




# AI Technologies for the education and research – tools and models, ethics consideration

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A photograph of two welders in a dark industrial environment. The welder on the left is wearing a blue protective suit and a silver welding mask, holding a welding torch. The welder on the right is wearing a red protective suit and a black welding mask. Bright sparks and a large plume of yellow smoke are visible between them as they work on a metal surface. The background is dark with some light coming from a window on the right.

Co-create to control and  
benefit from Generative AI in  
Education

Regulation

Adopt





# Acceptance

# AI in the news



## Alarmed by A.I. Chatbots, Universities Start Revamping How They Teach

With the rise of the popular new chatbot ChatGPT, colleges are restructuring some courses and taking preventive measures.





# AI in the news



open AI in education



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ARTIFICIAL INTELLIGENCE

## ChatGPT is going to change education, not destroy it

The narrative around cheating students doesn't tell the whole story. Meet the teachers who think generative AI could actually make learning better.

By Will Douglas Heaven

April 6, 2023



“a US survey of 1,002 K–12 teachers and 1,000 students between 12 and 17, commissioned by the Walton Family Foundation in February, found that more than half the teachers had used ChatGPT—10% of them reported using it every day—but only a third of the students. Nearly all those who had used it (88% of teachers and 79% of students) said it had a positive impact.”

<https://www.technologyreview.com/2023/04/06/1071059/chatgpt-change-not-destroy-education-openai/>

# AI in the news

“Lecturers and students need to learn together how to use AI constructively, responsibly and ethically, including how to critique and build on its contributions. Its potential to enable new forms of feedback is promising but needs careful preparation, support and staff development.”

## How ChatGPT can help disrupt assessment overload

Advances in AI are not necessarily the enemy – in fact, they should prompt long overdue consideration of assessment types and frequency, says David Carless

Digital transformation Assessment and quality assurance Course design and delivery

Asia Feature article

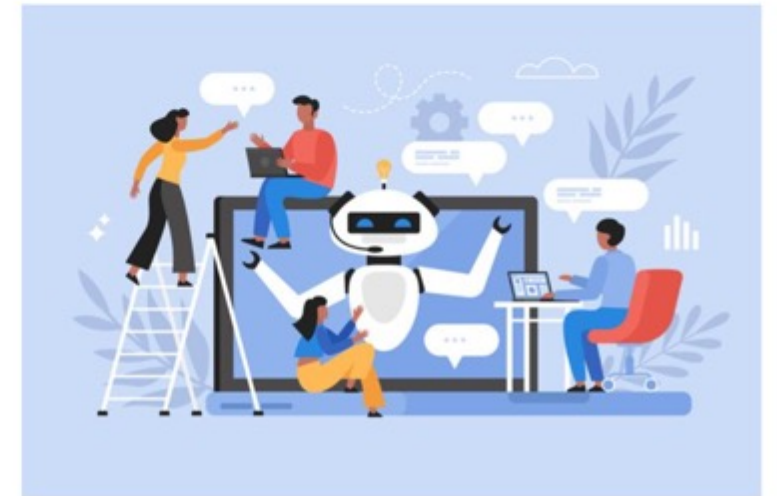


**David Carless**

The University of Hong Kong

19 Apr 2023

2 5



Top of page

Main text

More on this topic





# AI in the news

“online survey completed by over 400 students, 47.3% of students admitted that they had recruited the assistance of ChatGPT, or other similar AI chatbots,

....

The use of ChatGPT was more common among STEM students, where 53% used chatbots compared to a 43% rate among Cambridge’s humanities students.”



## Exclusive: Almost half of Cambridge students have used ChatGPT to complete university work

Varsity's exclusive self-selecting online survey has revealed that 47.3% of students have used AI chatbots to complete work for their degree

by Michael Hennessey

Friday April 21 2023, 12:00am

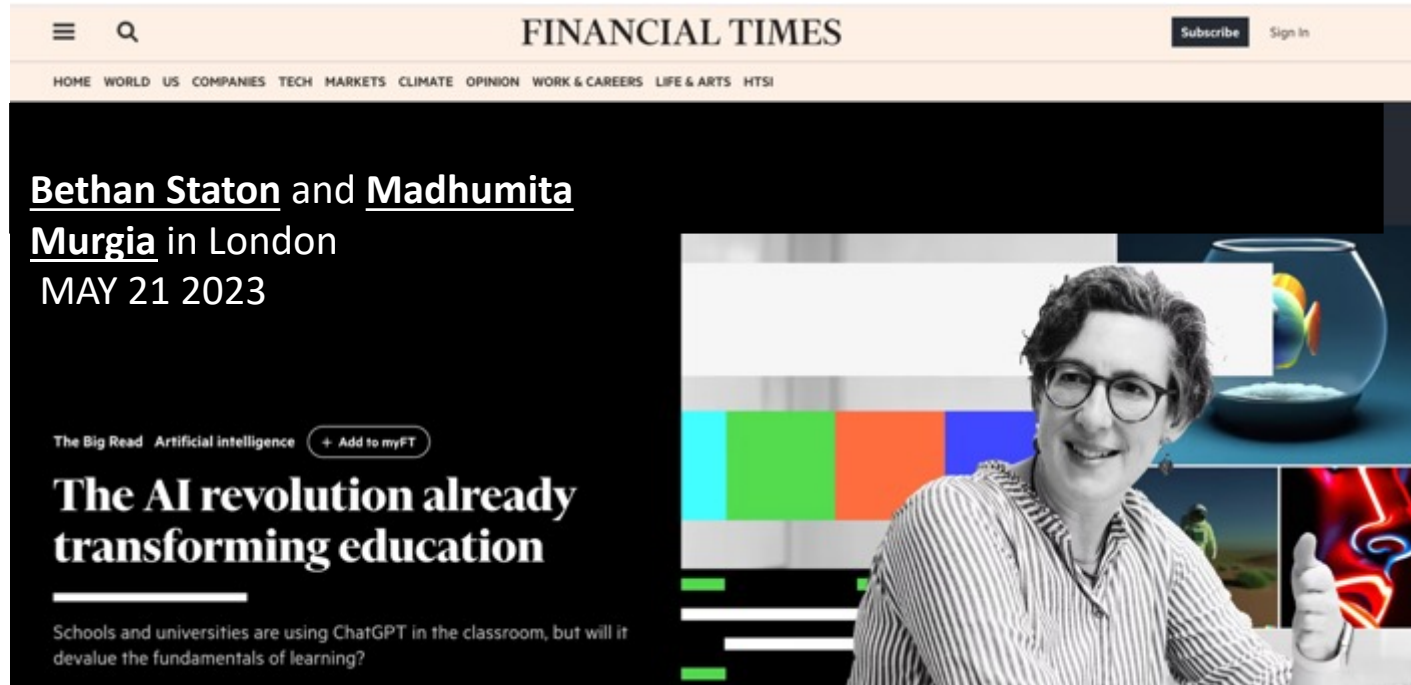


17 shares



<https://www.varsity.co.uk/news/25463>

# AI in the news



“We don’t yet understand what generative AI is going to do to our world,” says Conrad Wolfram, the European co-founder of AI-driven research platform Wolfram, who has long pushed for an overhaul of the way maths is taught. “So it’s hard to work out yet how it should affect the content of education.”

“..it is common for students to paste in long articles or academic papers and ask for summaries, or to brainstorm ideas on a broad topic. ”

<https://www.ft.com/content/47fd20c6-240d-4ffa-a0de-70717712ed1c>



# AI in the news

Universities are slowly adopting generative AI in their work, but in depth guidance is still missing for many institutions, with some waiting for the European Commission to set EU guidelines for safe use.



## Universities ready to take up generative artificial intelligence, but say guidelines are needed

24 Oct 2023 | News

Universities R&D Policy AI Digital

*As AI becomes a daily helper for research managers, institutions are awaiting EU guidelines and learning from one another*

By Goda Naujokaitytė



Universities are slowly adopting generative AI in their work, but in depth guidance is still missing for many institutions, with some waiting for the European Commission to set EU guidelines for safe use.

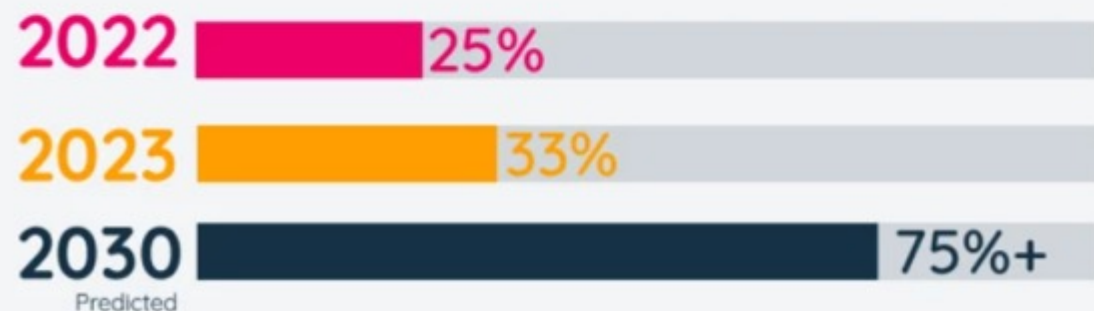
AI tools are becoming increasingly common in science, but few universities have come out with their own rules instructing academics, researchers and students how they can be used. A UNESCO survey of around 450 educational institutions published in June found only around 13% of universities have provided their staff and students formal guidance.

The survey found that for those universities that have issued guidance, the requirements vary a lot. Only half have detailed instructions, the rest approve of AI but leave it up to users to decide how generative AI apps are applied. In 40% of cases, the guidance is not written, but only communicated orally.

<https://sciencebusiness.net/news/universities/universities-ready-take-generative-artificial-intelligence-say-guidelines-are>

# Unlocking Europe's AI Potential in the Digital Decade

European business adoption of AI was up 32% last year. If maintained, the EU will be on track to hit its AI adoption targets.

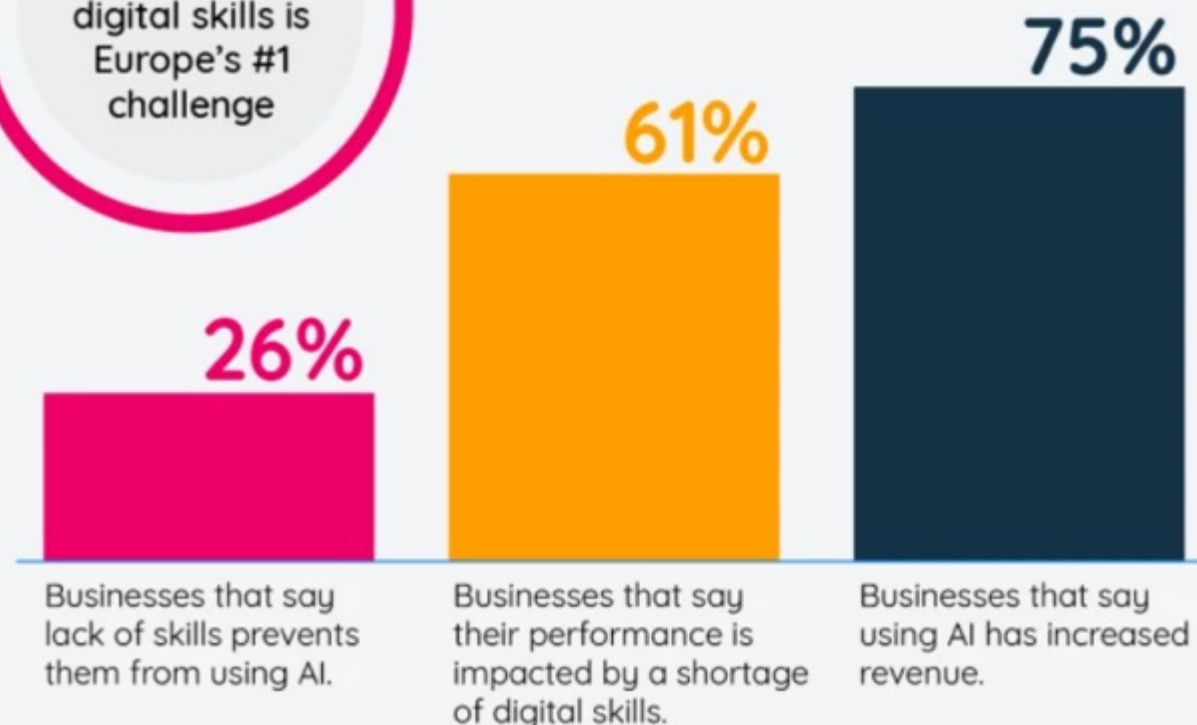


🔒 €3.4 trillion



The estimated total economic impact of tech adoption in Europe by 2030. A 600Bn up lift from 2022, driven by AI.

