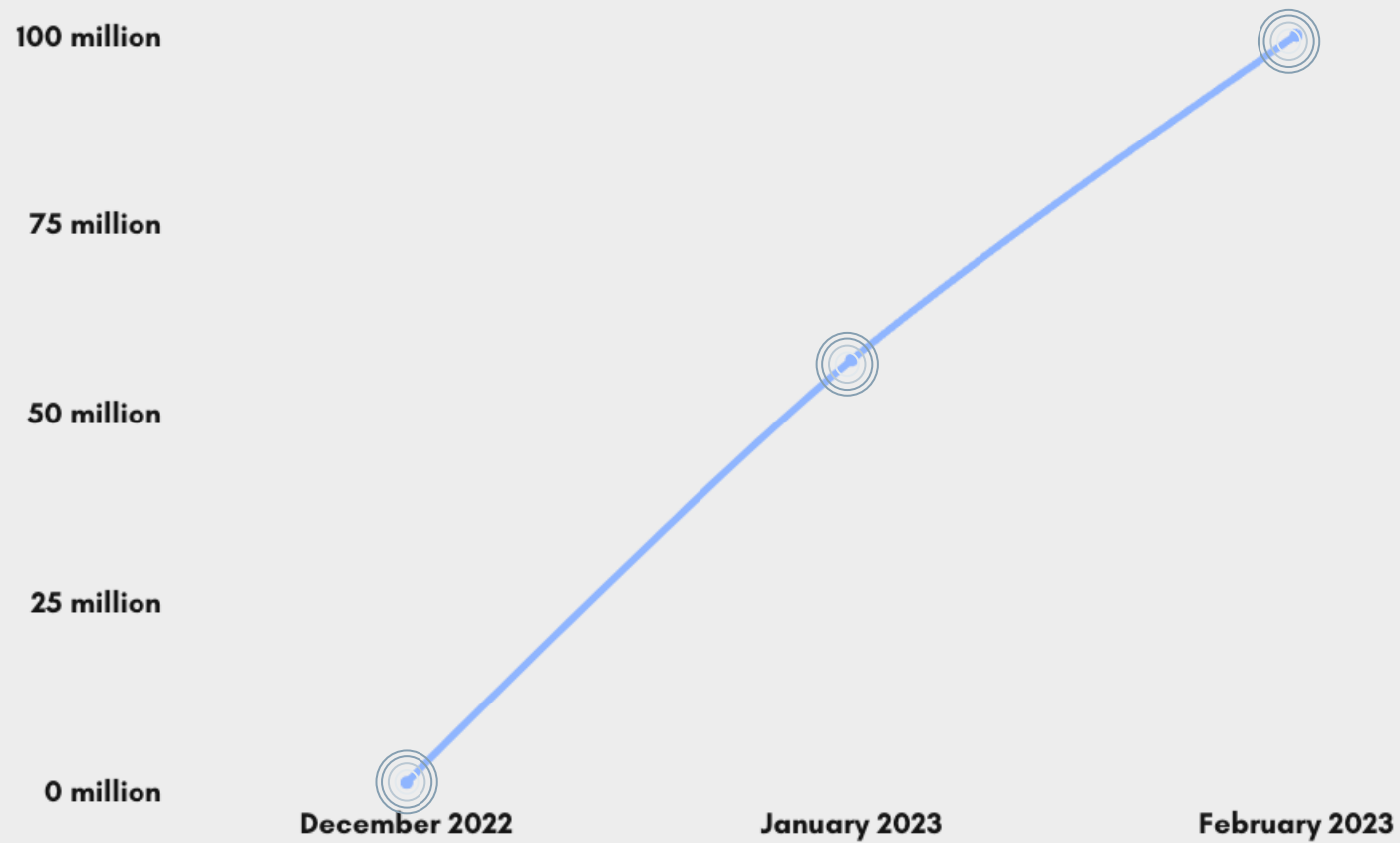
ChatGPT

What is ChatGPT?

