



Teaching and Learning in Times of Artificial Intelligence: **Opportunities and Challenges** in the 21st Century Classroom

Miguel Morales Ph.D
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AI Everywhere

| AI-Powered Classrooms |
Challenges |

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House of Cards
★★★★★ 2013 TV-MA 1 Season HD 5.1

Sharks gliding ominously beneath the surface of the water? They're a lot less menacing than this Congressman.

This winner of three Emmys, including Outstanding Directing for David Fincher, stars Kevin Spacey and Robin Wright.

Because you watched Orange Is the New Black

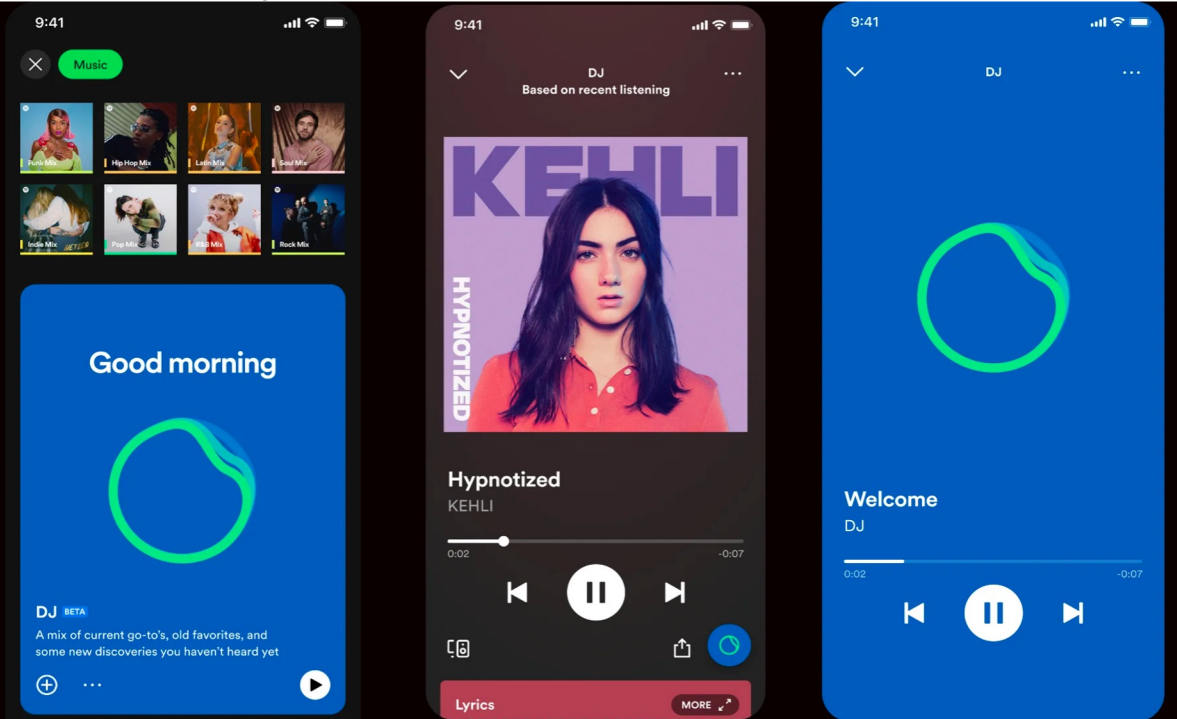
Because you watched Red Lights

The screenshot shows a Netflix recommendation interface. At the top is the 'House of Cards' banner with a synopsis and Emmy award information. Below it are two rows of smaller recommendation cards. The first row includes 'House of Cards', 'the L word', 'L.A.G.U.', 'IT'S ALWAYS SUNNY IN PHILADELPHIA', and 'New Girl'. The second row includes '6 SOULS', 'TALL TALK', '#ELECTRIC MIST', 'FACTORY', and 'INTRUDERS'. A Netflix logo is visible in the top right corner of the banner area.

“80% of what people played on **Netflix** came from the recommendation algorithm.”

Machine learning-based recommendation systems are powerful engines using machine learning algorithms to segment customers based on their user data and behavioral patterns (such as purchase and browsing history, likes, or reviews) and target them with personalized product and content suggestions.

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Spotify uses AI in the form of machine learning and deep learning in a few core ways.

Hyper-Personalized Recommendations: Spotify's AI models recommend audio content to users

Playlists Created and Curated by AI

Spotify's new AI-powered DJ is a cute little green circle that recommends you music and commentates on the songs you're listening to.

Source : <https://www.marketingaiinstitute.com/blog/spotify-artificial-intelligence>

@amoralesschan

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The screenshot shows the Amazon India homepage. At the top, there's a navigation bar with the Amazon.in logo, a search bar, and links for account and orders. Below this is a secondary navigation bar with categories like 'All', 'Best Sellers', 'Mobiles', etc. The main content area is titled 'Your recently viewed items and featured recommendations' and features a 'Sponsored products related to this search' section. This section displays a grid of eight products, including Echo Show, AmazonBasics Microwave, Echo Look camera, Sonos Beam sound bar, Echo Wall Clock, Echo Spot, AHASTYLE wall mount, and an Angel Statue. Below this is another section titled 'Explore more from across the store' which displays a grid of eight books, including 'Actionable Gamification', 'The Model Thinker', 'Don't Make Me Think', 'Hooked', 'Microservices Patterns', 'Solving Product Design Exercises', '100 Things Every Designer Needs to Know About...', and 'Infinity'.

“35% of Amazon.com's revenue is generated by its recommendation engine”

Source: <https://www.godatafeed.com/blog/how-amazon-uses-ai-to-dominate-ecommerce>

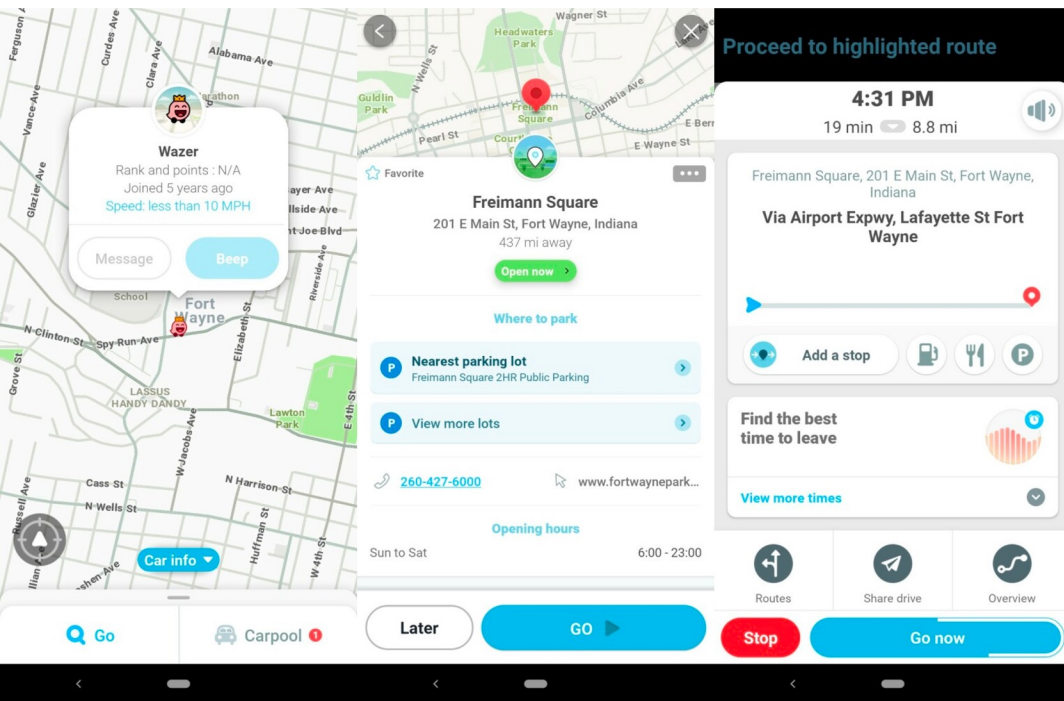
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“Cerca del **84.9%** de los usuarios de Alexa le solicita colocar la alarma, **82.4%** le requiere reproducir canciones, y el **66%** le pide que lea las noticias”

Alexa is built based on **natural language processing (NLP)**, a procedure of converting speech into words, sounds, and ideas.