Finding people with the right digital skills is Europe's #1 challenge



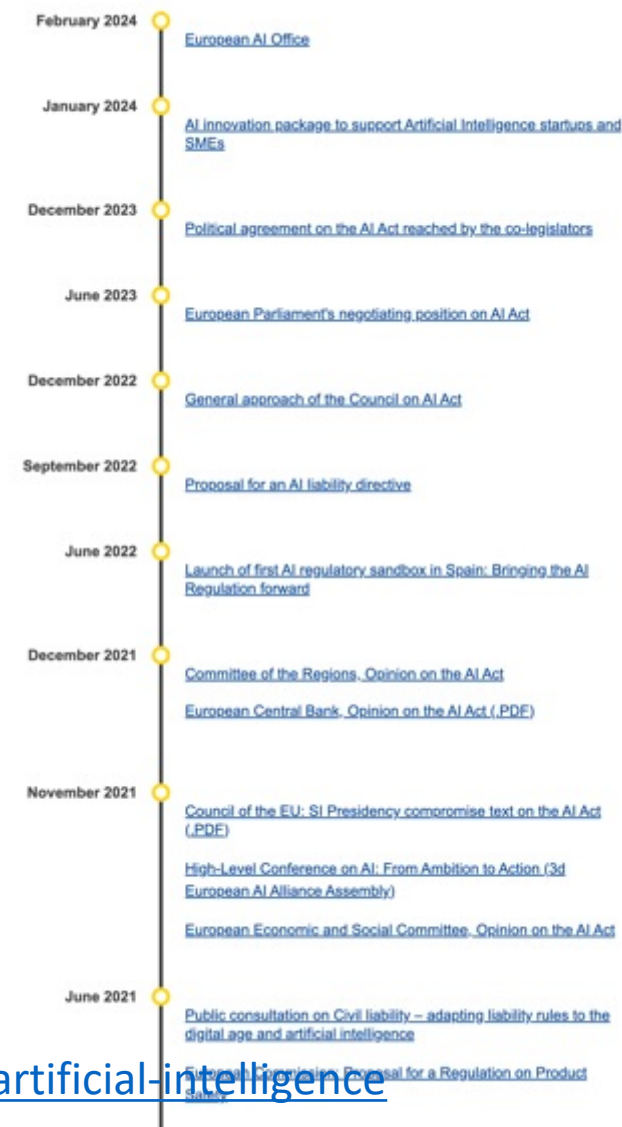


# European approach to excellence in AI

EU will achieve this by:

1. enabling the development and uptake of AI in the EU
2. becoming the place where AI thrives from the lab to the market
3. ensuring that AI works for people and is a force for good in society
4. building strategic leadership in high-impact sectors

## Important milestones



<https://digital-strategy.ec.europa.eu/en/policies/european-approach-artificial-intelligence>

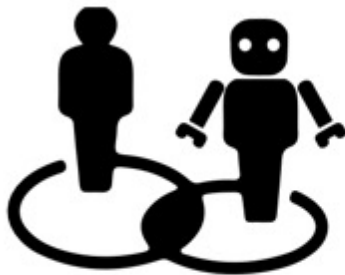
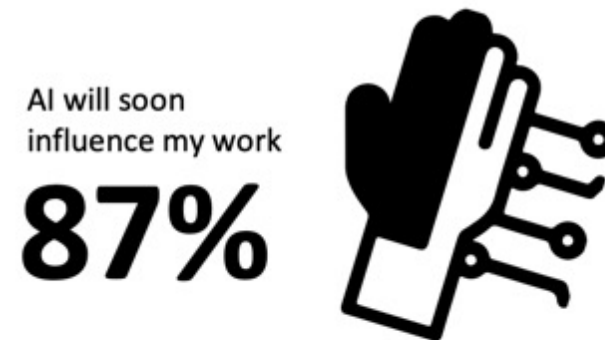
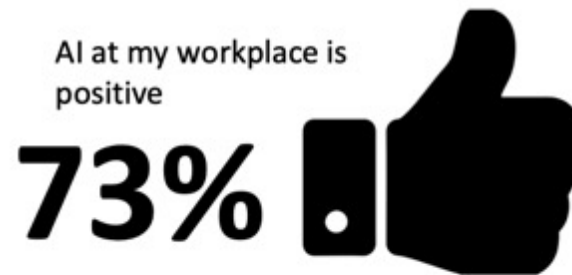
# AI acceptance

Ulf Ehlers – Future skills for a world shaped by AI, 2024



## Key Findings

Attitudes towards AI

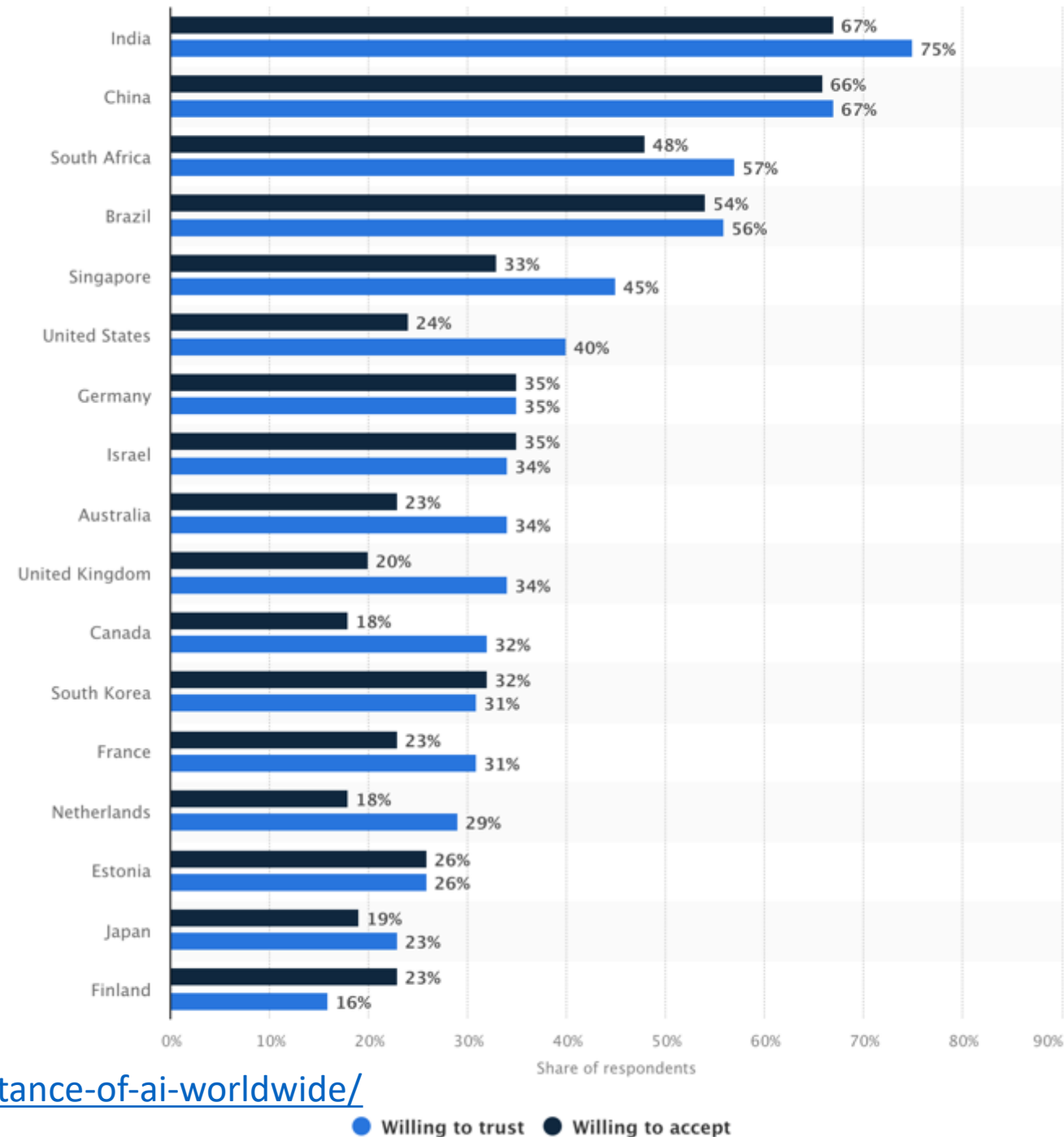


Values represent the dichotomized TOP2Box values in percent (upper 2 scale points combined), all respondents, (N=1644)

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# Acceptance and willingness to trust artificial intelligence (AI) systems in selected countries worldwide in 2022



<https://www.statista.com/statistics/1369185/trust-and-acceptance-of-ai-worldwide/>

<https://assets.kpmg.com/content/dam/kpmg/es/pdf/2023/09/trust-in-ai-report.pdf>

# Global key findings

## AI trust and acceptance

- **Three in five** (61 percent) are wary about trusting AI systems.
- **67 percent** report low to moderate acceptance of AI.
- AI use in human resources is the **least trusted** and accepted, while AI use in healthcare is the **most trusted** and accepted.

## Potential AI benefits and risk

- **85 percent** believe AI results in a range of benefits.
- **Yet only half** of respondents believe the benefits of AI outweigh the risks.
- **Top concern** is cybersecurity risk at 84 percent.

## Who is trusted to develop and govern AI?

- **76 to 82 percent** have confidence in national universities, research institutions and defense organizations to develop, use and govern AI in the best interest of the public.
- **One-third** of respondents lack confidence in government and commercial organizations to develop, use and govern AI.



## Responsible AI

- **97 percent** strongly endorse the principles for trustworthy AI.
- **Three in four** would be more willing to trust an AI system when assurance mechanisms are in place.

## AI in the workplace

- **About half** are willing to trust AI at work.
- **Most** people are uncomfortable with or unsure about AI use for HR and people management.
- **Two in five** believe AI will replace jobs in their area of work.

## AI IQ

- **Half** of respondents feel they don't understand AI or when and how it's used.
- **45 percent** don't know AI is used in social media.
- **82 percent** want to know more about AI.

## AI attitudes vary

- **Younger generations, the university educated and managers** are more trusting, accepting and positive about AI.
- **People in emerging economies** are more trusting, accepting and positive about AI than people in other countries.



## Is AI Going To Transform Higher Education And How?

Gil Press Senior Contributor 

*I write about technology, entrepreneurs and innovation.*



Feb 14, 2024, 09:00am EST



What will be the impact of AI on higher education? GETTY

What will be the impact of AI on higher education? It's a burning question for academic institutions worldwide. The answers range from monitoring students use of ChatGPT to appointing an AI czar and to using AI as a catalyst for positive change. Seizing an educational

# Is AI Going to Transform Higher Education and Engineering Education?

# New competences



# Actioning on EU Digital Competences Framework DigComp 2.2



What *knowledge, skills and attitudes* do citizens need to **engage with AI systems** in a **confident, critical and responsible** way for learning, at work, and for participation in society?

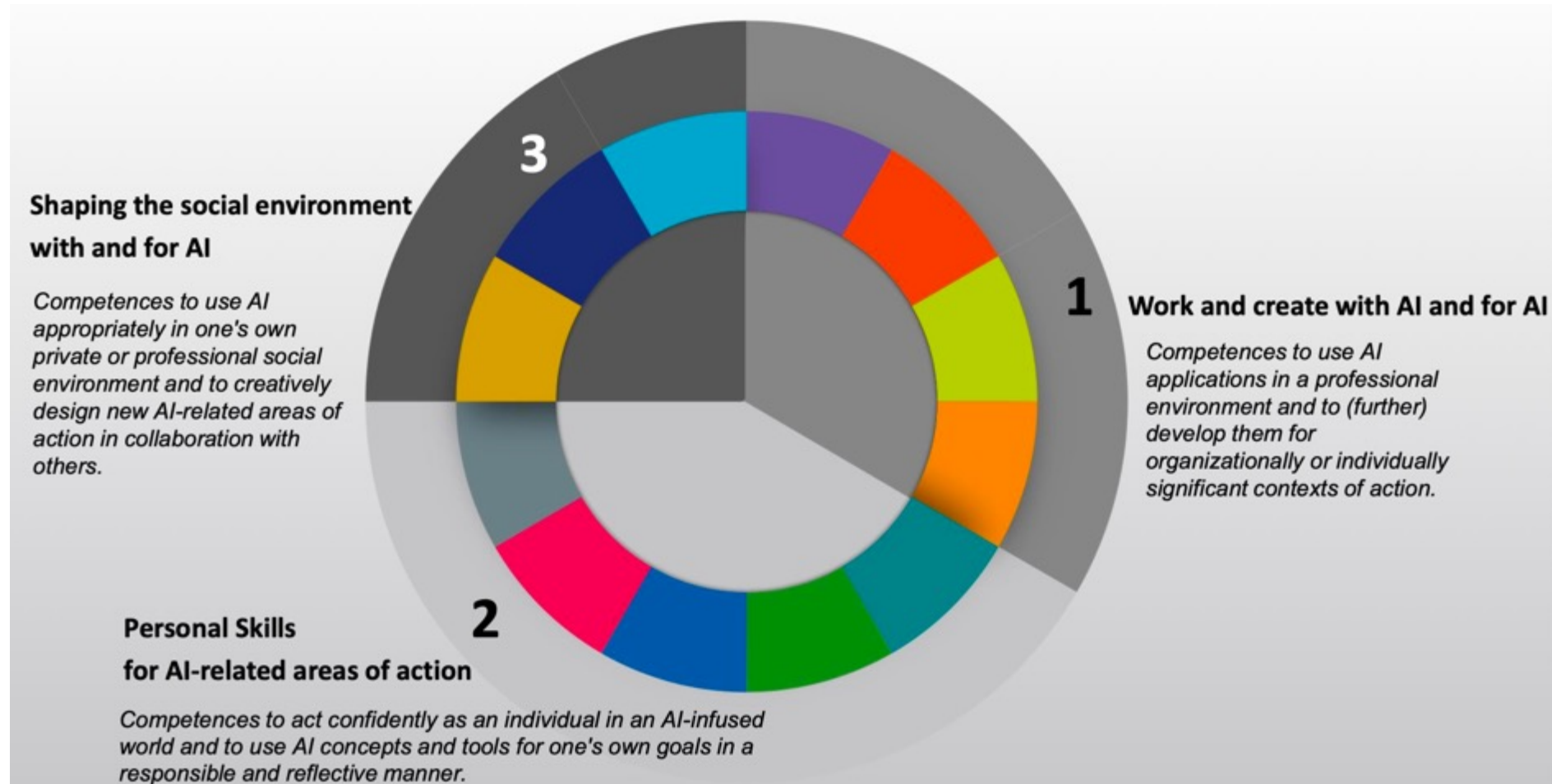
See more at: <https://ec.europa.eu/jrc/digcomp>

# AI COMP – FUTURE SKILLS FOR A WORLD SHAPED BY AI

- The competence model AIComp (Artificial Intelligence Competences) was developed by NextEducation as part of the two projects [AI-Campus](#) and [AI-Campus](#) Hub Baden-Wuerttemberg. It is based on an empirical study in which over 1600 professionals in Baden-Wuerttemberg were surveyed on the skills requirements resulting from the fact that artificial intelligence is increasingly finding its way into the world of work and life.