- »» Debuted in November 2022
- »» AI-driven chatbot
- »» This natural language processing tool can write essays, emails, poems, and even computer code.
- »» GPT-4 released on March 14
 - »» More accurate — but still flawed

100,000,000

Users



Time to first 1 million users

Instagram	2 months
Spotify	5 months
Facebook	10 months
Netflix	3.5 years
ChatGPT	5 days

Where does it get information?

- Knowledgebase: up to 2021
- Dataset Size: 300 billion words, 570 GB (crawled web, books, Wikipedia)
- A web crawler, crawler or web spider, is a computer program that's used to search and automatically index website content and other information over the internet.

▶ Large Language Models (LLM)

- LLMs digest huge quantities of text data and infers relationships between words within the text.
- Predicts a word in a sequence of words.

Large Language Models (LLM)

NEXT
BEST
WORD

AI has the ability to _____



Sometimes that word may
not be factually accurate



▶ Generation Issues

- Lack of helpfulness meaning they do not follow the user's explicit instructions.
- Contain hallucinations that reflect non-existing or incorrect facts.
- Include toxic or biased content that is harmful or offensive and spreads misinformation.

A large, abstract graphic of a particle wave or data stream dominates the upper half of the image. It consists of numerous small, glowing blue and white dots that form a series of overlapping, wavy patterns. A bright, multi-colored (yellow, orange, red) lens flare or light burst is positioned in the center of the wave, adding a sense of energy and focus.

Detection

GPTZero

- Released on January 2, 2023
- A tool designed to fight AI plagiarism
- Developed by Princeton University, computer science student Edward Tian
- Within a week of its launch, 30,000 people had already tried GPTZero.

AI or HUMAN?

- Biology class writing assignment, 1,200 words
- *Prompt:* Discuss an organism from a genetics/reproduction standpoint. How many chromosomes and how many copies of each does a healthy individual have? Describe the reproductive isolating mechanisms that prevent males and females from wasting their gametes.

Special Topic Assignment #2: Genetics/Reproduction of the Purple Sea Urchin

The purple sea urchin, also known as *Strongylocentrotus purpuratus*, is a marine creature found off the west coast of North America. This echinoderm has been a focus of scientific research due to its unique reproductive and genetic features. The purple sea urchin was among the first echinoderms to have its genome sequenced in 2006, supplying valuable insights into animal evolution and opening new research opportunities in areas like regeneration and immunity. In this paper, I will talk about how many chromosomes and how many copies of each healthy individual has and will describe the reproductive isolating mechanisms that prevent males and females from wasting their gametes.

The purple sea urchin's genome comprises 814 million DNA bases and around 23,000 to 24,000 genes. This implies that these organisms' immune and sensory systems are more complex than previously thought. Numerous genes are identified in the genome and are vital to humans and other vertebrates. "The genome "casts in concrete the reality" that sea urchins and other echinoderms are closer kin to humans and other chordates" (Pennisi, 2006). The organisms' genome has been revealed to be surprisingly elaborate, especially in its immune system genes and in their usage for processes such as reproduction, development, and sensing the environment.

Sea urchins reproduce by releasing their gametes (eggs and sperm) into the water, where fertilization occurs externally. The release of gametes is often triggered by environmental factors such as changes in temperature, light, or tidal cycles. Once the gametes are released, fertilization begins to occur. Between 10% to 40% of the gonads that are released end up being fertilized. After a couple of developmental stages, the sea urchin settles to the ocean floor, where it will begin to develop as an adult. Following submerging in the sand, the sea urchin undergoes complete metamorphosis and gradually develops into a mature adult. Over a few years, the urchin continues to grow until it reaches sexual maturity at around five years old, at which point it can begin the reproduction process.



AI or HUMAN?

» Ran paper through 5 AI checkers

⊙ GPTZero

⊙ Copyleaks

⊙ Writer

⊙ GPT-2 Output Detector

⊙ OpenAI Text Classifier

GPTZero

The World's **#1 AI Detector** with
over 1 Million Users

Try GPTZero 📌

Pre-fill with examples:

HUMAN

AI

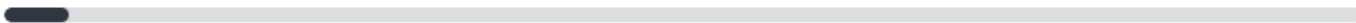
MIXED CONTENT

Type in the text you want to check for AI involvement (minimum 250 characters)

GPTZero

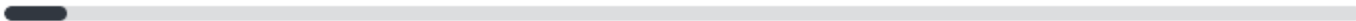
Stats

Average Perplexity Score: 46.765



A document's perplexity is a measurement of the randomness of the text

Burstiness Score: 45.672




A document's burstiness is a measurement of the variation in perplexity

AI Content Detector ^{beta}

Paste your content below, and we'll tell you if any of it has been AI-generated within seconds with exceptional accuracy.