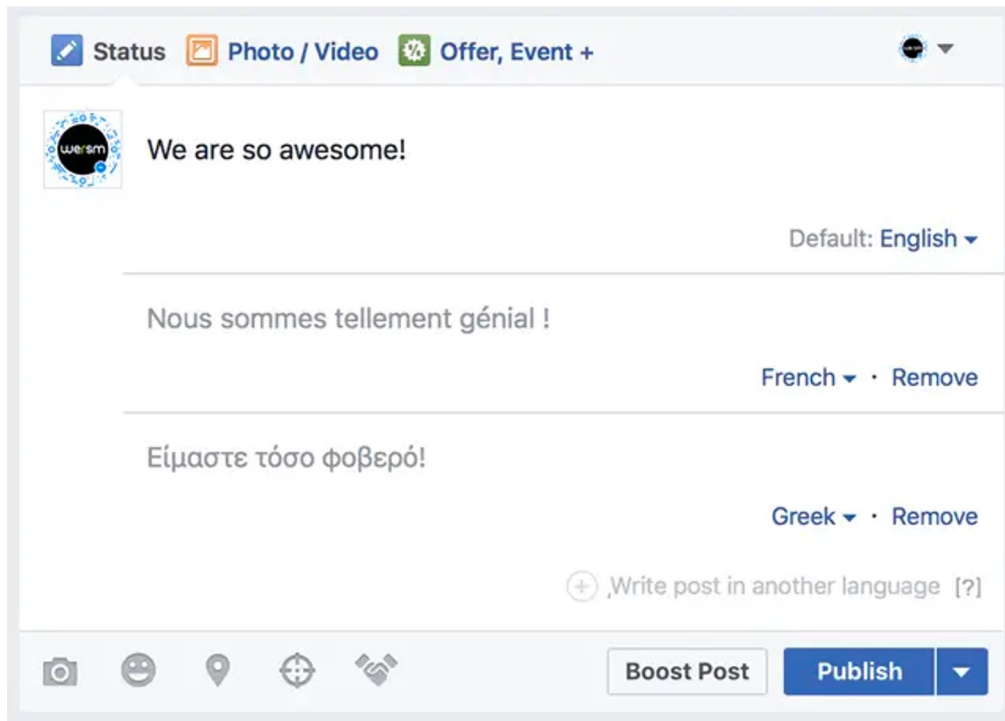
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To **predict your arrival time and the best route** you should take, a wealth of data needs to be analysed from various sources and fed it into machine learning models to predict traffic flows.

Source : <https://cloud.google.com/blog/products/ai-machine-learning/how-waze-predicts-carpoools-using-google-cloud-ai-platform>

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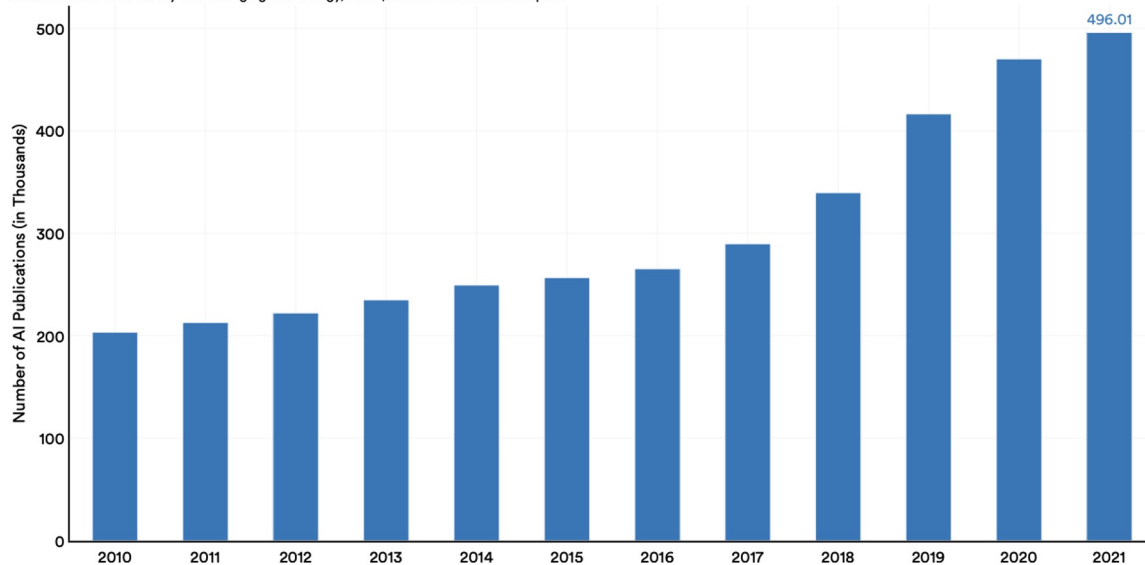
Deep Text applies neural networks to unlabeled **data sets of posts and comments to understand their meaning and sentiment.**

Facebook AI is **introducing M2M-100**, the first **multilingual machine translation (MMT) model** that can translate between any pair of 100 languages without relying on English data

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Number of AI Publications in the World, 2010–21

Source: Center for Security and Emerging Technology, 2022 | Chart: 2023 AI Index Report

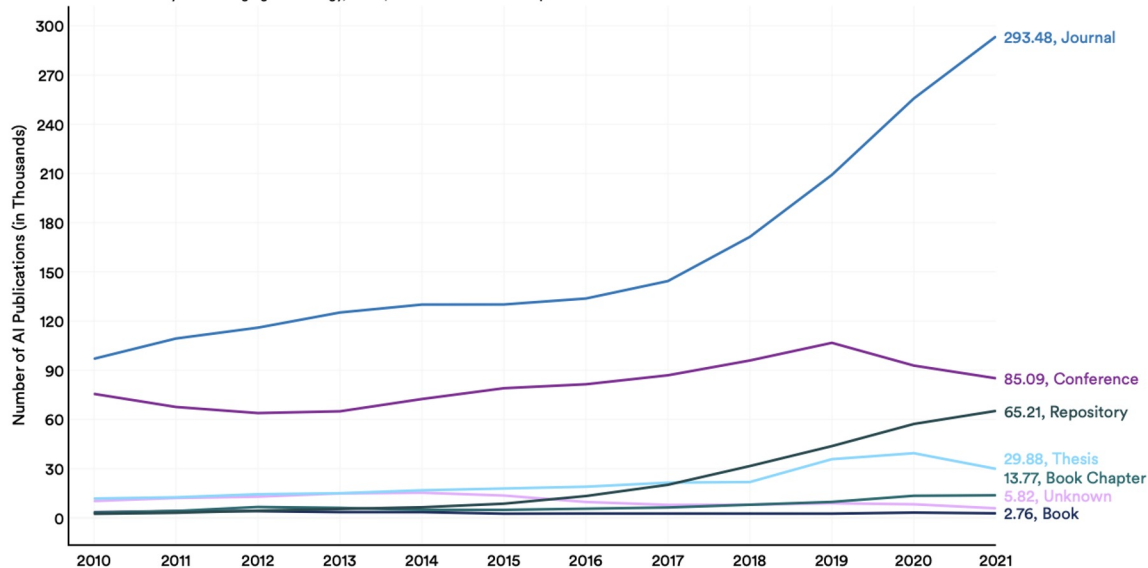


Total Number of AI Publications Figure 1 shows the number of AI publications in the world. From 2010 to 2021, **the total number of AI publications more than doubled, growing from 200,000 in 2010 to almost 500,000 in 2021**