<https://next-education.org/en/projects/ai-comp/>

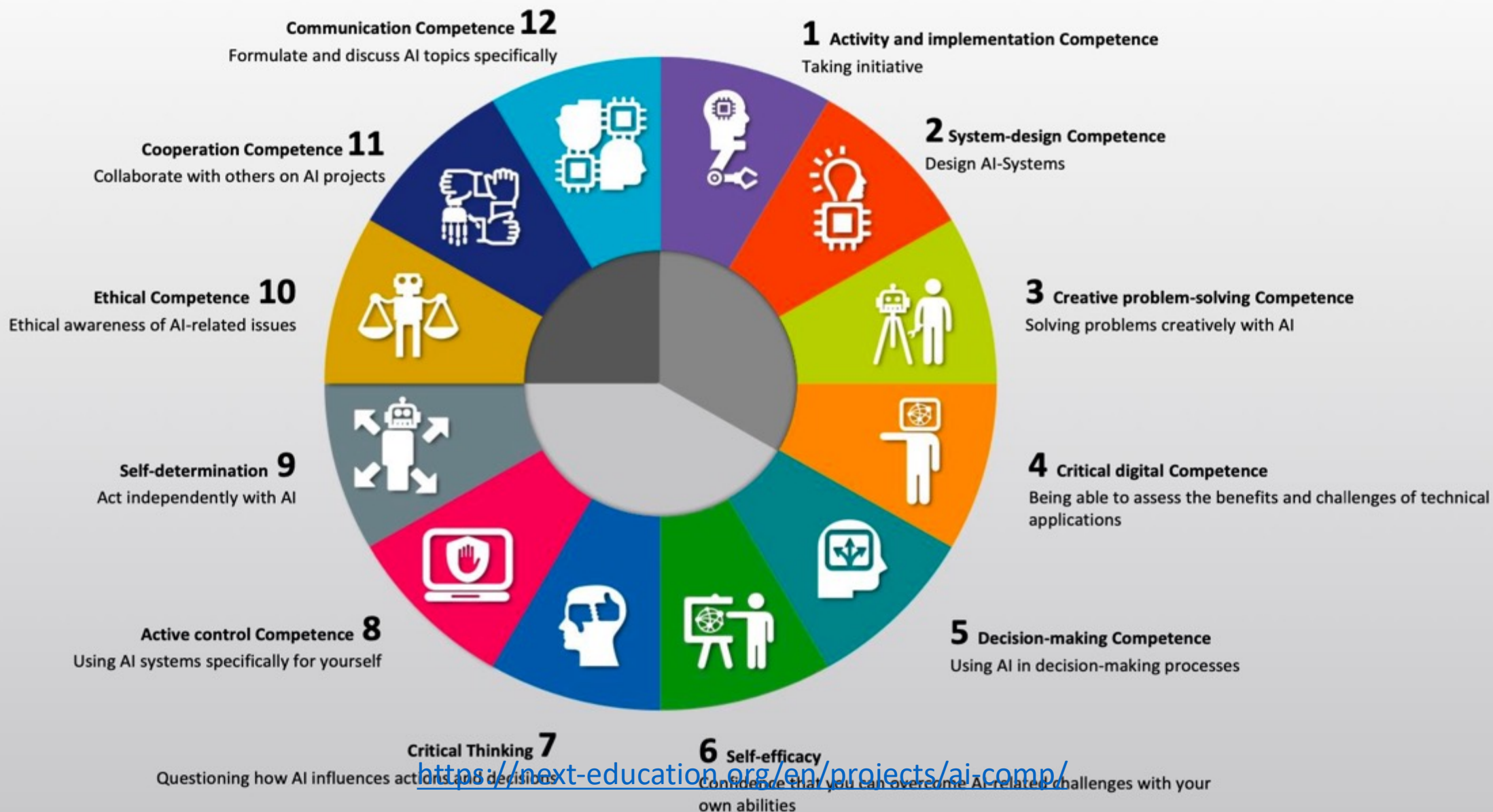
# AI COMP – FUTURE SKILLS FOR A WORLD SHAPED BY AI



<https://next-education.org/en/projects/ai-comp/>



# AI COMP – FUTURE SKILLS FOR A WORLD SHAPED BY AI



# Actioning the UNESCO Recommendation

A 'human-centred and pedagogically appropriate interaction' approach

six perspectives to consolidate pedagogically appropriate interactions and the prioritization of human agency:

- appropriate domains of knowledge or problems;
- expected outcomes;
- appropriate GenAI tools and comparative advantages;
- requirements for users;
- required human pedagogical methods and example prompts; and
- ethical risks.

**Guidance for generative AI in education and research, UNESCO, 2023**

<https://unesdoc.unesco.org/ark:/48223/pf0000386693>

# Actioning the UNESCO Recommendation

A High-level Structure of the proposed AI Competency Framework for Teachers

Aspect	Progression		
	Understand	Apply	Create
<b>Human-centred AI Mindset</b>	Critical Reflections on AI	Safe and Responsible AI	Self-actualisation in the AI Era
<b>Ethics of AI</b>	Human agency	Ethics by Design	AI Citizenship
<b>AI Foundations</b>	AI Literacy	Programming and Data Analysis	Models and Visual Representations
<b>AI Pedagogy</b>	AI Pedagogical Affordances	AI Pedagogies Effectively	Innovative Pedagogies to Teach AI & with AI
<b>AI Tools</b>	Implications of AI Tools for Education	AI Tools for Specific Needs	New AI tools or modify them
<b>Professional Learning</b>	Professional Preparedness	Continuous AI Professional Learning	AI Opportunities to Empower Teachers

<https://unesdoc.unesco.org/ark:/4222/ci/0000000000>

2023



# Actioning the UNESCO Recommendation

## A ‘human-centred and pedagogically appropriate interaction’ approach

Table 4. Co-designing uses of GenAI to support teachers and teaching

Potential but unproven uses	Appropriate domains of knowledge or problems	Expected outcomes	Appropriate GenAI tools and comparative advantages	Requirements for the users	Required human pedagogical methods and example prompts	Possible risks
Curriculum or course co-designer	Conceptual knowledge on certain teaching topics and procedural knowledge on teaching methodologies.	Assisting with the curriculum and lesson design process, including outlining or extending views on key areas of the target topic, defining the curriculum structure. It may also help teachers prepare tests and exams by offering examples of questions and rubrics for evaluation. <b>Potential transformation: AI-generated curriculum</b>	Starting with the list in Section 1.3, assess whether the GenAI tools are locally accessible, open source, rigorously tested or validated by authorities. Further consider the advantages and challenges of any particular GenAI tool, and ensure that it properly addresses specific human needs.	The teachers must understand and carefully specify what they want the curriculum, courses, lessons, or tests to cover and achieve, whether they want to address procedural or conceptual knowledge, and what teaching theory they wish to apply.	Questions to GenAI on suggesting the structure and examples of factual knowledge on topic(s), suggesting teaching methods and processes on topics or problems, or creating course packages or lesson plans based on topic(s) and formatting. Human curriculum designers need to verify the factual knowledge and check the appropriateness of the suggested course packages.	The risk for GenAI to impose dominant norms and pedagogical methods is high. It may inadvertently perpetuate exclusionary practices in favour of the already data-rich groups and reinforce inequalities in access to relevant and high-quality educational opportunities for data-poor groups.

# Actioning the UNESCO Recommendation

## A ‘human-centred and pedagogically appropriate interaction’ approach

Table 4. Co-designing uses of GenAI to support teachers and teaching

Potential but unproven uses	Appropriate domains of knowledge or problems	Expected outcomes	Appropriate GenAI tools and comparative advantages	Requirements for the users	Required human pedagogical methods and example prompts	Possible risks
enerative chatbot as teaching assistant	Conceptual knowledge across multiple domains in well-structured problems.	Providing individualized support, answering questions and identifying resources. <b>Potential transformation: Generative twins of teachers’ assistants</b>	Starting with the list in Section 1.2, assess whether the GenAI tools are locally accessible, open source, rigorously tested or validated by authorities. Further consider the advantages and challenges of any particular GenAI tool, and ensure that it properly addresses specific human needs.	It supports teachers but targets learners directly, so this requires learners to have sufficient prior knowledge, abilities and metacognitive skills to verify the outputs of GenAI and notice the misinformation. Thus it might be more appropriate for learners in higher education.	Requires the teachers to understand the problems clearly, to monitor the conversation and help learners to verify dubious answers provided by GenAI.	Based on the current capabilities of GenAI models, educational institutions need to guarantee human supervision of the responses provided by GenAI tools, being alert to the risk of misinformation. It may also limit learners’ access to human guidance and support, hindering the development of a strong teacher-student relationship, which is especially concerning for children.

# EU AI report the European Digital Education Hub's Squad on artificial intelligence in education

- Teachers' Competences
  - Competences for Teaching for AI
  - Competences for Teaching with AI
  - Competences for Teaching about AI
- How to Support Teachers to Use AI in Teaching
- Use Scenarios & Practical Examples of AI Use in Education
- Teaching for AI
- Teaching for AI
- Teaching with AI



# EU AI report the European Digital Education Hub's Squad on artificial intelligence in education

- Education about AI
- Influence of AI on Governance in Education
- AI and Ethics, Human Rights, Law and Educational Data
- Teaching with AI - Assessment, Feedback and Personalisation

# Ethical issues

## Some things to worry about:

- lies ... well but recognisable
- lack factual accuracy, some are erroneous or contradictory
- facilitate impersonation
- discrimination based on social landscape, gender, race, ethnicity



AI generated image of Aztec Warriors selfie



AI generated image of Spanish Conquistadors selfie



# Some Drawbacks

- Privacy and security issue (OpenAI collects a lot of data from ChatGPT users)
- ChatGPT is not always trustworthy
- ChatGPT makes stuff up!
- The transfer of responsibilities (delegation of decisions) in vital areas is dangerous (employment, investments, health diagnosis, military operations, etc.)
- **The technology is still far from what we are told it is** (ChatGPT is only a model, it provides with high accuracy statistical content based on some inputs, but it DOES NOT UNDERSTAND the text)
- **Misinformation - unstoppable domino** (because it can be trained on the basis of false information)



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[Lensa AI](#)

From Gabriela Grosseck, UVT

# Ethics

## Challenges and ethical implications

- The impact of ChatGPT on higher education has been immediate and divisive. Although its applications in higher education are extensive, many universities have already banned it over fears of student plagiarism, and several countries have blocked ChatGPT.

Academic integrity

Lack of regulation

Privacy concerns

# Ethics

## Challenges and ethical implications

- The impact of ChatGPT on higher education has been immediate and divisive. Although its applications in higher education are extensive, many universities have already banned it over fears of student plagiarism, and several countries have blocked ChatGPT.

Cognitive bias

Gender and diversity

Accessibility

Commercialization



# EU AI report the European Digital Education Hub's Squad on artificial intelligence in education ETHICS

2023, the European Commission published the Ethical guidelines on the use of AI and data in teaching and learning

four key considerations:

- human agency
- Fairness
- humanity
- Justified choice

# EU AI report the European Digital Education Hub's Squad on artificial intelligence in education ETHICS

the use of AI in education:

1. AI-based tools that can be used for different tasks in education, like automatic student assessment, personalised learning, content-creation, etc.
2. teaching and learning about AI, or for developing AI

# EU AI report the European Digital Education Hub's Squad on artificial intelligence in education ETHICS

the use of AI in education:

1. AI-based tools that can be used for different tasks in education, like automatic student assessment, personalised learning, content-creation, etc.

regulations and framework, Guidance,

personal data protection, bias and fairness in AI algorithms,

examples on AI applications in tools and services

students should be introduced to exploratory data analysis methods using descriptive statistics and data distributions, data visualisation techniques and tools, as well as data-driven decision-making based on automatic analysis

# EU AI report the European Digital Education Hub's Squad on artificial intelligence in education ETHICS

the use of AI in education:

## 2. Teaching and learning about AI, or for developing AI

### Developer view

It is important that students learn about the ethics and regulations about AI because they will be creating AI-based systems.



# EU AI report the European Digital Education Hub's Squad on artificial intelligence in education ETHICS

Promote a safe, responsible and conscious use of digital tools and technologies related to AI.

Analyse and understand the human footprint and the influence of risks in automated decision-making processes.

Identify and evaluate the ethical and policy implications of the design and use of AI systems, including fairness, bias, discrimination and accountability.