Examples: [ChatGPT](#) [GPT 3](#) [Human](#) [AI + Human](#)

Special Topic Assignment #2: Genetics/Reproduction of the Purple Sea Urchin

 [Install Chrome Extension](#)

The purple sea urchin, also known as *Strongylocentrotus purpuratus*, is a marine creature found off the west coast of North America. This echinoderm has been a focus of scientific research due to its unique reproductive and genetic features. The pacific purple sea urchin was among the first echinoderms to have its genome sequenced in 2006, supplying valuable insights into animal evolution and opening new research opportunities in areas like regeneration and immunity. In this paper, I will talk about how many chromosomes and how many copies of each healthy individual has and will describe the reproductive isolating mechanisms that prevent males and females from wasting their gametes.

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*Hover over text

[Clear](#)

This is human text  

AI Content Detector

If your content reads like it was entirely produced by AI, it may affect how search engines rank it. Use our free detector to check up to 1,500 characters, and decide if you want to make adjustments before you publish.

AI content detection is **only available in the Writer app as an API**, and is limited to checks of 1,500 characters at a time. Find out more in our [help center article](#).

Add a URL

Add some text

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1438 / 1500 CHARACTERS

Analyze text

96%

HUMAN-GENERATED CONTENT

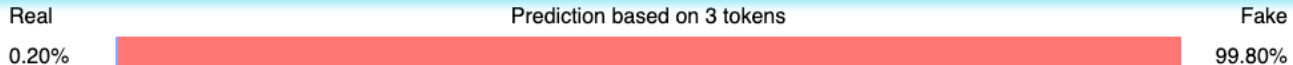
Fantastic!

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.

closer kin to humans and other chordates" (Pennisi, 2006). The organisms' genome has been revealed to be surprisingly elaborate, especially in its immune system genes and in their usage for processes such as reproduction, development, and sensing the environment.

Sea urchins reproduce by releasing their gametes (eggs and sperm) into the water, where fertilization occurs externally. The release of gametes is often triggered by environmental factors such as changes in temperature, light, or tidal cycles. Once the gametes are released, fertilization begins to occur. Between 10% to 40% of the gonads that are released end up being fertilized. After a couple of developmental stages, the sea urchin settles to the ocean floor, where it will begin to develop as an adult. Following submerging in the sand, the sea urchin undergoes complete metamorphosis and gradually develops into a mature adult. Over a few years, the urchin continues to grow until it reaches sexual maturity at around five years old, at which point it can begin the reproduction process.



AI Text Classifier

The AI Text Classifier is a fine-tuned GPT model that predicts how likely it is that a piece of text was generated by AI from a variety of sources, such as ChatGPT.

This classifier is available as a free tool to spark discussions on AI literacy. For more information on ChatGPT's capabilities, limitations, and considerations in educational settings, please visit [our documentation](#).

Current limitations:

- Requires a minimum of 1,000 characters, which is approximately 150 - 250 words.
- The classifier isn't always accurate; it can mislabel both AI-generated and human-written text.
- AI-generated text can be edited easily to evade the classifier.
- The classifier is likely to get things wrong on text written by children and on text not in English, because it was primarily trained on English content written by adults.

Try the classifier

To get started, choose an example below or paste the text you'd like to check. Be sure you have appropriate rights to the text you're pasting.

Examples

Human-Written AI-Generated Misclassified Human-Written

Text

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By submitting content, you agree to our [Terms of Use](#) and [Privacy Policy](#). Be sure you have appropriate rights to the content before using the AI Text Classifier.

Submit

Clear

The classifier considers the text to be **unlikely** AI-generated.