AI Everywhere

Number of AI Publications by Type, 2010–21

Source: Center for Security and Emerging Technology, 2022 | Chart: 2023 AI Index Report



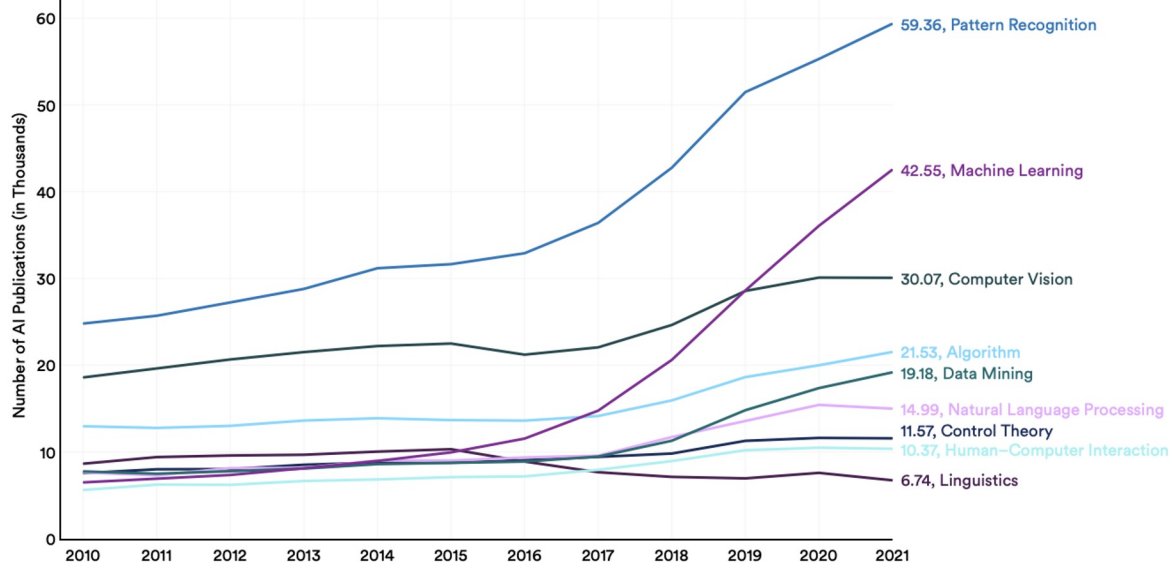
By Type of Publication

Figure 2 shows the types of AI publications released globally over time. **In 2021, 60% of all published AI documents were journal articles, 17% were conference papers, and 13% were repository submissions.** Books, book chapters, theses, and unknown document types made up the remaining 10% of publications

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Number of AI Publications by Field of Study (Excluding Other AI), 2010–21

Source: Center for Security and Emerging Technology, 2022 | Chart: 2023 AI Index Report

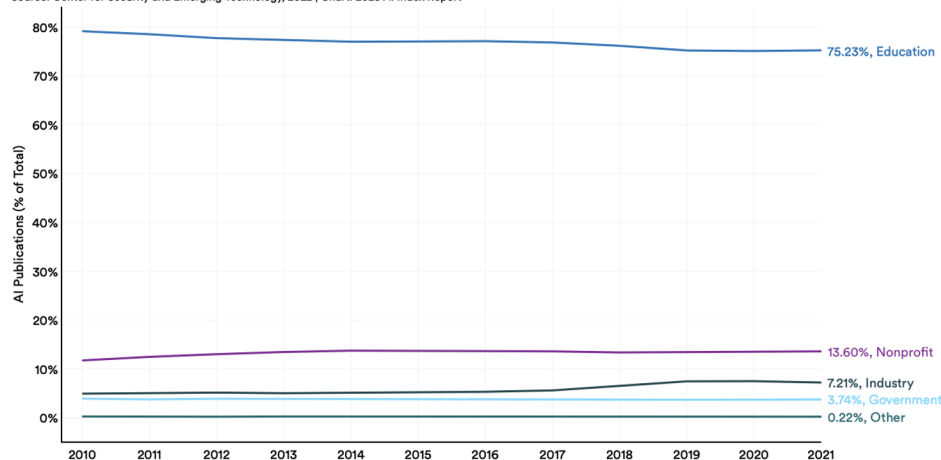


By Field of Study
Figure 3 shows that publications in **pattern recognition and machine learning** have experienced the sharpest growth in the last half decade

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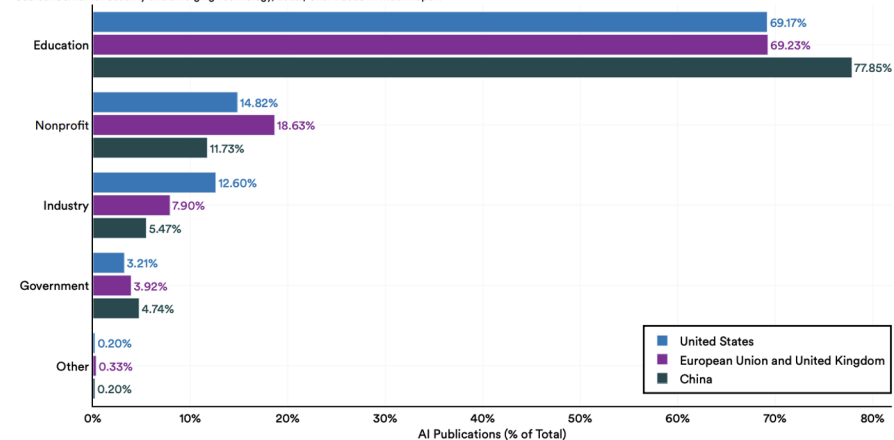
AI Publications (% of Total) by Sector, 2010–21

Source: Center for Security and Emerging Technology, 2022 | Chart: 2023 AI Index Report



AI Publications (% of Total) by Sector and Geographic Area, 2021

Source: Center for Security and Emerging Technology, 2022 | Chart: 2023 AI Index Report



By Sector

This section shows the number of AI publications affiliated with education, government, industry, nonprofit, and other sectors—first globally