Know and understand the risks and benefits of AI

# Co-create to control and benefit from Generative AI in Education

Regulation

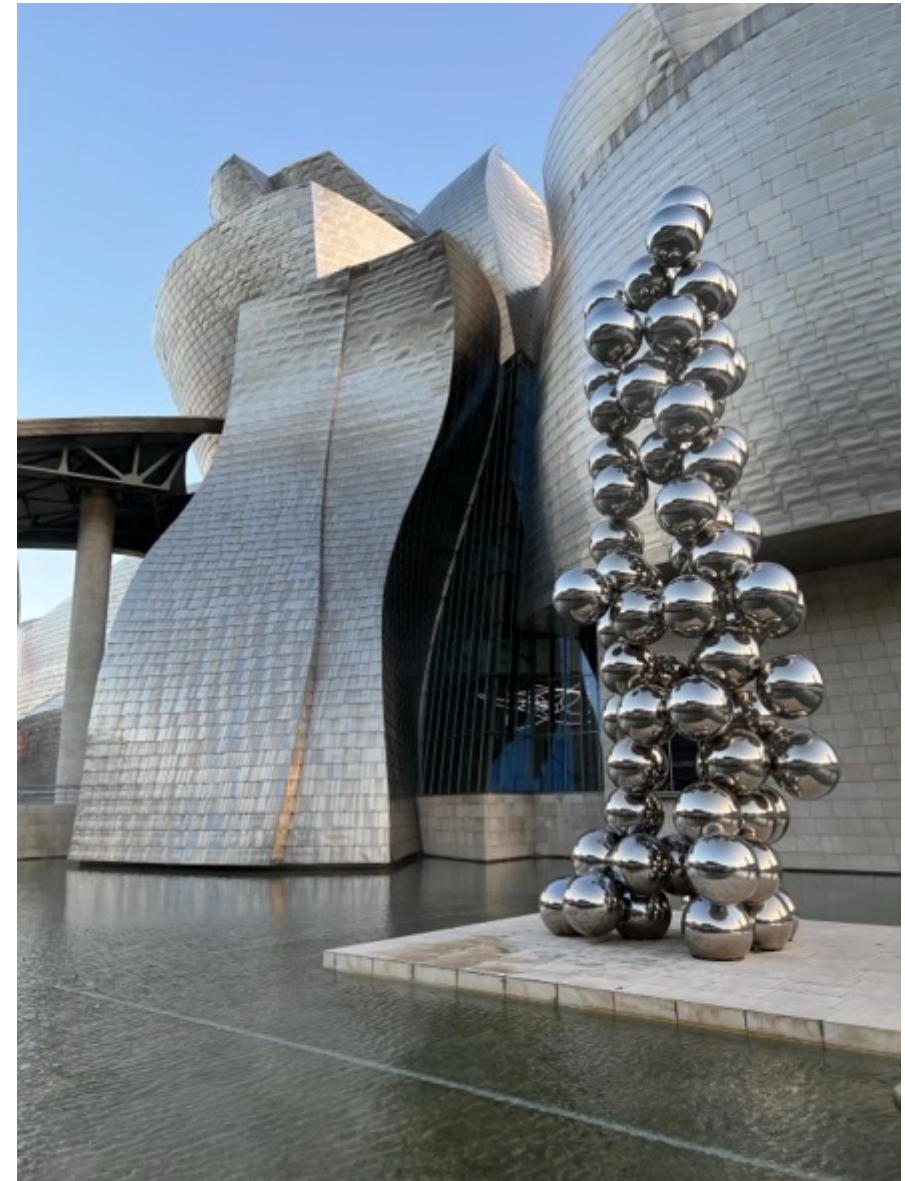
Adopt

Use



# AI in (Higher) Education

- When should we use AI in STEM education and when not?
- How can AI be used to enhance the learning experience for students?
- What scenarios have teachers used to successfully and critically engage students with AI tools?
- How can we inform/train/guide students and colleagues?
- What ethical considerations must be taken into account when incorporating AI into STEM education, and how can they be addressed?





# AI in Education

If deployed well, AI can help unlock solutions for improving global education systems.

## 4 Promises of AI in education



Supporting teachers' role:  
augmentation and automation



Refining assessment and  
decision-making in education



Supporting AI and  
digital literacy



Personalizing learning  
content and experience



[https://www3.weforum.org/docs/WEF\\_Shaping\\_the\\_Future\\_of\\_Learning\\_2024.pdf](https://www3.weforum.org/docs/WEF_Shaping_the_Future_of_Learning_2024.pdf)



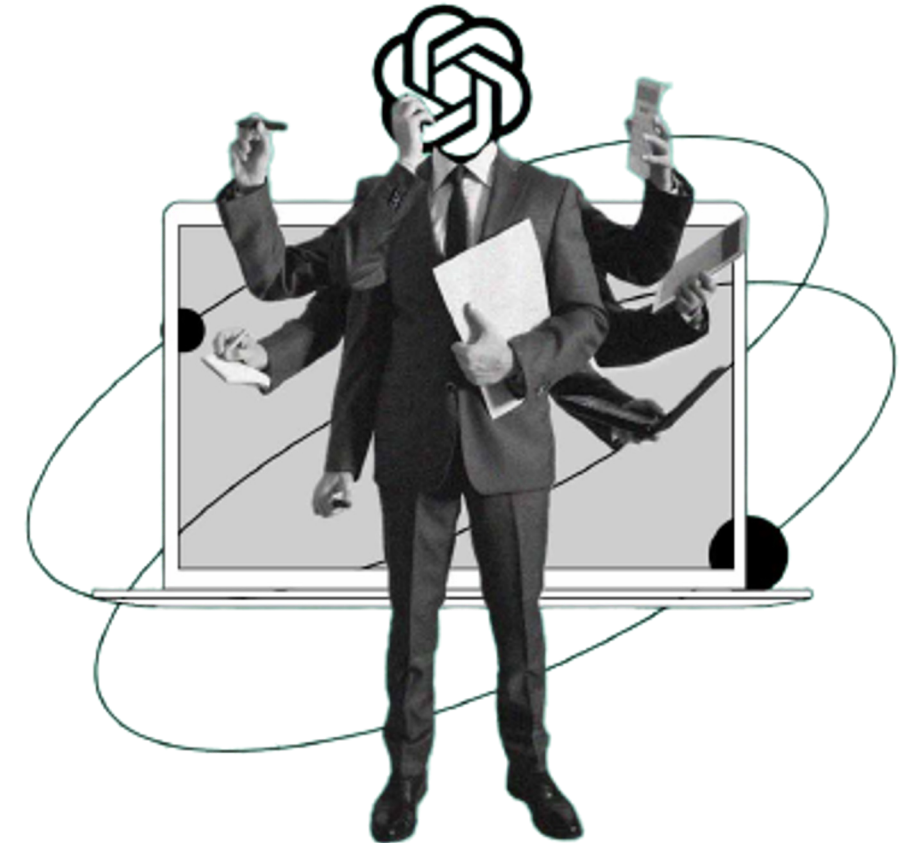
## An anatomical case study of the Amazon echo as a artificial intelligence system made of human labor

## An anatomical case study of the Amazon echo as a artificial intelligence system made of human labor



## But why should we care about generative AI tools?

- Generative AI: ChatGPT, Dall-E
- Large Language Models (LLM)



Mills, A. & Goodlad, L.M.E. (2023, January 19). CRITICAL AI: Adapting College Writing for the Age of Large Language Models such as ChatGPT: Some Next Steps for Educators. Critical AI. <https://criticalai.org/2023/01/17/critical-ai-adapting-college-writing-for-the-age-of-large-language-models-such-as-chatgpt-some-next-steps-for-educators/>

Mollick, E. (2023, January 24). The practical guide to using AI to do stuff. <https://oneusefulthing.substack.com/p/the-practical-guide-to-using-ai-to>

# OpenAI API

We've updated this site, [please refresh](#), or you may experience unexpected behavior.

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gpt-4

api

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What to know before posting a new question:

1. Search the forum for similar topics - the question might have been discussed before.
2. If the question relates account issues (e.g., billing and login issues), please contact us through our [Help Center](#).
3. Please be kind and helpful in conversations!

all categories >

all tags >

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Announcements

If you have an issue with your account, payments, billing, or the like, please contact our support team at: <https://help.openai.com>. This site is a developer community site and not monitored for customer account or billi... read more



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26.1k

Mar

## 🔒 ⚠️ Read this before posting a new question

API

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6

26.0k

Apr

🔒 ⚠️ Welcome to community.openai.com!



# Generative AI

Curated by @aaronstimm

DALL·E 2 Stable Diffusion craiyon Jasper

Text-to-Image (T2I)

Imagen MidJourney NightCafe GauGAN2

WOMBO Wonder pixray-text2image neural love

Text-to-Video (T2V)

runway Fliki synthesisia Meta AI Google AI Phenaki

Text-to-Audio (T2A)

Play.ht MURF.AI RESEMBLE.AI WELLSAID descript

Text-to-Text (T2T)

Simplified Jasper frase EleutherAI Requestory

grammarly copy.ai MarketMuse AI21labs HubSpot

InferKit GooseAI Research AI Writesonic co:here CHIBI

Ideas AI Powered by OpenAI copysmith Flowrite HIGHNESS sudo write

ideasbyai beta text.cortex OpenAI GPT-3 Blog Idea Generator

Text-to-Motion (T2M)

ITREE Ind. MDM: Human Motion Diffusion Model

Text-to-Code (T2C)

replit Generate code GitHub Copilot

Text-to-NFT (T2N)

LensAI

Text-to-3D (T2D)

DreamFusion CLIP-Mesh GET3D

Audio-to-Text (A2T)

descript AssemblyAI Whisper

Audio-to-Audio (A2A)

AudioLM VOICEMOD

Brain-to-Text (B2T)

speech from brain non-invasive brain recordings

Image-to-Text (A2T)

neural love GPT-3 x Image Captions

AI. Partial universe



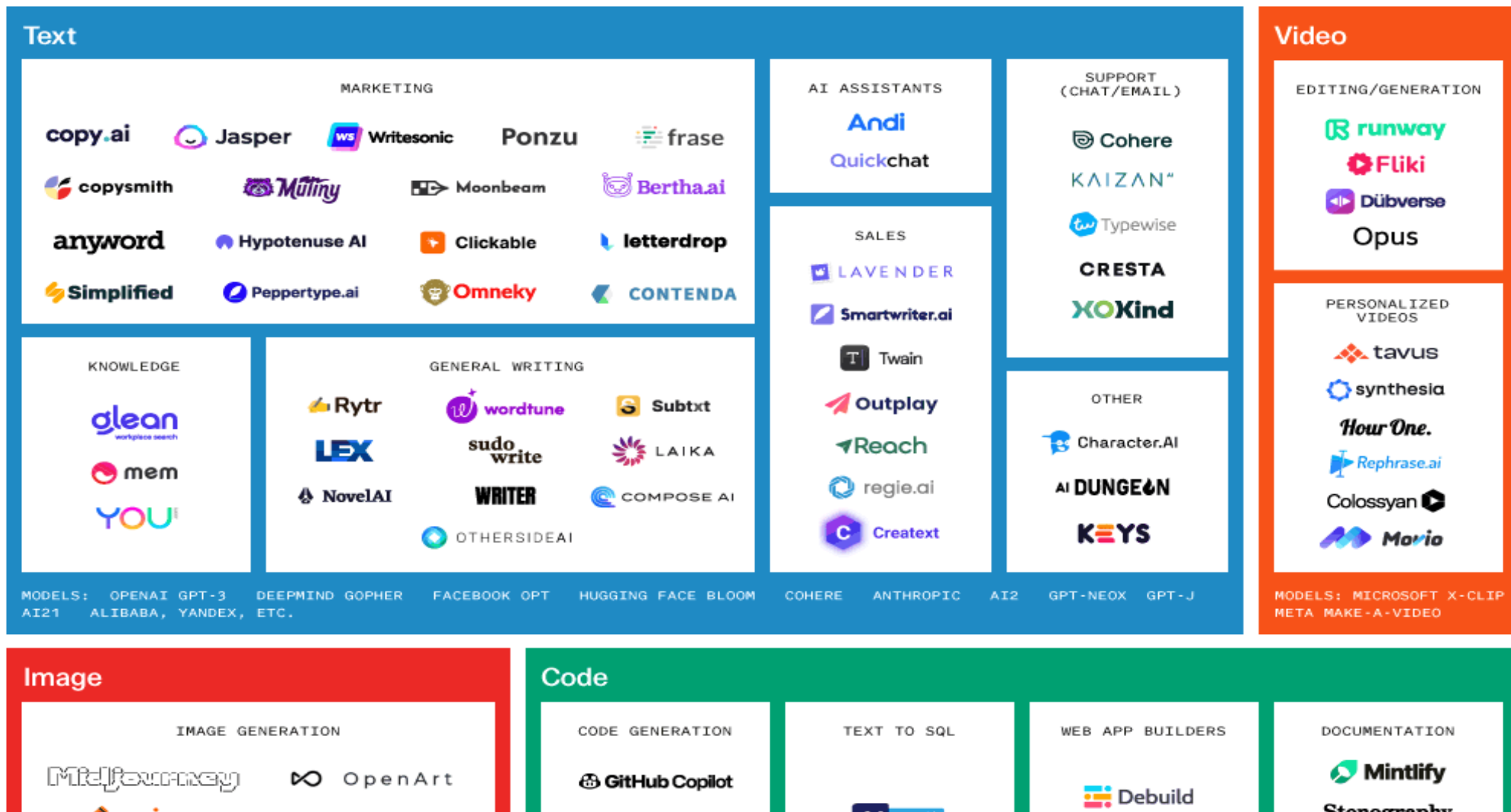
# The Generative AI Application Landscape v2

generative AI market map



A work in progress

<https://www.cbinsights.com/research/generative-ai-startups-market-map/>

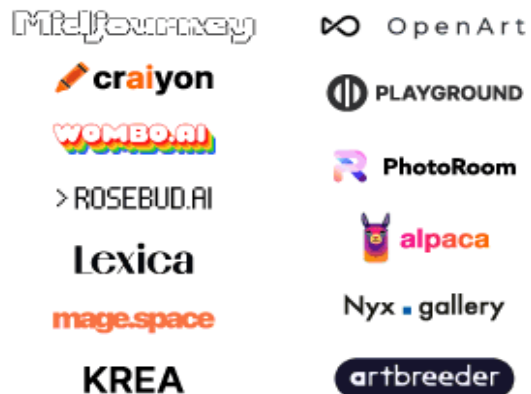


MODELS: OPENAI GPT-3 DEEPMIND GOPHER FACEBOOK OPT HUGGING FACE BLOOM COHERE ANTHROPIC AI2 GPT-NEOX GPT-J AI21 ALIBABA, YANDEX, ETC.