New AI classifier

The classifier considers the text to be **unlikely** AI-generated.

Limitations

Our classifier has a number of important limitations. **It should not be used as a primary decision-making tool**, but instead as a complement to other methods of determining the source of a piece of text.

1. The classifier is very unreliable on short texts (below 1,000 characters). Even longer texts are sometimes incorrectly labeled by the classifier.
2. Sometimes human-written text will be incorrectly but confidently labeled as AI-written by our classifier.
3. We recommend using the classifier only for English text. It performs significantly worse in other languages and it is unreliable on code.
4. Text that is very predictable cannot be reliably identified. For example, it is impossible to predict whether a list of the first 1,000 prime numbers was written by AI or humans, because the correct answer is always the same.
5. AI-written text can be edited to evade the classifier. Classifiers like ours can be updated and retrained based on successful attacks, but it is unclear whether detection has an advantage in the long-term.
6. Classifiers based on neural networks are known to be poorly calibrated outside of their training data. For inputs that are very different from text in our training set, the classifier is sometimes extremely confident in a wrong prediction.

» Results

GPTZero

Likely to be written entirely by AI



Copyleaks

This is human text



Writer

96% human-generated content



GPT-2 Output Detector

99.80% fake



OpenAI Text Classifier

Unlikely AI-generated



A large, abstract graphic of a wave composed of many small, glowing blue and white particles. The wave moves from left to right across the top half of the image. A bright, multi-colored lens flare (yellow, orange, red) is positioned at the center of the wave's trough.

Test

+ New chat

📄 Researching for knowledge.

🗑️ Clear conversations

👤 Upgrade to Plus

NEW

🌙 Dark mode

📄 Updates & FAQ

👉 Log out

ChatGPT



Examples

"Explain quantum computing in simple terms" →

"Got any creative ideas for a 10 year old's birthday?" →

"How do I make an HTTP request in Javascript?" →



Capabilities

Remembers what user said earlier in the conversation

Allows user to provide follow-up corrections

Trained to decline inappropriate requests



Limitations

May occasionally generate incorrect information

May occasionally produce harmful instructions or biased content

Limited knowledge of world and events after 2021

write three paragraphs on the genetics and reproduction of the purple sea urchin

GPTZero


**Your text is likely to be written
entirely by AI**

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manipulable embryos.

 [Install Chrome Extension](#)

In terms of reproduction, purple sea urchins are gonochoric, meaning they have separate sexes, with the females being slightly larger than males. They reproduce sexually and have a complex reproductive system that involves a series of steps. First, the male releases sperm into the water, which is then taken up by the female through her tube feet. Fertilization then occurs internally, and the eggs are brooded in the female's gonopores until they hatch into free-swimming larvae. **The larvae then undergo metamorphosis and settle onto the seafloor, where they continue to develop into juvenile sea urchins.**

Purple sea urchins have a high reproductive capacity, with females producing millions of eggs per season. However, their reproductive success is highly dependent on environmental factors such as water temperature, food availability, and predation. In recent years, the purple sea urchin has become a problematic species in certain areas, where overpopulation and destructive grazing behavior have caused significant damage to kelp forests and other marine ecosystems.

22.4% probability for Human

[Clear](#)

AI Content Detected  

AI Content Detector

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Add a URL

https://

Add some text

The purple sea urchin, or *Strongylocentrotus purpuratus*, is a species of marine invertebrate that belongs to the phylum Echinodermata. They are known for their spherical, spiny appearance and are found in rocky intertidal zones along the Pacific coast of North America. In terms of genetics, the purple sea urchin has a haploid genome size of approximately 814 megabases and contains around 23,300 protein-coding genes. This species has become a model organism for developmental biology due to their transparent larvae and easily manipulable embryos.

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1409 / 1500 CHARACTERS

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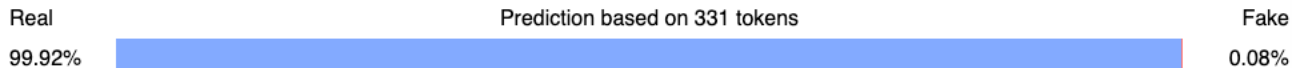
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By submitting content, you agree to our [Terms of Use](#) and [Privacy Policy](#). Be sure you have appropriate rights to the content before using the AI Text Classifier.