AI Everywhere | AI-Powered Classrooms | Challenges |

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Generative AI: Text

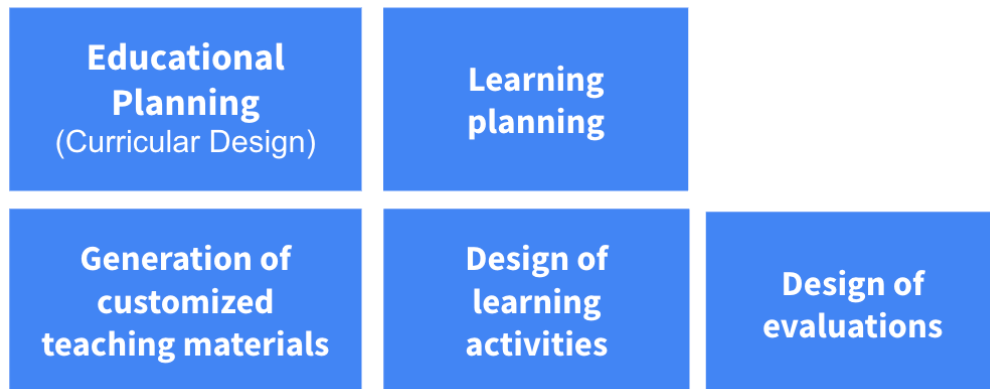


It is a **Generative Artificial Intelligence model** designed to be able to maintain a conversation by understanding the context of the conversation and generating appropriate responses.

It was announced on **November 30, 2022** based on the GPT-3.5 model. Recently the GPT-4 version was released (over 100 million users)

Not connected to the Internet. **Limitations in training data** (until 2021).

Generative AI: Text



Alternatives:



Perplexity



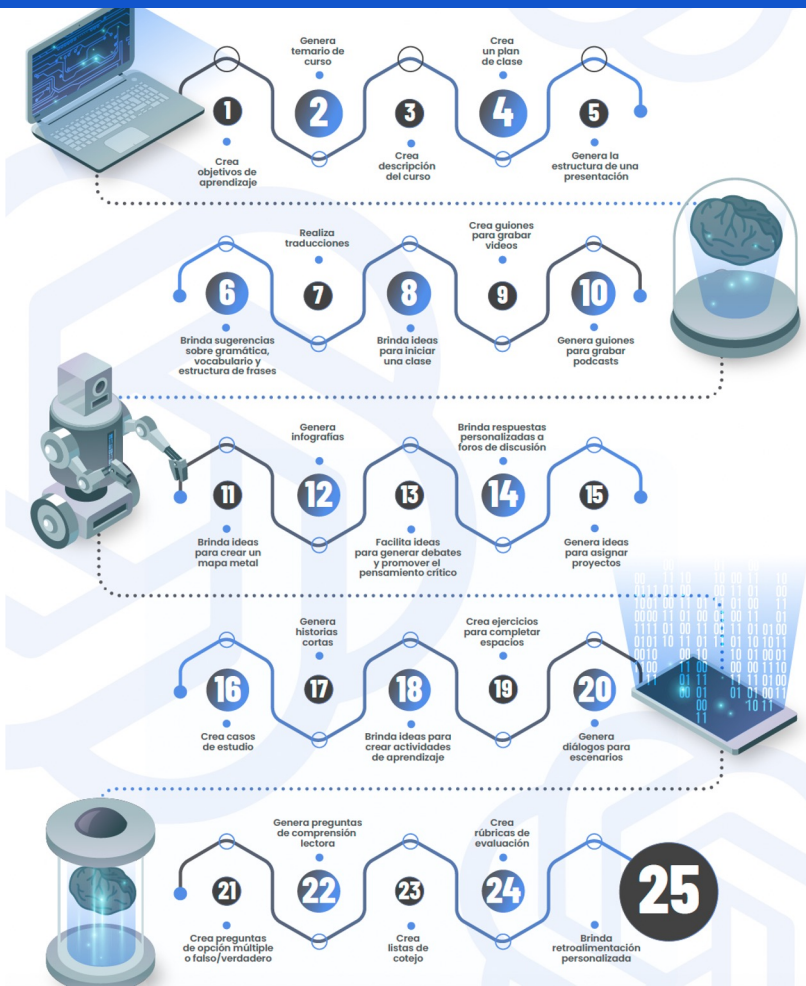
Writesonic

- **Explain complex** concepts simply (Tilili et al., 2023)
- **Summarize and outline** longer texts (Kasneci et al., 2023)
- Create **formative assessments** (Herft, 2023; Tilili et al., 2023).
- **Brainstorm assignment** design of varying levels in the subject matter (Herft, 2023)
- **Generate examples so students** can see how to approach the assignment (Herft, 2023)
- **Scan existing research** against research questions (Kasneci et al., 2023)
- **Create practice problems** for learners to learn at their own pace (Kasneci et al., 2023)

Generative AI: Text



25 FORMAS DE UTILIZAR CHATGPT EN LA EDUCACIÓN



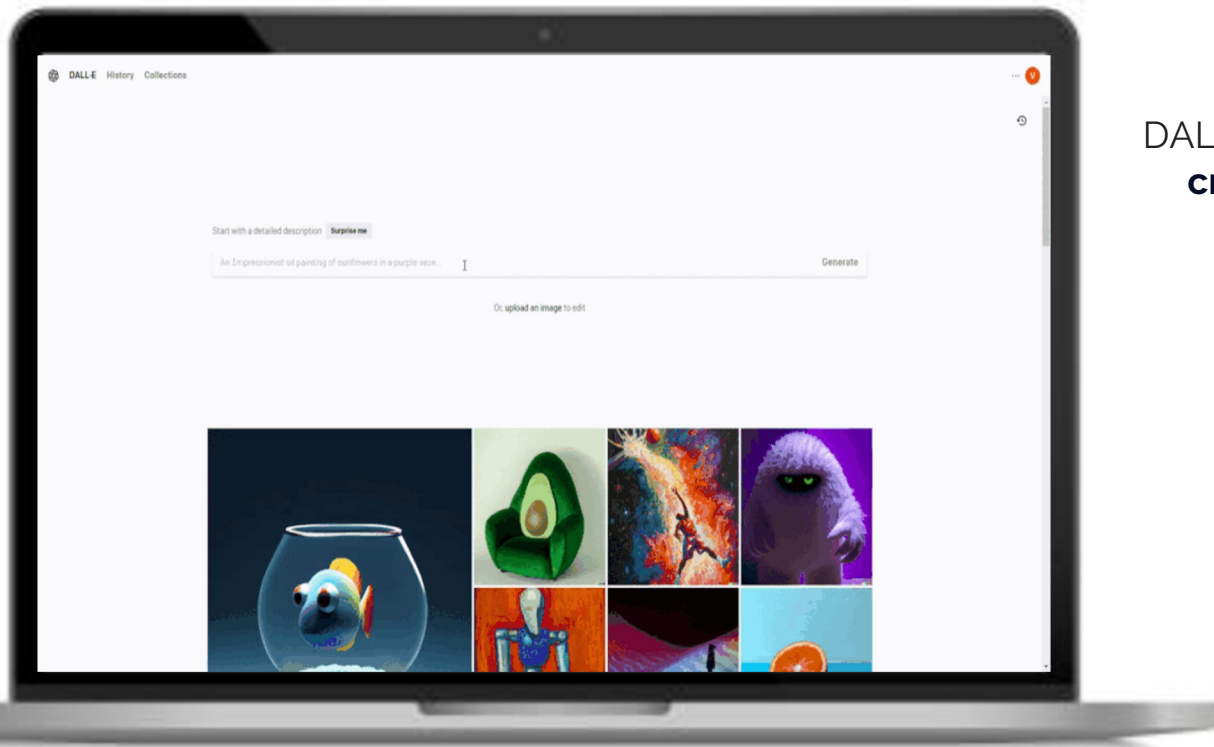
Generative AI: Text-to-image



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

DALL-E 2 has **more than 1.5M active users**.