MODELS: MICROSOFT X-CLIP META MAKE-A-VIDEO

## Image

### IMAGE GENERATION



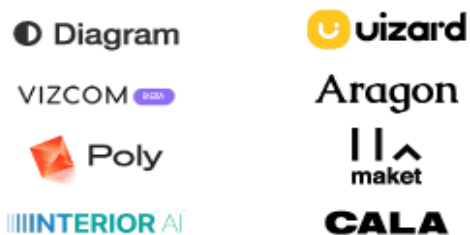
### CONSUMER/SOCIAL



### MEDIA/ADVERTISING



### DESIGN



MODELS: OPENAI DALL-E 2 STABLE DIFFUSION CRAIYON

## Code

### CODE GENERATION



### TEXT TO SQL



### WEB APP BUILDERS



### DOCUMENTATION



### OTHER



MODELS: OPENAI GPT-3 TABNINE CODEGEEEX

## Speech

### VOICE SYNTHESIS



MODELS: OPENAI

## 3D

### 3D MODELS/SCENES



MODELS: DREAMFUSION NVIDIA GET3D MDM APPLE ML

## Other

### MUSIC



### GAMING



### RPA



### AI CHARACTERS/AVATARS



### BIOLOGY/CHEMISTRY



### VERTICAL APPS



MODELS: OPENAI JUKEBOX





















## generative AI market map

<https://www.cbinsights.com/research/generative-ai-startups-market-map/>

Apps

CONSUMER USES		ENTERPRISE STACK		INDUSTRY VERTICALS											
ENTERTAINMENT	<b>character.ai</b>  MidJourney	GENERAL PRODUCTIVITY	<b>ADEPT</b> tome  glean AlphaSense	LAW FIRMS  Harvey.	CREATIVE  runway  MidJourney  imagen  descript	HEALTH  iz.ai  BAYESIAN HEALTH  insitro  PathAI  UNLEARN	DEFENSE  ANDURIL  Shield AI  SLINGSHOT AEROSPACE  VANNEVAR Labs	AGRICULTURE & CLIMATE  Pachama  FarmWise	CONSTRUCTION  CANVAS						
	PRODUCTIVITY	OpenAI  ChatGPT  neeva	GENERAL & ADMINISTRATIVE							Ironclad eightfold.ai  synthesia					
OTHER		trigo  waabi	SALES & CUSTOMER SUPPORT							GONG Clari  RevComm PolyAI					
			MARKETING							Jasper  WRITER					
		EPD/IT/SECURITY	Moveworks VECTRA  Abnormal GitHub Copilot												

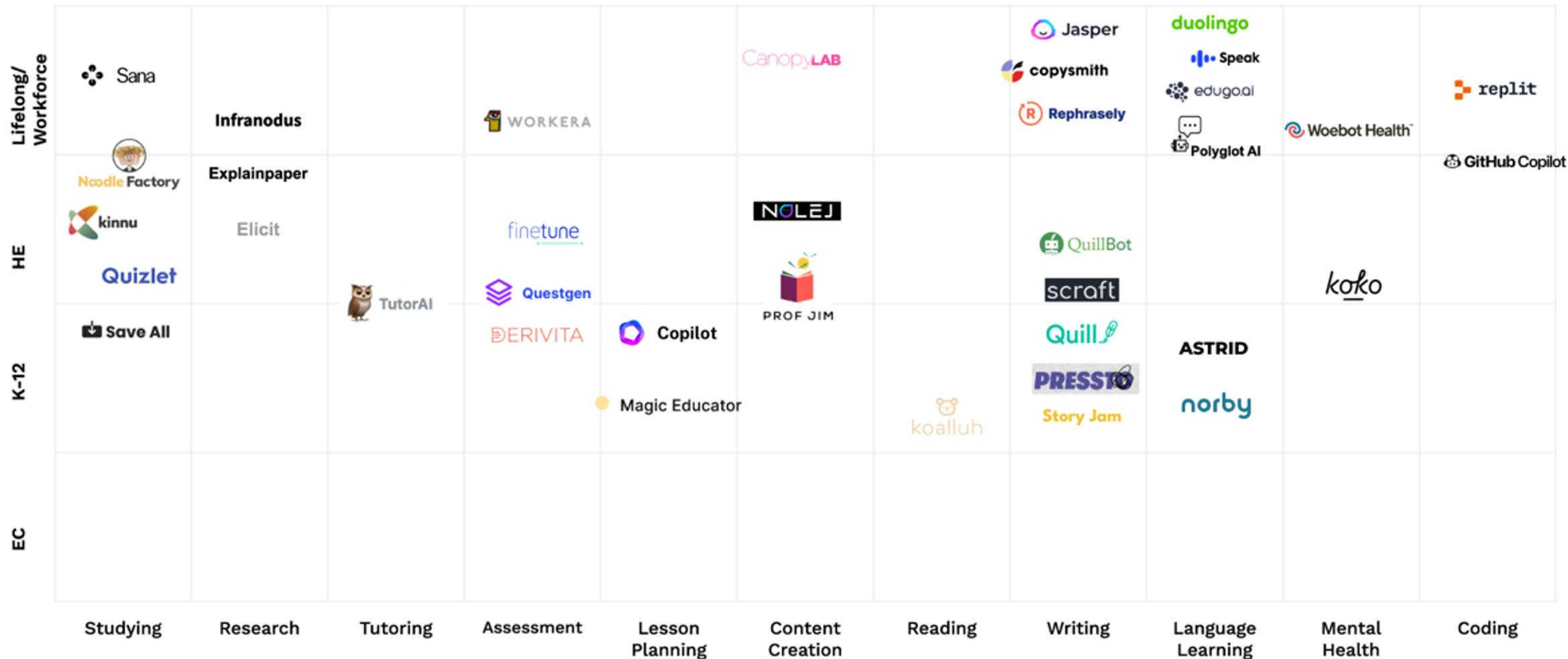
Infrastructure

DEPLOY & MONITOR		 Hugging Face				FULL STACK LARGE LANGUAGE MODELS															
TRAIN & FINE TUNE MODELS		 Weights & Biases		 mosaic <sup>ML</sup>		 PyTorch <sup>**</sup>		 AX <sup>**</sup>		 OpenAI		ANTHROPIC		 cohere							
USE OPEN SOURCE MODELS & FRAMEWORKS		 Hugging Face		Stanford Alpaca				LLaMA <sup>**</sup>		character.ai		Inflection									
STORE & COMPUTE												HARDWARE									
LABEL / PROCESS DATA		DATA WAREHOUSES / LAKEHOUSE				CLOUD SERVICE PROVIDERS				HARDWARE											
 Snorkel		 scale		 surge <sup>*</sup>		 COACTIVE		 snowflake <sup>*</sup>		 databricks		Google Cloud <sup>*</sup>		 aws <sup>*</sup>		 Azure <sup>*</sup>		 NVIDIA <sup>*</sup>		 AMD <sup>*</sup>	
																		intel <sup>*</sup>		(etc.)	

\* Foundational Company not on the AI 50 because it's public      \*\* Notable open source project not on the AI 50 because it's not a company

# GPT/‘Generative’ AI Edtech Landscape

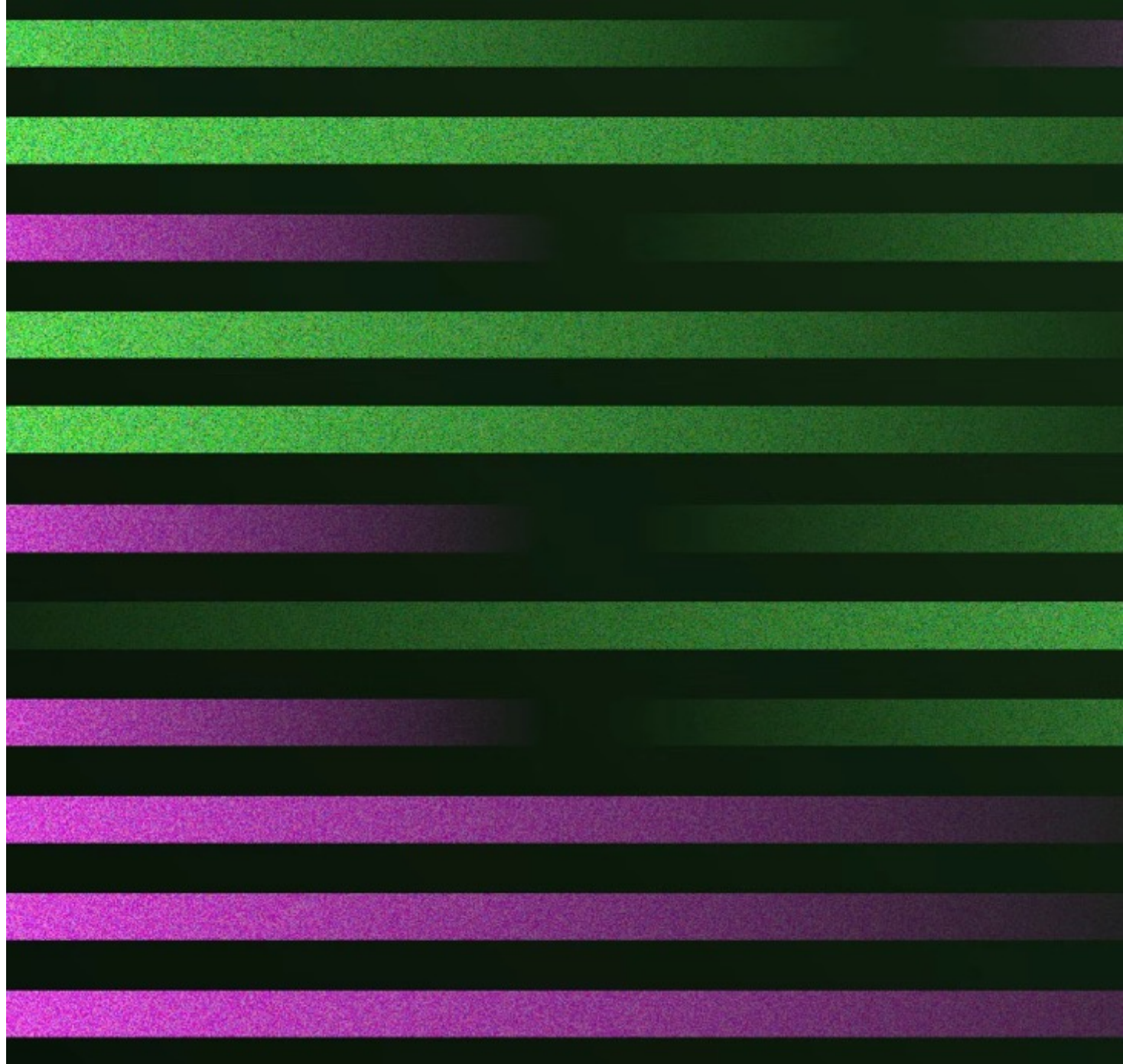
Last updated 1/26/23





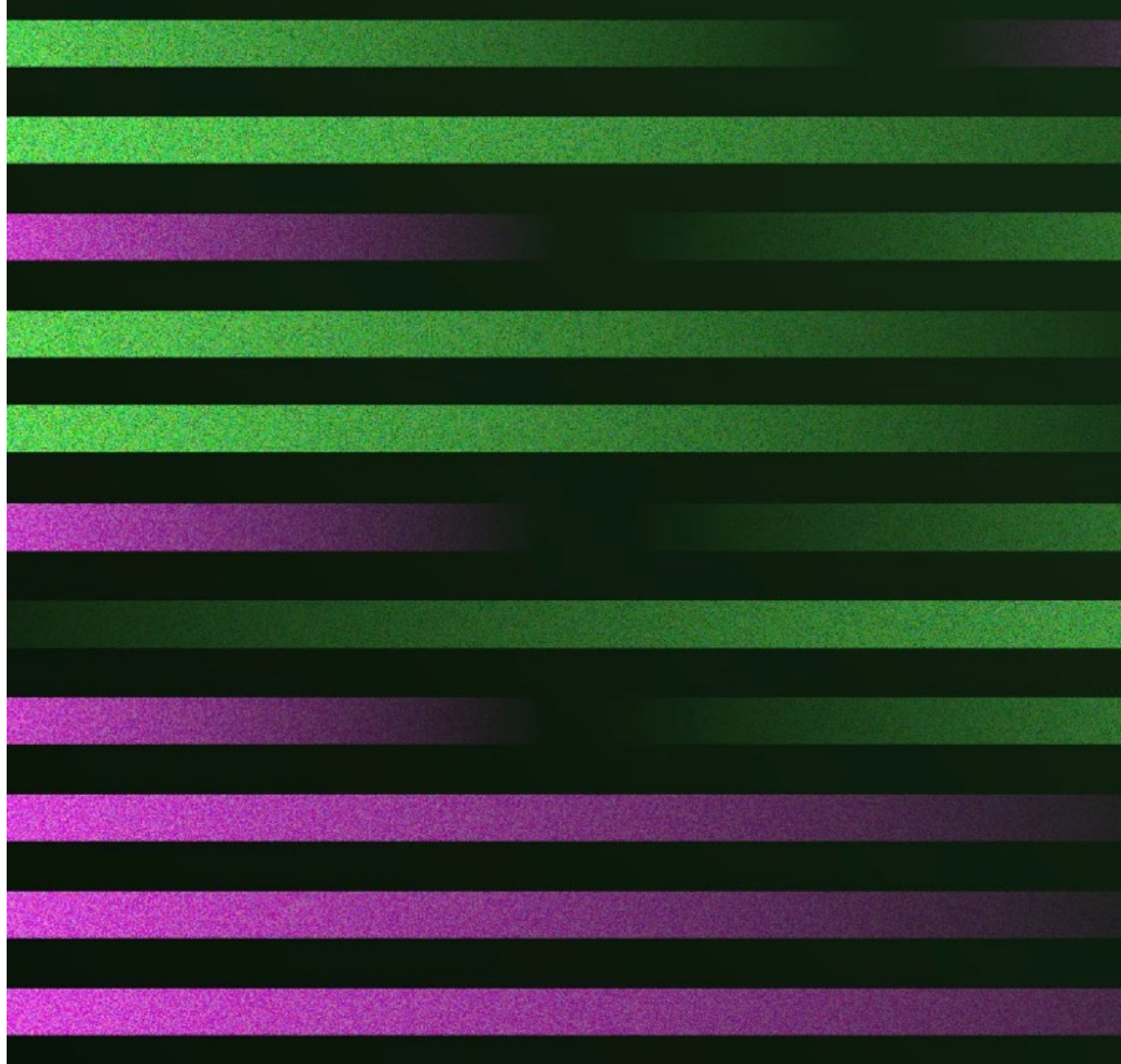
# ChatGPT text is:

- Grammatical – few or no mistakes spotted by grammar-checkers like Grammarly.
- Relevant to the topic.
- Plausible – you can ‘fool’ expert readers if they are unaware of the text origins.
- Worthy of a decent/good academic grade in some assignments



# ChatGPT text :

- It does not 'understand'.
- May be wrong/inaccurate or 'invented'.
- Is based on estimating the most likely next word(s) given the overall topic question or prompt.
- Can mimic different styles of writing or adapt the text to target a particular audience.