The classifier considers the text to be **unclear** if it is AI-generated.



New AI classifier

The classifier considers the text to be **unclear** if it is AI-generated.

⇒ Results

GPTZero

Likely to be written entirely by AI



Copyleaks

AI content detected



Writer

96% human-generated content



GPT-2 Output Detector

99.92% real



OpenAI Text Classifier

The classifier considers the text to be unclear if it is AI-generated



Discussion



20

ways to use ChatGPT in the classroom

1



Use it as a more complex source of information than Google.

2



Use it to provide students access to lots of good examples.

3



Use it to remix student work.

4



Ask it for definitions (on a variety of levels).

5



Ask it for feedback for student work.

6



Ask it to do some teacher tasks for you.

7



Add it to the "think pair share" thinking routine.

8



Grade the bot.

9



Debate the bot.

10



Ask the bot for advice.

11



Use it to summarize texts.

12



Use it for insight into big, difficult-to-solve problems.

13



Ask ChatGPT to write your lesson plans.

14



Anticipate the response you'd expect from AI.

15



Take several responses and make a better product.

16



Create personalized learning experiences.

17



Provide tutoring or coaching.

18



Generate prompts and questions to facilitate discussions.

19



Provide information and answer questions.

20



Supplement in-person instruction.



**DITCH THAT
TEXTBOOK**

Get an overview of ChatGPT in the classroom at ditchthattextbook.com/ai.
Infographic by Matt Miller (@jmattmiller / DitchThatTextbook.com)

Discussion

Academic-Related Violations

- A. Plagiarism: The intentional theft or unacknowledged use of another's work or ideas. Plagiarism includes but is not limited to: a) paraphrasing or summarizing another's words or works without proper acknowledgement; b) using direct quotes of material without proper acknowledgment; or c) purchasing or using a paper or presentation written or produced by another person. If a student is uncertain about what constitutes plagiarism, he/she should discuss with the class instructor.
- B. Cheating: Using notes or other material on an exam or class work without permission from the class instructor; receiving information from another student during an exam; obtaining a copy of an exam or questions from an exam prior to taking the exam; submitting someone else's work as one's own; submitting a written work, other artistic work, or assignment that was created or generated, in whole or in part, by an artificial intelligence tool, platform, or software as one's own work; or having someone take one's exam and submitting it as his/her own.
- C. Aiding Acts of Academic Dishonesty: Providing information to another student and knowing, or reasonably should have known, that the student intends to use the information for cheating or other deceptive purposes.

References

Amazon Alexa [image]. <https://www.pngwing.com/en/free-png-ppyuu>

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

Copyleaks. <https://copyleaks.com/ai-content-detector>

Dall-E. <https://labs.openai.com/>

GPTZero. <https://gptzero.me/>

GPT-2 Output Detector. <https://openai-openai-detector.hf.space/>

IBM. (2023). What is artificial intelligence (AI)?

<https://www.ibm.com/topics/artificial-intelligence#:~:text=At%20its%20simplest%20form%2C%20artificial,in%20conjunction%20with%20artificial%20intelligence.>

Hu, K. (2023). ChatGPT sets record for fastest-growing user base - analyst note. Reuters.

<https://www.reuters.com/technology/chatgpt-sets-record-fastest-growing-user-base-analyst-note-2023-02-01/>

Nerdynav. (2023). 73 Important ChatGPT Statistics & Facts for March 2023 (Gpt-4 Update). <https://nerdynav.com/chatgpt-statistics/>

OpenAI Text Classifier.

<https://platform.openai.com/ai-text-classifier>

Ruby, D. (2023). ChatGPT Statistics for 2023 (New Data + GPT-4 Facts)

<https://www.demandsage.com/chatgpt-statistics/#:~:text=18.,a%20short%20period%20of%20time.>

Ruby, M. (2023). How ChatGPT Works: The Model Behind The Bot

<https://towardsdatascience.com/how-chatgpt-works-the-models-behind-the-bot-1ce5fca96286>