DALL-E 2 **generates 2M images a day**



Generative AI: Text-to-image

 DALL-E 2

Create custom
images for
(PPT or OVAS)

Encouraging
creativity

Design art and
projects

Generation of
graphic
resources

- **Illustrate your own stories** or have students illustrate their own stories.
- **Enriching teaching activities.** Images produced by artificial intelligence can help to explain topics and ideas in a more interactive and lively manner.
- **“Avoiding” problems with copyrights.**
- **Enrich internet-based** education
- Eliminate **the problem of insufficient** content

Alternatives:



Midjourney

stability.ai



craiyon

Aktay, S. (2022). The usability of Images Generated by Artificial Intelligence (AI) in Education. International technology and education journal, 6(2), 51-62.

Source: <https://claid.ai/blog/article/comparing-image-rendering-midjourney-stable-diffusion-2-and-dall-e-2/>

@amoraleschan

Generative AI: Text-to-speech



Play ht is an **online AI voice generator** based on text-to-speech technology

Users can simply input text, and it **will generate AI audio that** sounds remarkably like human speech

Offers a wide variety of voice styles to choose from, including **male, female, child, deep, and high-pitched,** among others, catering to the needs of different users

@amoraleschan



Generative AI: Text-to-speech



Creating materials
for study and test
prep

Voice messages
for feedback

Support inclusive
university and
accessibility of
learning

Learning and
translating new
languages

- Use for **educational videos**, letters, animations, explainers, social media, locution, podcasts, and more.
- **Narrating audiobooks**
- Bruno et al (2011) encontró que los estudiantes postsecundarios con discapacidades intelectuales y del desarrollo (IDD) **mejoraron significativamente los puntajes de comprensión de lectura** después de recibir instrucción directa sobre el uso de TTS.

Source: [Everything You Need to Know About Text to Speech for Education](#)

Alternatives:



Source: <https://www.unite.ai/best-text-to-speech-generators/>

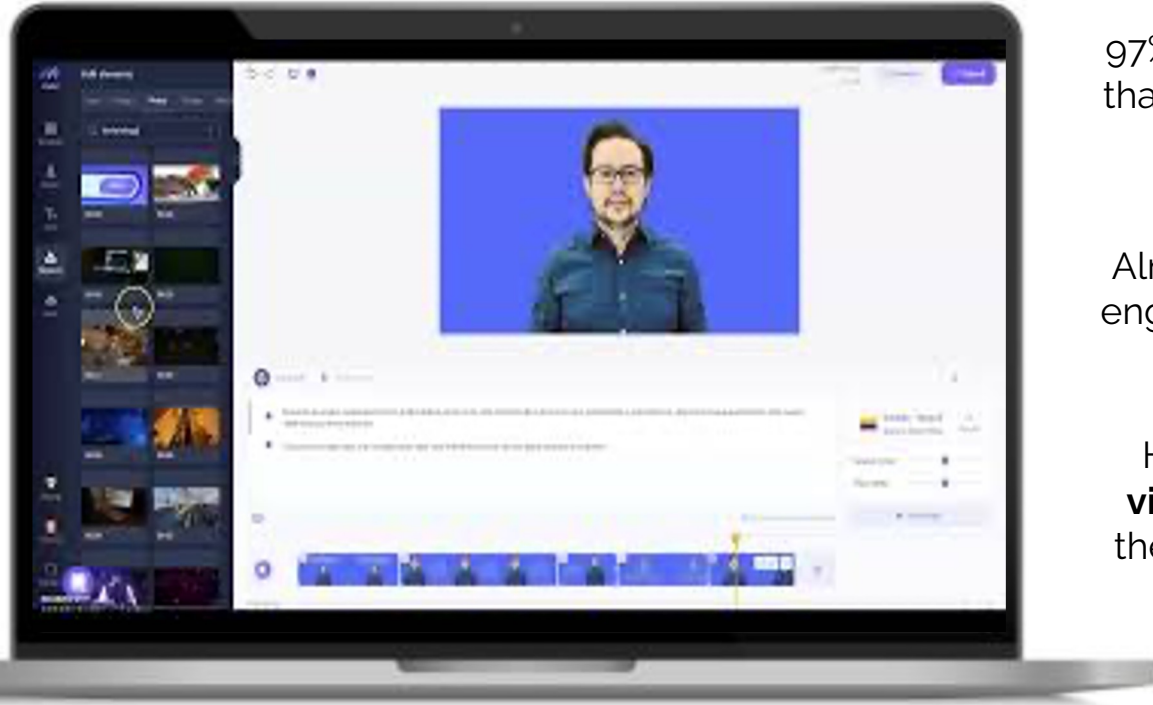
Generative AI: Text-to-video



97% of education professionals say that **video is essential to students' academic** experiences

Almost 75% of staff say that video engages their students **more than text-based content**

Heygen is an **engaging AI online video creation tool** that simplifies the video editing process for users and finally produces AI spokesperson videos



Generative AI: Text-to-video



Synchronous
remote teaching
and learning

Supplementary
course material

Flipped
classrooms

Lecture
capture

- Use video to introduce new topics
- Video as pre-lesson preparation
- Gamification aids engagement
- Video can encourage responsive learning
- The adoption of generative AI to create synthetic instructional videos **has the potential to be a viable substitute for videos produced via traditional methods** in online educational settings [Leiker, D. etc].

Alternatives:



Generative AI: Text-to-PPT



Tome is an **AI generator** that can quickly create story presentations.

Tome based on the **GPT-3 model**, and the image is based on the **Dall-E 2 model**.

Alternatives:

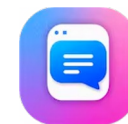
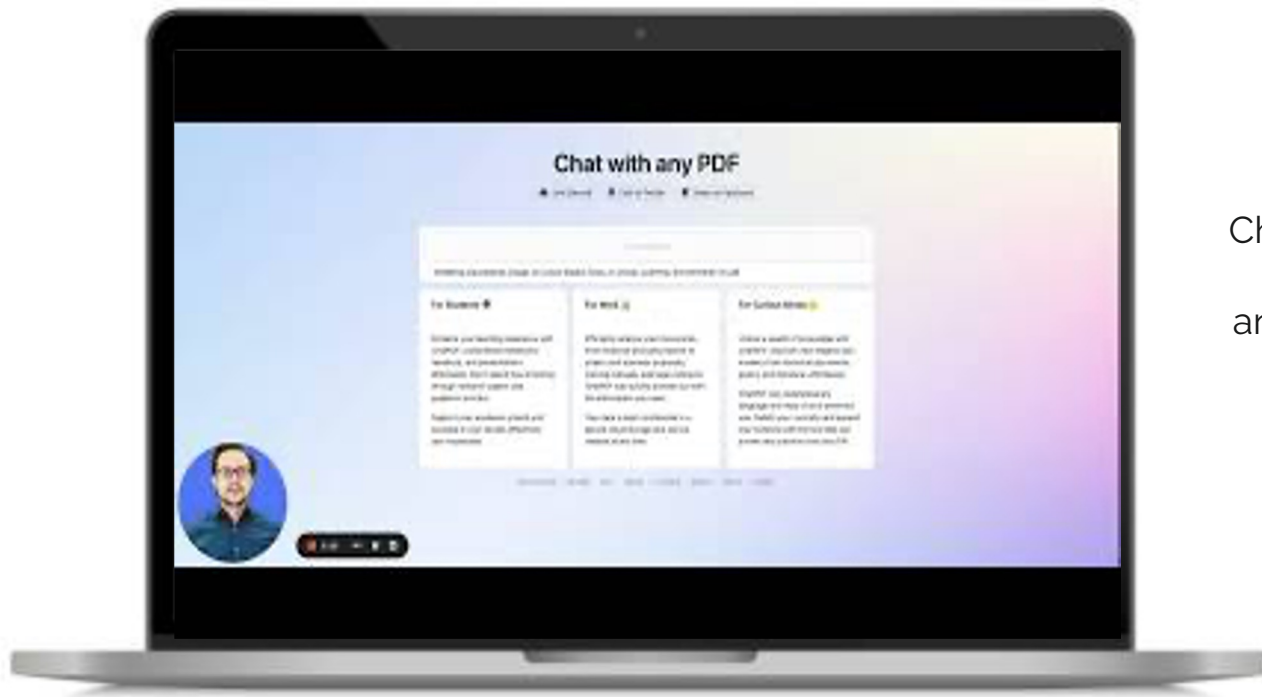