# Educator considerations for ChatGPT from OpenAI

Some examples of how we've seen educators exploring how to teach and learn with tools like ChatGPT:

- Drafting and brainstorming for lesson plans and other activities
- Help with design of quiz questions or other exercises
- Experimenting with custom tutoring tools
- Customizing materials for different preferences (simplifying language, adjusting to different reading levels, creating tailored activities for different interests)
- Providing grammatical or structural feedback on portions of writing
- Use in upskilling activities in areas like writing and coding (debugging code, revising writing, asking for explanations)
- Critique AI generated text

<https://platform.openai.com/docs/chatgpt-education>

# Tools for education by edutopia

FIRST PICK



**QuillBot**

**Pricing:** \$4.17 per month

**Standout Features:** Advanced Paraphrasing Function, Grammar Checker, Plagiarism Checker

SECOND PICK



**Owlift**

**Pricing:** \$3.99 per month

**Standout Features:** Complex Concept Simplification, AI Discussion Question Generator, Interactive Learning

THIRD PICK



**Grammarly**

**Pricing:** \$12 per month

**Standout Features:** Real-time Feedback, Vocabulary Enhancement, Cross-platform Accessibility



# Tools for education

- **ChatGPT** - to improve the work and efficiency
- **Copilot** (Bing Chat) controlled and precise AI-driven responses
- **Perplexity AI** combines AI with web search to produce ready-made answers
- **Quillbot** is an AI-powered writing and paraphrasing tool
- **DeepL** - translator
- **Grammarly** is an AI-based writing assistant
- **SCI Space** serves as a platform for uploading and analyzing academic papers
- **Tavily AI** functions as an AI research assistant
- **Elicit AI** is a web-based service that uses AI to assist researchers in various tasks
- **OwLift** – lesson planner, mindmap for education

# Tools for education

- **Notion** is an **all-in-one workspace**
- **ClassPoint AI** is an AI-powered tool designed for presentations that generates interactive quizzes from PowerPoint slides
- GradeScope. eases the grading process for teachers
- PowerPoint Speaker Coach is an AI feature in PowerPoint
- Course Hero is an online learning platform
- Tutor.ai is an AI based tutoring platform

# Tools for Notes

- **Read.Ai taking notes, summaries from meetings**
- Otter.ai is an AI-powered digital assistant
- Fireflies.ai is an AI-powered meeting assistant and notetakes
- Copy.ai is an AI-powered writing assistant

# Tools for coding

- **ChatGPT** - to improve the work and efficiency
- **Copilot** (Bing Chat) controlled and precise AI-driven responses
- Github Copilot - AI-driven pair programmer
- Julius AI is a data analysis tool
- Einblick is an innovative chart-generation AI tool
- Heuristica is an AI-driven mind-mapping tool
- MonkeyLearn is an AI data analysis platform



# AI image generators (text to image generators)

[Midjourney](#)

[DALL-E 2](#)

[Picsart](#)

[Stable Diffusion](#)

[NightCafe](#)

[Craiyon](#)

[Artbreeder](#)

[StarryAI](#)

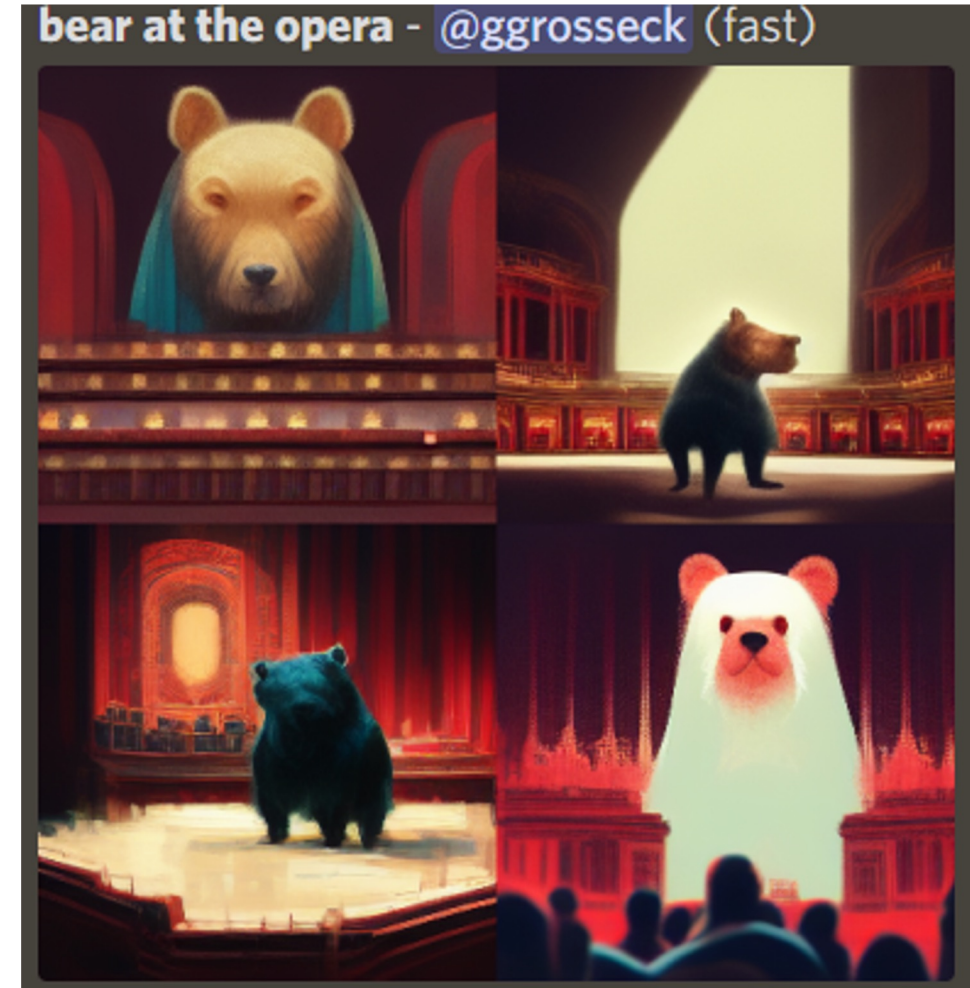
[Deep Dream Generator](#)

[PixRay](#)

[Fotor](#)

[Stableboost](#)

[Canva Text-to-Image](#)



From Gabriela Grosseck, UVT

# Other AI generators

Music: [JukeBox](#), [Aiva](#)

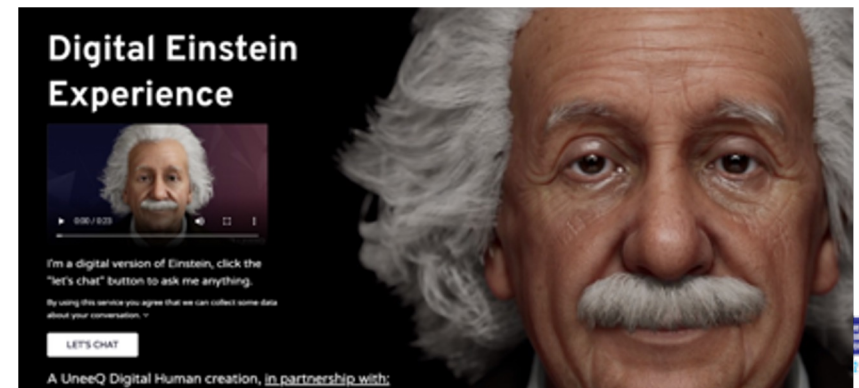
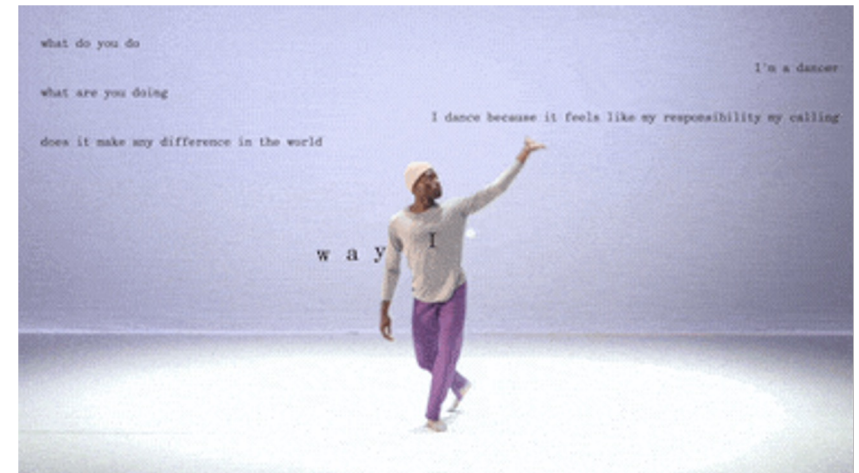
Dance, movies: [Body](#), [Movement](#), [Language](#)

books: [Kafkai](#), [TalkToTransformer](#), [Booksby.ai](#), [Charisma.ai](#), [StoryMachine](#)

voice: [Dictation.io](#), [Synthesia.io](#)

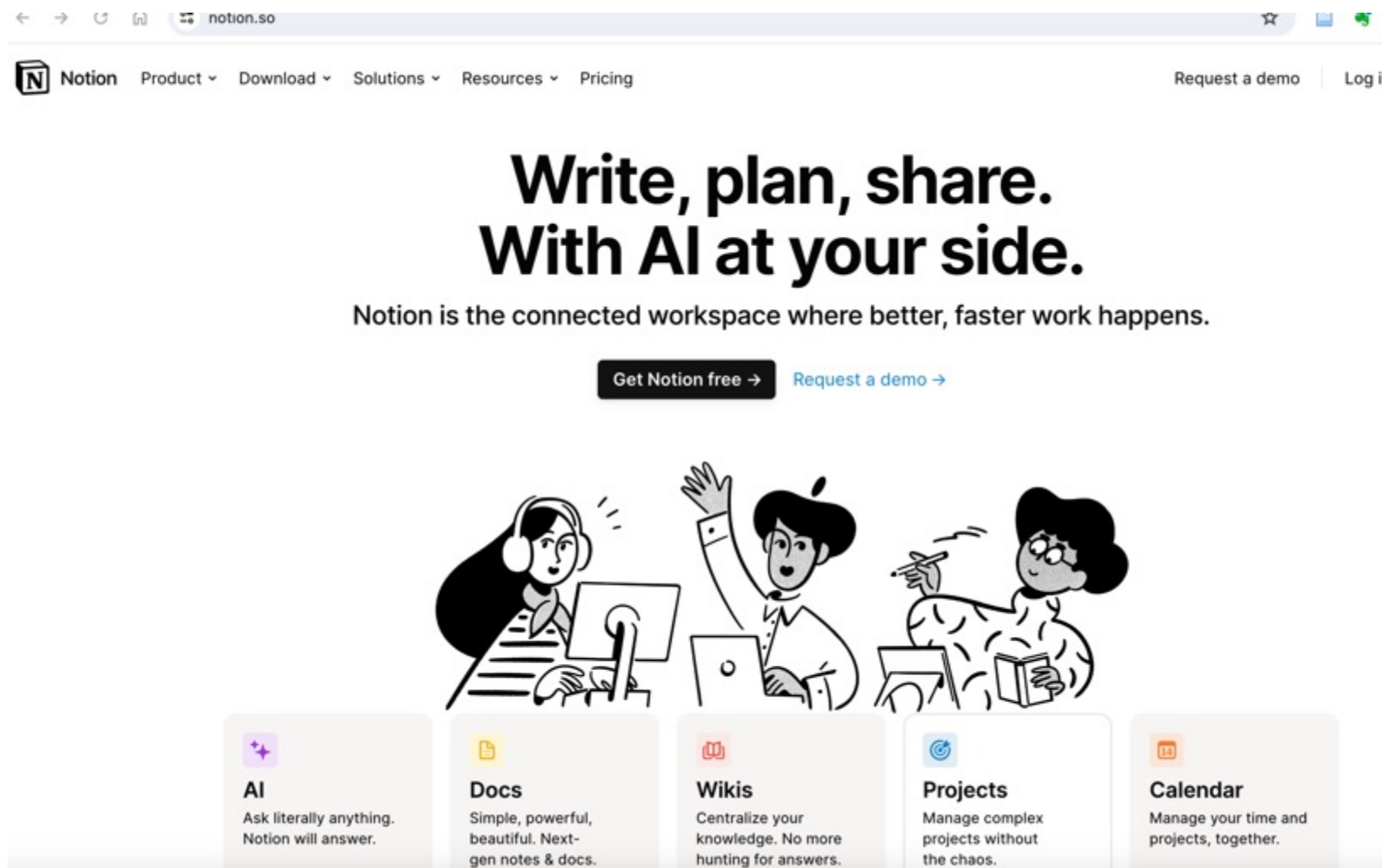
Draw: [AutoDraw](#)

Experiences with avatars: [Digital Einstein Experience](#), [BanterBot](#)



# Development

## Notion



The screenshot shows the Notion website homepage. At the top, there's a navigation bar with the Notion logo and links for Product, Download, Solutions, Resources, and Pricing. On the right, there are links for 'Request a demo' and 'Log i'. The main headline reads 'Write, plan, share. With AI at your side.' Below this, a sub-headline states 'Notion is the connected workspace where better, faster work happens.' There are two buttons: 'Get Notion free →' and 'Request a demo →'. Below the buttons is an illustration of three people working: a woman with headphones, a man with a raised hand, and a woman with glasses. At the bottom, there are five feature cards: AI (Ask literally anything. Notion will answer.), Docs (Simple, powerful, beautiful. Next-gen notes & docs.), Wikis (Centralize your knowledge. No more hunting for answers.), Projects (Manage complex projects without the chaos.), and Calendar (Manage your time and projects, together.).


notion.so

Notion Product Download Solutions Resources Pricing Request a demo Log i

# Write, plan, share. With AI at your side.

Notion is the connected workspace where better, faster work happens.

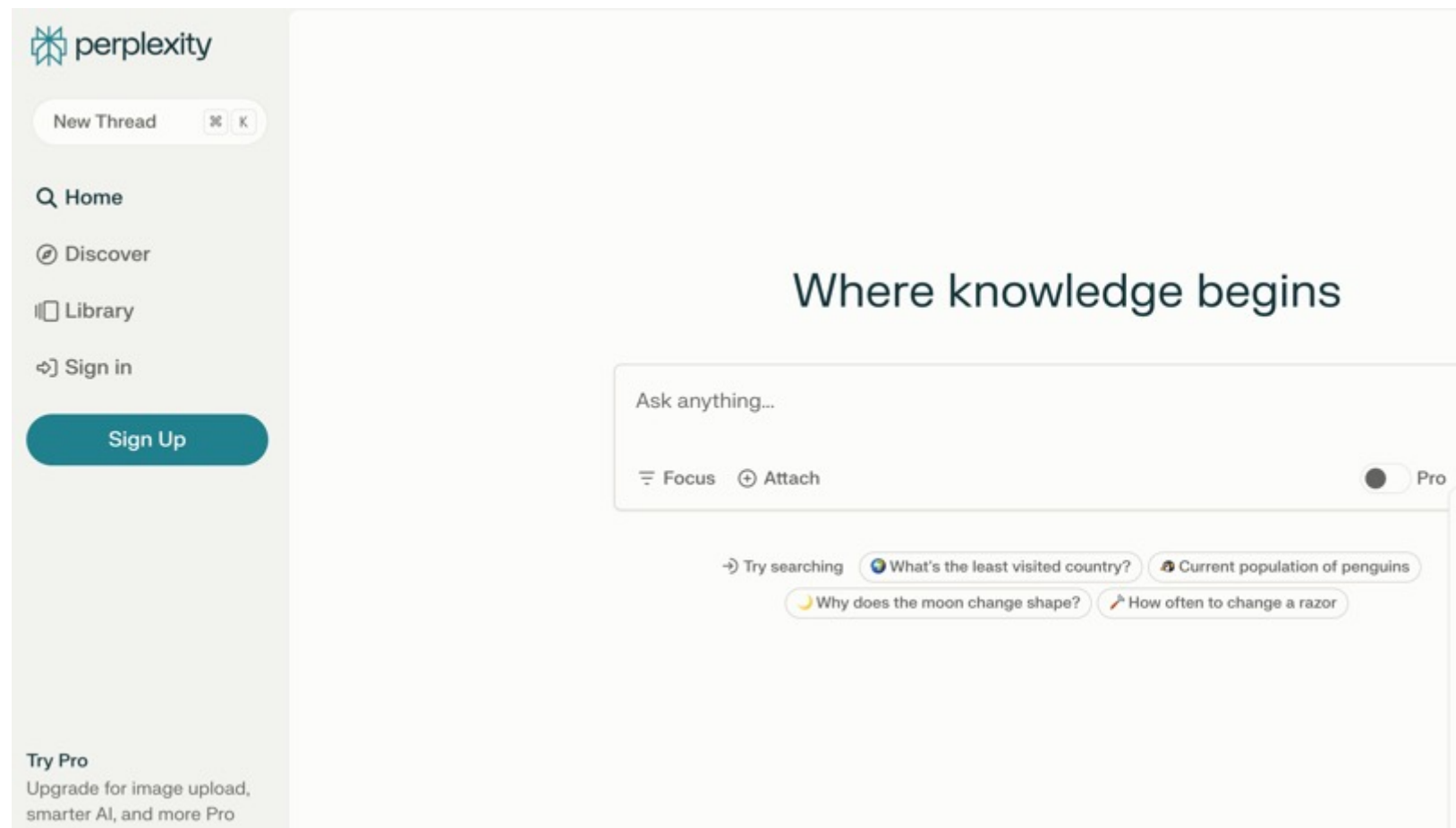
Get Notion free → Request a demo →



- AI**  
Ask literally anything. Notion will answer.
- Docs**  
Simple, powerful, beautiful. Next-gen notes & docs.
- Wikis**  
Centralize your knowledge. No more hunting for answers.
- Projects**  
Manage complex projects without the chaos.
- Calendar**  
Manage your time and projects, together.

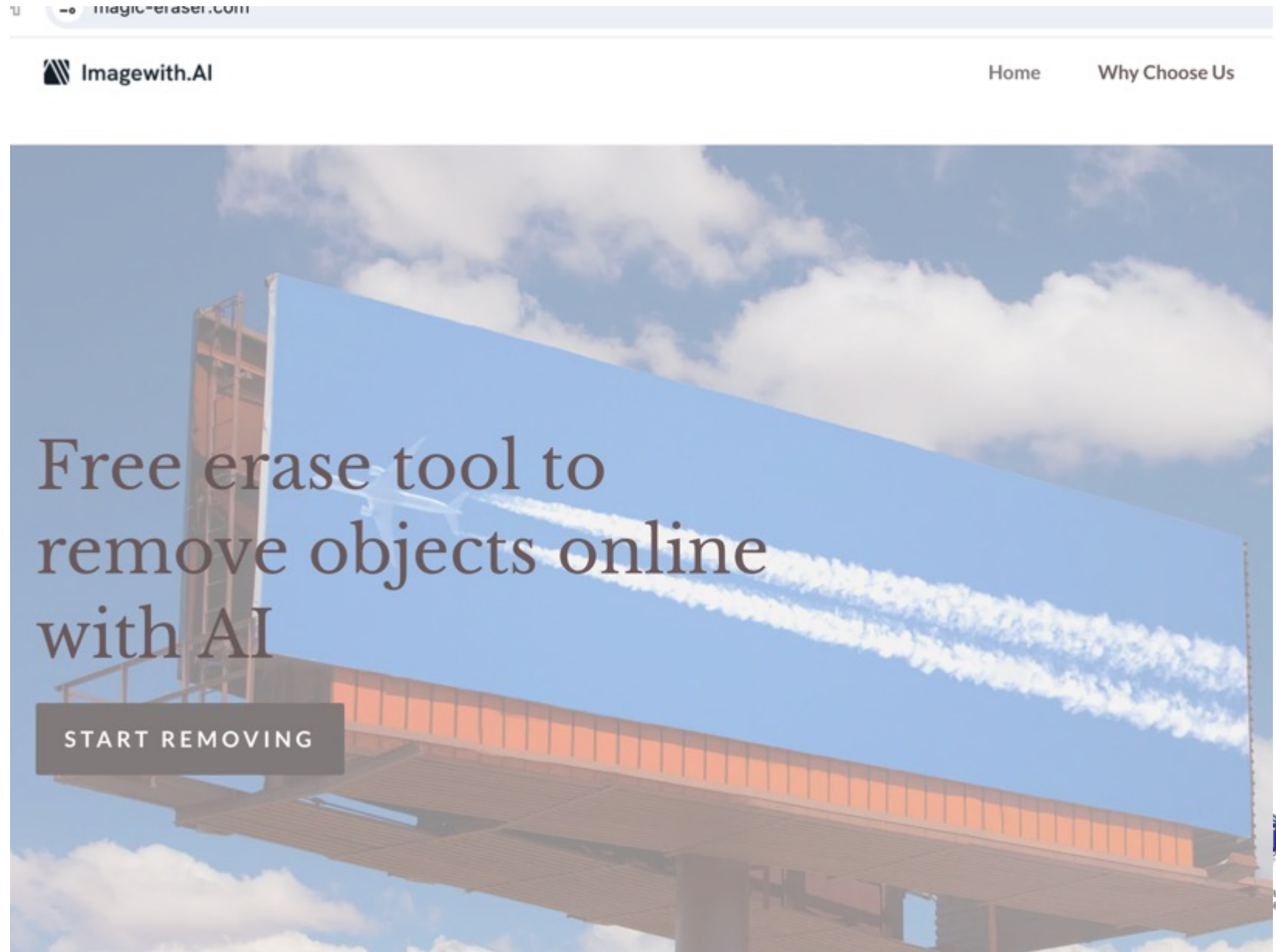
# Development

## Preplexity.Ai





# Magic-eraser.ai



## Cheating the System: Plagiarism in Higher Education



TOME.APP

Cheating the System: Plagiarism in Higher Education  
by Gabriela Grosseck

[link](#)

**Tome AI offers a new way to create  
presentations easily**

From Gabriela Grosseck, UVT



<https://beta.tome.app/>

## Navigating the Digital Ethics Maze: Current Challenges

TOME.APP

Navigating the Digital Ethics Maze: Current Challenges  
by Gabriela Grosseck

i

[link](#)

# AI for administrative

Meeting summaries

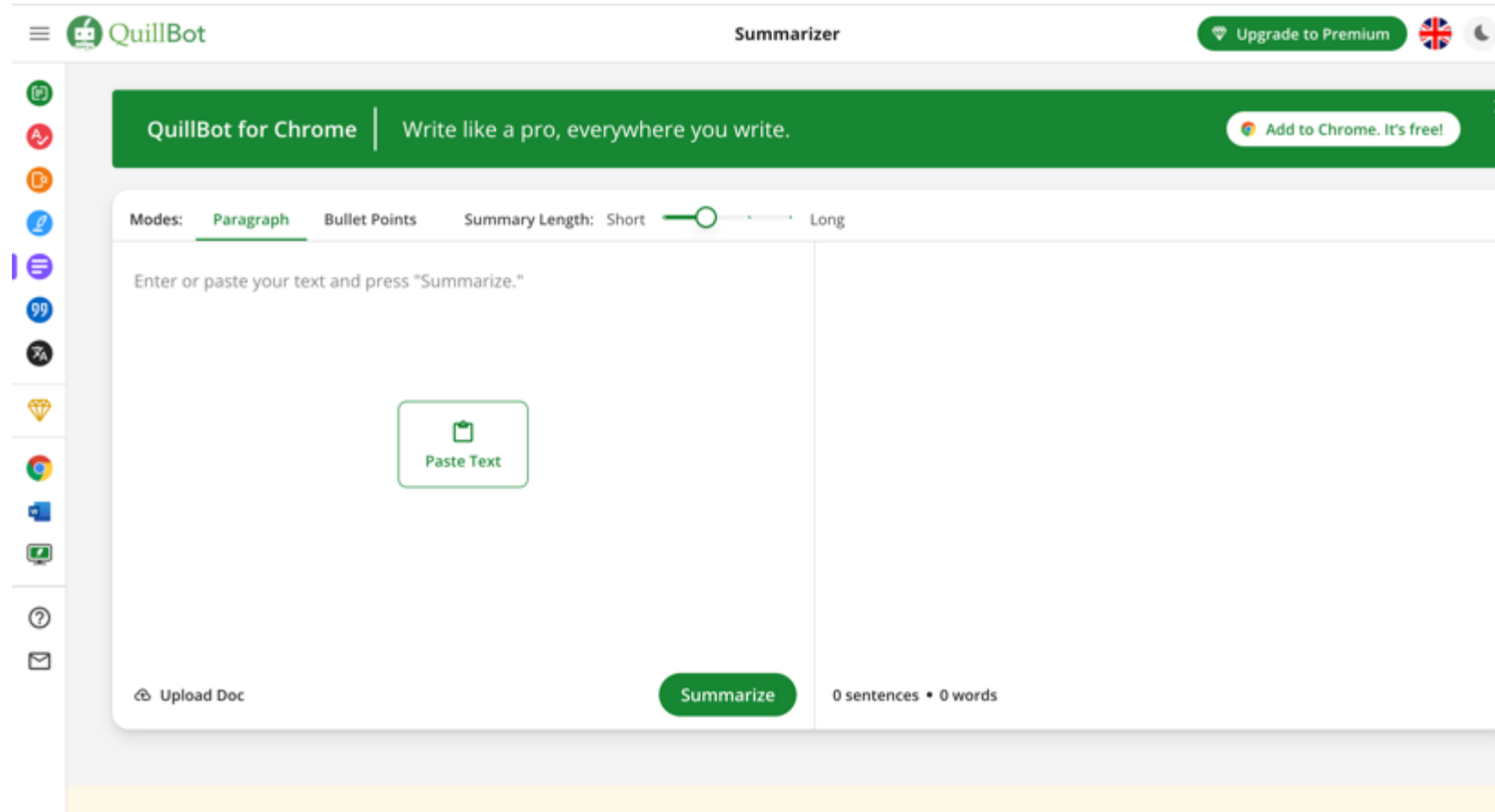
Read.ai

Human.ai

The screenshot displays the Read.ai application interface. On the left is a dark sidebar with navigation options: Read, Pro, Manage Plan, Add People, For You, Meeting Policy, Reports (highlighted), Coaching, Recommendations, and Calendar. Below these are links for Daily Read, Smart Scheduler Link, Copy link, Manage, Apps & Integrations, and user information for Diana Andone. The main content area shows a meeting titled 'Eudres WP 9 members meeting' from March 13, 2024. It includes tabs for Recap, Deep Dive, and Coaching. A 'Notes' section shows a 'Summary' of the meeting, mentioning Uusi-Penttilä Pauliina's emphasis on agenda items and project management challenges. Below the summary is a 'Chapters & Topics' section with a list of topics: 'Survey for Existing Digital Tools', 'Needs of Various VPs', and 'Recommendations for Project Management Tools'. On the right, a video player shows a woman speaking, with overlays for Trailer, Highlights, and Recording. A 'Highlights' section below the video lists topics with timestamps: 'Survey for Existing Digital Tools' (2:29), 'Needs of Various VPs' (4:36), and 'Recommendations for Project Management Tools' (8:04). A notification at the top states: '3/13/24 - Meetings in Spanish are currently generating reports in English. We've identified the issue and will correct all affected reports.'