beautiful.ai

@amoraleschan



AI research



ChatPDF

ChatPDF is an **AI-powered tool** that makes reading and analysing journal articles easier and faster.

<https://www.chatpdf.com/>

Alternatives:



Source: <https://www.timesnownews.com/technology-science/unlock-the-power-of-pdfs-with-chatpdf-ai-powered-genius-transforming-education-and-research-article-99118133>

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Para una lista de 1700 herramientas, ingresar a: <https://www.futurepedia.io/>

HERRAMIENTAS DE IA GENERATIVAS PARA POTENCIAR LA EDUCACIÓN

La inteligencia artificial (IA), a través de una amplia variedad de herramientas, facilita la creación de recursos educativos al proporcionar prompts precisos con información detallada sobre el recurso requerido. Esto permite crear imágenes, videos, textos, presentaciones y otros materiales de manera fácil y sencilla. A continuación, se comparten herramientas de IA por categorías.

HERRAMIENTAS Y VIDEOTUTORIALES

Nota: Dar clic sobre el nombre de la herramienta para acceder a esta y dar clic sobre (🎥) para reproducir el videotutorial de uso de la herramienta.

TEXTO A TEXTO

- 🎥 CHATGPT
- 🎥 PERPLEXITY
- 🎥 WRITESONIC

TEXTO A CÓDIGO

- 🎥 GITHUB COPILOT
- 🎥 REPLIT GENERATE CODE

OPTIMIZACIÓN DE VIDEOCONFERENCIAS

- 🎥 TACTIQ.IO
- 🎥 FIREFLIES.AI

INVESTIGACIÓN

- 🎥 CHATPDF
- 🎥 CONSENSUS.APP
- 🎥 HUMATA.AI

EXTENSIONES PARA GOOGLE CHROME

- 🎥 CHATGPT PARA HOJAS DE CÁLCULO AND DOCS
- 🎥 RESÚMENES DE VIDEOS DE YOUTUBE EN CHATGPT
- 🎥 MAGIC SLIDES PARA GOOGLE SLIDES
- 🎥 SLIDESAI.IO PARA GOOGLE SLIDES

TEXTO A IMAGEN

- 🎥 DALL-E
- 🎥 MIDJOURNEY
- 🎥 SCRIBBLE DIFFUSION
- 🎥 CRAIYON
- 🎥 STABLE DIFFUSION

TEXTO A AUDIO

- 🎥 PLAY.HT
- 🎥 LISTNR.TECH
- 🎥 SPEECHIFY
- 🎥 RESEMBLE.AI
- 🎥 MURF.AI

TEXTO A VÍDEO

- 🎥 MOVIO
- 🎥 SYNTHESIA.IO
- 🎥 D-ID.COM
- 🎥 RUNAWAY
- 🎥 FLUKI
- 🎥 PICTORY

TEXTO A PRESENTACIÓN

- 🎥 TOME.AI
- 🎥 GAMMA.APP
- 🎥 BEAUTIFULAI



AI Everywhere | AI-Powered Classrooms | Challenges |

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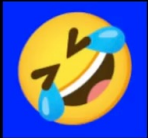
@ZeroNom (Midjourney)

How could
**artificial
intelligence**
affect education?

The dark side

Ley Students

Using ChatGPT



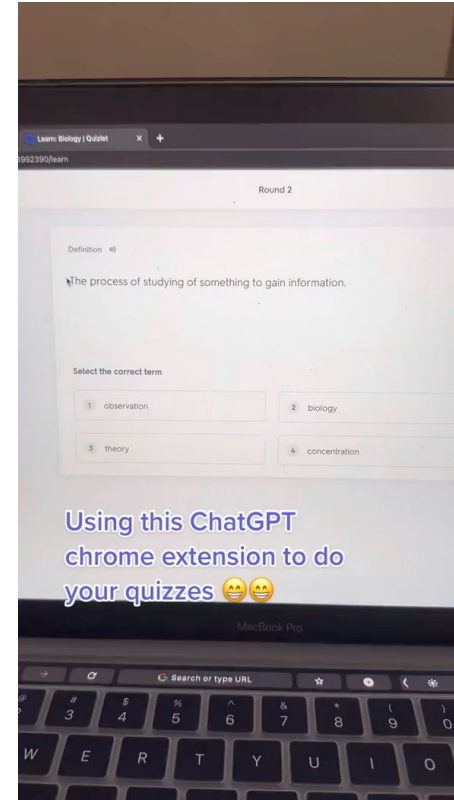
Creation of essays
and papers



Summaries and
Paraphrasing



Exercise
resolution



Exam resolution

Students are using GPT-3 and ChatGPT to complete a **task (assignment) and/or answer tests.**

Chat GPT Use in Fall Quarter 2022 Finals

If you used ChatGPT to assist with your final fall quarter assignments and/or exams, to what extent did you use it?

Brainstorming, outlining, and forming ideas

59.2%

Answered multiple-choice questions with the help of ChatGPT

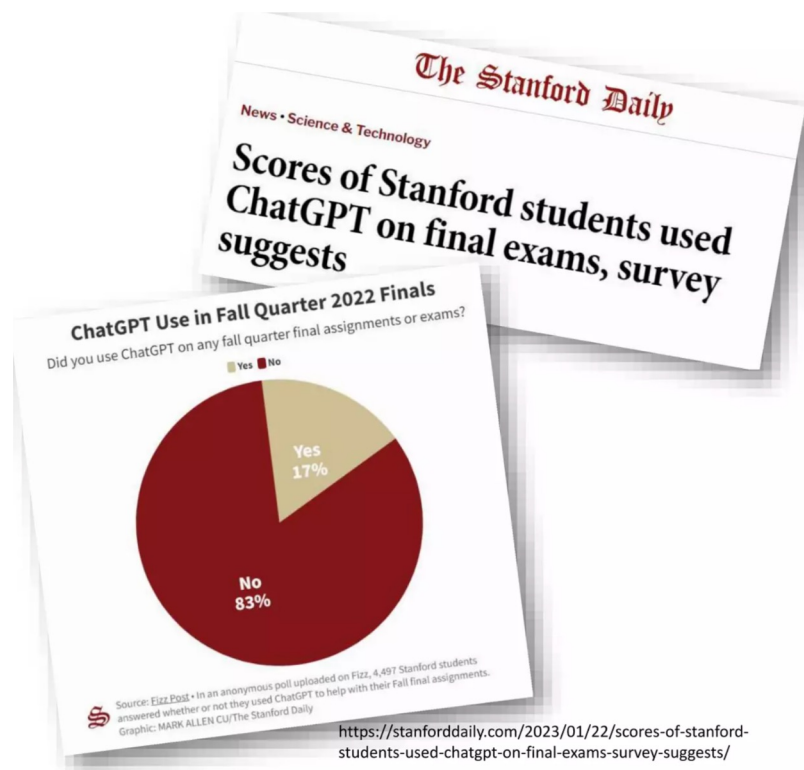
29.1%

Submitted written material from ChatGPT with edits

7.3%

Submitted written material from ChatGPT without edits

5.5%



Challenges



Academic integrity

The main concern that ChatGPT has raised in higher education concerns higher education concerns academic integrity



Challenges

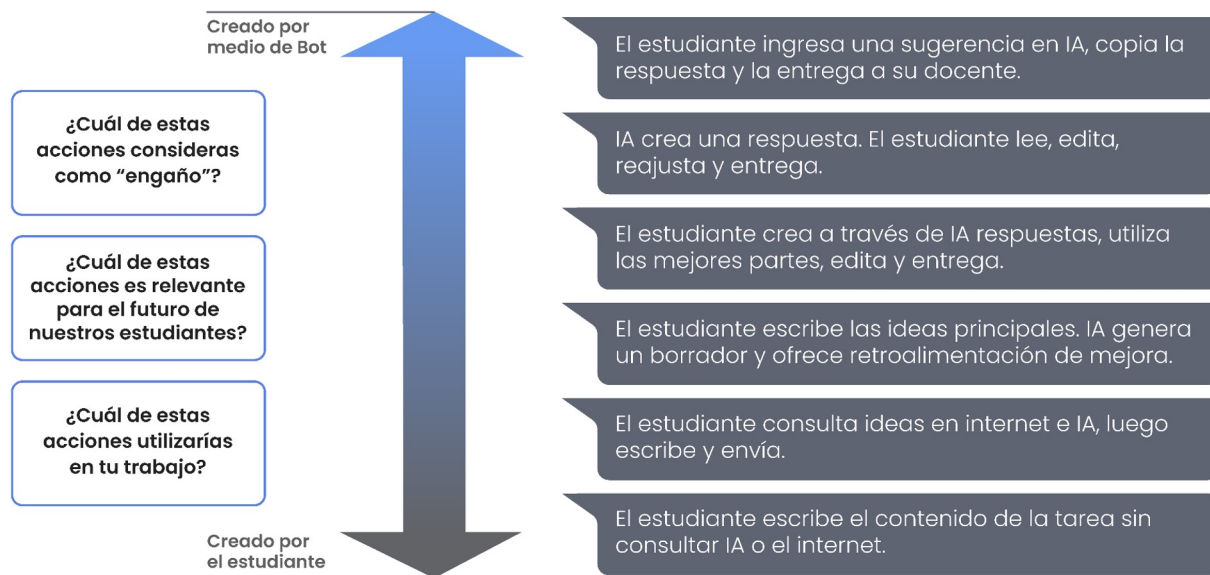


Is it considered plagiarism to use ChatGPT content?

Source: [Does ChatGPT count as plagiarism? Is using AI plagiarism?](https://libguides.hccfl.edu/c.php?g=1292319&p=9491239)

Source: <https://libguides.hccfl.edu/c.php?g=1292319&p=9491239>

Es tiempo de replantear los conceptos "plagio" y "engaño"



Referencia: Traducido y adaptado de Matt Miller (@jmattmiller) Ditch that Textbook

Challenges



Who is the author of AI-generated content?

Source: [ChatGPT Copyright: Everything you need to know](#)

ARTIFICIAL INTELLIGENCE / TECH / LAW

Getty Images sues AI art generator Stable Diffusion in the US for copyright infringement



An illustration from Getty Images' lawsuit, showing an original photograph and a similar image (complete with Getty Images watermark) generated by Stable Diffusion. Image: Getty Images

/ Getty Images has filed a case against Stability AI, alleging that the company copied 12 million images to train its AI model 'without permission ... or compensation.'

By **JAMES VINCENT**

Feb 6, 2023, 4:56 PM GMT | [16 Comments](#) / [16 New](#)



Source: <https://libguides.hccfl.edu/c.php?g=1292319&p=9491239>

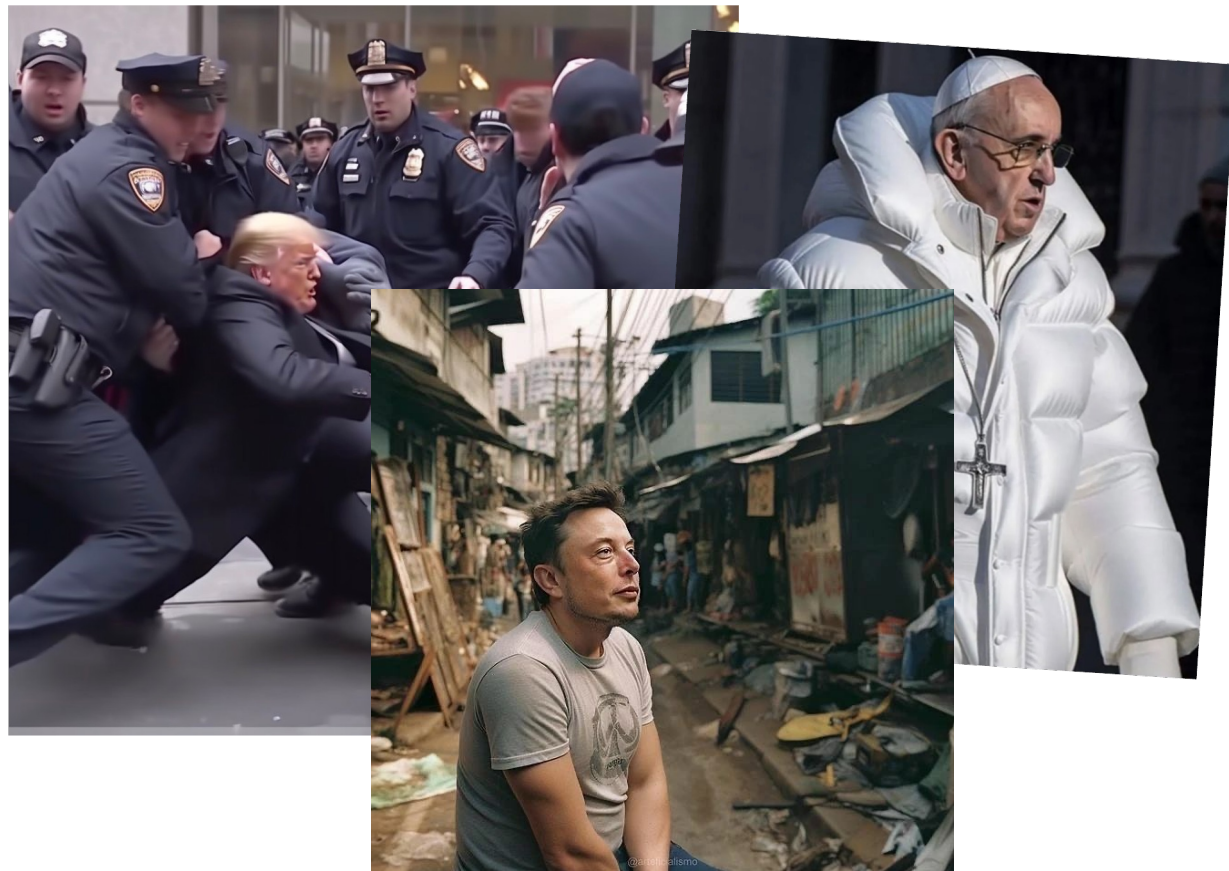
Challenges



Lack of regulation

ChatGPT is currently not regulated (Limits, Data Privacy, etc.).

Source: https://www.iesalc.unesco.org/wp-content/uploads/2023/04/ChatGPT-e-Inteligencia-Artificial-en-la-educación-superior-Guía-de-inicio-rápido_FINAL_ESP.pdf



ChatGPT Is Banned in Italy Over Privacy Concerns (others country: China, Irán, Italia, Corea del Norte y Rusia)

Source: <https://www.wepc.com/tips/what-countries-is-chat-gpt-unavailable>

Should we ban? We block more than 1,700 tools and those that have yet to emerge?

Do we evade? Do we assume it will be a "fad"? Or that it won't affect my role as a teacher?

Do we adapt? It requires new assessment methods, as well as new policies and guidelines, etc.

Australian universities to return to 'pen and paper' exams after students caught using AI to write essays

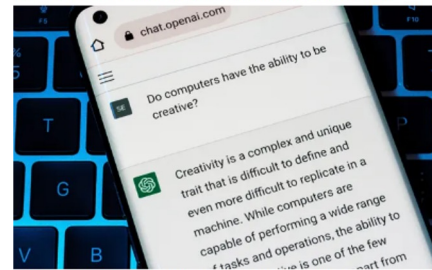
Australia's leading universities say redesign of how students are assessed is 'critical' in the face of a revolution in computer-generated text

- Follow our [Australia news live blog](#) for the latest updates
- Get our [morning and afternoon news emails](#), [free app](#) or [daily news podcast](#)



New York City schools ban AI chatbot that writes essays and answers prompts

ChatGPT tool will be forbidden across all devices and networks in public schools over 'concerns about negative impacts on learning'



ChatGPT is an artificial intelligence chatbot that generates human-like writing. Photograph: Ascannio/Alamy

BIZTECH NEWS

After Italy blocked access to OpenAI's ChatGPT chatbot, will the rest of Europe follow?



Page 10A The Daily Item — Sunmor, 8.C. Saturday, April 8, 1988



Elementary school teachers picket against use of calculators in grade school. The teachers feel if students use calculators too early, they won't learn math concepts. AP photo

Math teachers protest against calculator use

By JILL LAWRENCE. "My older kids don't pay any attention to an answer being absurd," he said. "Teachers are shy..."

Recommendations for Lecturers - Teaching

01 Reflect on which learning objective you are pursuing in your teaching

02 Create learning materials with ChatGPT

03 Support students with quizzes

04 Boost learning with ChatGPT

05 Encourage students to use ChatGPT

Gimpel, H., Hall, K., Decker, S., Eymann, T., Lämmermann, L., Mädche, A., Röglinger, R., Ruiner, C., Schoch, M., Schoop, M., Urbach, N., Vandirk, S. (2023). Unlocking the Power of Generative AI Models and Systems such as GPT-4 and ChatGPT for Higher Education: A Guide for Students and Lecturers. University of Hohenheim.

Source: Gimpel, Henner & Hall, etl.. (2023). Unlocking the Power of Generative AI Models and Systems such as GPT-4 and ChatGPT for Higher Education A Guide for Students and Lecturers Unlocking the Power of Generative AI Models and Systems such as GPT-4 and ChatGPT for Higher Education A Guide for Students and Lecturers. 10.13140/RG.2.2.20710.09287/2.

Recommendations for Lectures - Assessment

01 Design exams carefully with respect to new technological possibilities

02 Require students to declare how ChatGPT and other advanced tools were used

03 Innovate your assessment formats

04 Rethink the supervision process for assignments

05 Rethink the evaluation criteria for assignments

06 Implement guidelines for avoiding plagiarism and copyright infringements

07 Teach students how to use ChatGPT properly

08 Implement “Rules for Tools”

Gimpel, H., Hall, K., Decker, S., Eymann, T., Lämmermann, L., Mädche, A., Röglinger, R., Ruiner, C., Schoch, M., Schoop, M., Urbach, N., Vandirk, S. (2023). Unlocking the Power of Generative AI Models and Systems such as GPT-4 and ChatGPT for Higher Education: A Guide for Students and Lecturers. University of Hohenheim.

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Do you want to continue learning?

Catálogo > Formación docente Cursos

 **Transformando la educación con IA: Chat GPT**

Descubre cómo la inteligencia artificial, especialmente el modelo de lenguaje Chat GPT, puede ser utilizado para potenciar el proceso de enseñanza y aprendizaje.



4 semanas
4-5 horas por semana

Hay una sesión disponible:
Una vez finalizada la sesión del curso, será *archivado*.

Comienza el 27 mar
Termina el 30 abr

[Te inscribes: ir al curso](#)



bit.ly/chatgptedx

**ChatGPT
para profesores**

**90 PLANTILLAS PARA CREAR
PROMPTS EFECTIVOS PARA
LA ENSEÑANZA**



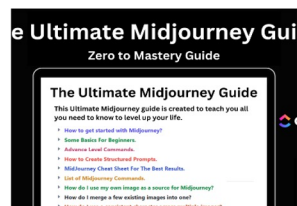
Miguel Morale



bit.ly/chatgptparaprofesores

Do you want to continue learning?

Aprendizaje en tiempos de Chat GPT

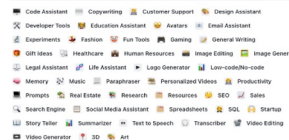


The Ultimate Midjourney Guide

Esta guía definitiva de Midjourney ha sido creada para enseñarte todo lo que necesitas saber, desde el nivel principiante hasta el avanzado, para que puedas utilizar Midjourney para subir de nivel en tu vida. Véalo y descárguelo aquí.

febrero 24, 2023

AI Tools



1000 herramientas de inteligencia artificial

Excelente Lista de más de 1000 herramientas de inteligencia artificial, clasificadas en diferentes área como Educación, Código, Marketing, Edición de imágenes, entre otras.

febrero 24, 2023

e ChatGPT Cheat Sheet

eat sheet illustrates the diverse abilities of OpenAI's ChatGPT for developers and content creators across various domains including programming, natural language processing, and programming.

Table of Contents:

1. NLP Tasks
2. Code
3. Structured Output Styles
4. Unstructured Output Styles
5. Media Types
6. Meta ChatGPT
7. Expert Prompting



www.neuralmagic.com

The ChatGPT Cheat Sheet

Hoja de trucos para desarrolladores y creadores de contenido, para mejorar su competencia en la generación de Prompts en varios dominios, incluyendo la creación de contenido multimedia y la programación. Véalo y descárguelo aquí.

febrero 21, 2023



www.aprendechatgpt.org

Muito obrigado!



Miguel Morales-Chan
@amoraleschan

References:

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