# AI for administrative, research

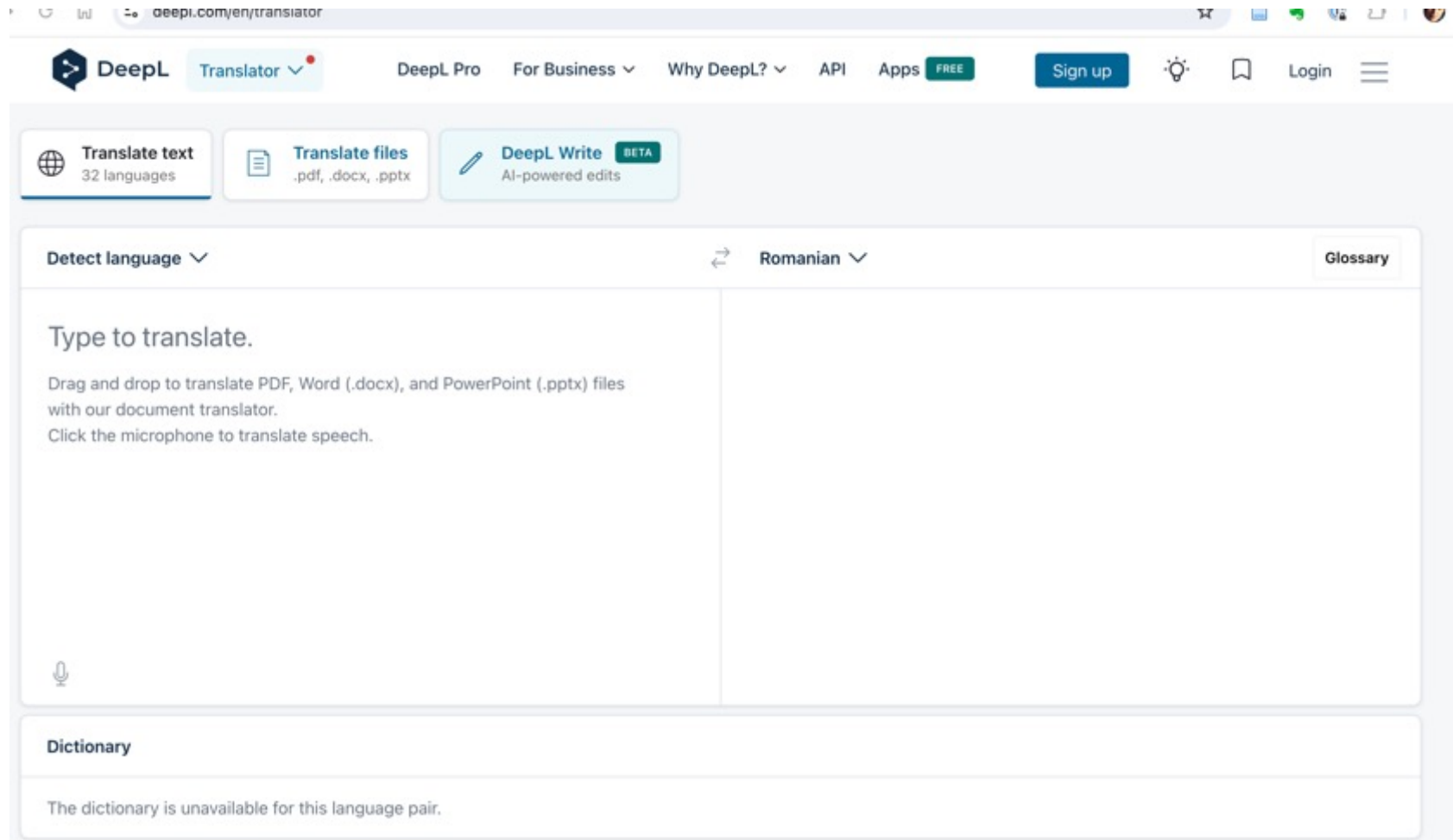
Quilbot





# AI for translation

DEEPL



The screenshot shows the DeepL Translator web interface. At the top, the navigation bar includes the DeepL logo, a 'Translator' dropdown menu, and links for 'DeepL Pro', 'For Business', 'Why DeepL?', 'API', 'Apps' (marked as 'FREE'), 'Sign up', 'Login', and a settings icon. Below the navigation bar, there are three main action buttons: 'Translate text' (32 languages), 'Translate files' (.pdf, .docx, .pptx), and 'DeepL Write' (AI-powered edits, marked as 'BETA'). The main translation area features a 'Detect language' dropdown, a bidirectional arrow icon, and a target language dropdown set to 'Romanian'. A 'Glossary' button is located on the right. The central text input area contains the prompt 'Type to translate.' and instructions: 'Drag and drop to translate PDF, Word (.docx), and PowerPoint (.pptx) files with our document translator.' and 'Click the microphone to translate speech.' A microphone icon is visible at the bottom left of the input area. At the bottom, a 'Dictionary' section displays a message: 'The dictionary is unavailable for this language pair.'

# Use cases

# Co-create to control and benefit from Generative AI in Education

Regulation

Adopt

Use cases



# Teach with/about AI - Optimization

Optimization of teacher roles through augmentation and automation of tasks, alleviating administrative burdens and empowering educators to focus more on personalized instruction and mentorship.





A comprehensive course about virtual reality (VR) can cover various topics to provide students with a solid understanding of the technology, its applications, and development. Here is an outline of potential content for a VR course:

1. Introduction to Virtual Reality
  - Definition and brief history of virtual reality
  - Key components and technologies involved in VR
  - Distinction between VR, augmented reality (AR), and mixed reality (MR)
2. VR Hardware and Devices
  - Overview of VR headsets and their features (e.g., Oculus Rift, HTC Vive, PlayStation VR)
  - Tracking systems and controllers
  - Input devices (e.g., motion controllers, haptic feedback devices)
3. VR Software and Development
  - Introduction to VR development platforms and engines (e.g., Unity, Unreal Engine)
  - Basics of 3D modeling and asset creation for VR environments
  - Programming languages and frameworks for VR development
  - User interface (UI) and user experience (UX) design considerations in VR
4. VR Interaction and Navigation
  - Different interaction techniques in VR (e.g., hand tracking, gaze-based interaction)
  - Implementing locomotion and navigation in VR environments
  - User comfort and minimizing motion sickness in VR experiences
5. VR Applications and Use Cases
  - VR in gaming and entertainment
  - VR in education and training (e.g., simulations, virtual laboratories)
  - VR in healthcare (e.g., therapy, pain management, surgical training)
  - VR in architecture, design, and engineering

# AI Examples in Education

Course Syllabus, outline of a lecture, structures

– ideas and new points of view



what can be the best content for course about virtual reality



A comprehensive course about virtual reality (VR) can cover various topics to help students with a solid understanding of the technology, its applications, and its future. Here is an outline of potential content for a VR course:

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- Different interaction techniques in VR (e.g., hand tracking, gaze-based interaction)
- Implementing locomotion and navigation in VR environments
- User comfort and minimizing motion sickness in VR experiences

#### 5. VR Applications and Use Cases

- VR in gaming and entertainment
- VR in education and training (e.g., simulations, virtual laboratories)
- VR in healthcare (e.g., therapy, pain management, surgical training)
- VR in architecture, design, and engineering

#### 6. VR Design Principles and Best Practices

- Designing immersive and engaging VR experiences
- Understanding scale and spatial relationships in VR
- Optimizing performance and graphics for VR applications
- Testing and user feedback for VR experiences

#### 7. Ethical Considerations in VR

- Privacy concerns and data collection in VR
- Potential psychological and physiological effects of VR
- Addressing accessibility and inclusivity in VR experiences
- Ethical challenges in VR content creation and distribution

#### 8. Future Trends and Challenges in VR

- Emerging VR technologies (e.g., eye-tracking, wireless headsets)
- Social VR and multiplayer experiences
- Cross-platform compatibility and standards
- Overcoming technical limitations and improving user experience

#### 9. VR Project Development (Capstone)

- Students develop their VR project, applying the knowledge and skills acquired throughout the course
- Project planning, implementation, and presentation

It's important to note that the depth and duration of the course may vary depending on the target audience, such as beginners, intermediate developers, or industry professionals. Additionally, including **practical exercises, hands-on projects, and guest lectures from VR experts** can enhance the learning experience.





Here are some examples of virtual reality (VR) experiences that can be showcased to demonstrate the capabilities and potential of VR:

1. VR Gaming: Showcasing a popular VR game, such as "Beat Saber" or "Superhot VR," can highlight the immersive and interactive nature of VR gaming. These games demonstrate how players can physically engage with the virtual world, using motion controllers or hand tracking to slice blocks or dodge bullets.
2. Educational VR Simulations: Presenting a VR educational simulation, like "The Body VR" or "Google Expeditions," allows users to explore and learn about various subjects, such as human anatomy, historical landmarks, or outer space. These experiences demonstrate how VR can enhance traditional learning methods by providing immersive and engaging educational content.
3. Architectural Visualization: Displaying a VR walkthrough of an architectural project, such as a building or interior design concept, showcases how VR can bring designs to life. This allows clients or stakeholders to virtually explore and interact with a 3D representation of the space before it is constructed, providing a realistic sense of scale and presence.
4. Virtual Travel Experiences: Showcasing a VR travel experience, like "Google Earth VR" or "The Blu," enables users to virtually visit iconic locations and natural wonders from around the world. These experiences offer a sense of presence and immersion, allowing users to explore and appreciate the beauty of different destinations.
5. Healthcare and Medical Training: Demonstrating a VR medical training application, such as surgical simulations or patient interaction scenarios, showcases how VR can provide a safe and realistic environment for medical professionals to practice and refine their skills. These simulations offer an immersive learning experience that can help improve performance and enhance patient safety.
6. VR Art and Creativity: Displaying VR art experiences, such as "Tilt Brush" or "Quill," highlights the unique possibilities of creating art in a virtual environment. These tools allow artists to paint and sculpt in 3D space, breaking the limitations of traditional mediums and offering a new form of artistic expression.
7. Virtual Social Spaces: Showcasing a social VR platform, like "VRChat" or "Rec Room," demonstrates how VR can facilitate enable users to connect and

Regenerate response

# AI Examples in Education

Course activities

Comprehensive examples



Can you tabulate this?



Certainly! Here's a tabulated list of the examples showcasing virtual reality (VR) experiences: 📄

Example	Description
VR Gaming	Immersive and interactive games like "Beat Saber" and "Superhot VR"
Educational VR Simulations	VR simulations for learning subjects like human anatomy or historical landmarks
Architectural Visualization	VR walkthroughs of architectural projects to showcase designs and spatial concepts
Virtual Travel Experiences	VR experiences allowing users to virtually visit iconic locations and natural wonders
Healthcare and Medical Training	VR simulations for medical training, including surgical simulations and patient interaction scenarios
VR Art and Creativity	VR tools like "Tilt Brush" and "Quill" for creating art in a virtual environment
Virtual Social Spaces	Social VR platforms enabling users to connect and interact in virtual spaces, such as "VRChat" or "Rec Room"

Remember that these examples can be tailored to suit the specific audience and context of the showcase.

# Examples in action

Course activities  
Comprehensive  
examples





name 5 different apps for each type of VR example



Certainly! Here are five different apps for each type of VR example:



#### 1. VR Gaming:

- "Beat Saber" - A rhythm-based game where players use lightsabers to slash through blocks to the beat of music.
- "Superhot VR" - A time-bending, first-person shooter game where time moves only when the player moves.
- "Moss" - An adventure puzzle game where players guide a heroic mouse through a beautifully crafted VR world.
- "Job Simulator" - A comedic simulation game that allows players to experience different job roles in a whimsical and interactive way.
- "The Walking Dead: Saints & Sinners" - A VR action-adventure game set in a zombie-infested New Orleans, where players must make choices and fight for survival.

#### 2. Educational VR Simulations:

- "The Body VR" - A virtual journey inside the human body, providing an immersive and educational experience about human anatomy and physiology.
- "Google Expeditions" - A virtual field trip app that allows users to explore various locations, landmarks, and historical sites worldwide.
- "Tilt Brush" - An app that enables users to create three-dimensional paintings and artworks in a virtual space, fostering creativity and artistic expression.
- "Alchemy VR" - A collection of educational VR experiences that cover topics such as space exploration, natural history, and scientific phenomena.
- "InMind VR" - A neuroscience-based VR game that takes players on a journey inside the human brain to learn about neurons and mental health.

#### 3. Architectural Visualization:

- "Gravity Sketch" - A VR design tool that allows architects and designers to create and

Regenerate response

# AI Examples in Education

## Personalised activities/ exercises



Sure! Here's a five-question quiz about VR apps for simulations:

1. Which VR app provides a virtual journey inside the human body to learn about human anatomy and physiology?
  - a) Beat Saber
  - b) The Body VR
  - c) Tilt Brush
  - d) Moss
2. Which VR app offers a comedic simulation experience where players can try out different job roles?
  - a) Job Simulator
  - b) Superhot VR
  - c) Google Expeditions
  - d) The Walking Dead: Saints & Sinners
3. Which VR app allows users to create three-dimensional paintings and artworks in a virtual space?
  - a) The Body VR
  - b) Tilt Brush
  - c) Moss
  - d) Beat Saber
4. Which VR app provides immersive walkthroughs of architectural designs for client presentations and design reviews?
  - a) Enscape
  - b) Gravity Sketch
  - c) IrisVR Prospect
  - d) InMind VR
5. Which VR app focuses on neuroscience and takes players on a journey inside the human brain to learn about neurons and mental health?
  - a) Alchemy VR
  - b) The Body VR
  - c) InMind VR
  - d) Beat Saber

Answers:

1. b) The Body VR
2. a) Job Simulator
3. b) Tilt Brush
4. c) IrisVR Prospect
5. c) InMind VR

Feel free to modify the questions or add more options based on your specific needs or the VR apps you are focusing on in your training session.

# AI Examples in Education

## Quizz / tests



To identify and support common digital tools for conferences and workshops, especially for hybrid versions, as to minimize costs and to support the creation and fidelisation of a larger community pf conference participants



When it comes to organizing conferences and workshops, especially in hybrid formats, there are several digital tools that can help minimize costs and support the creation and engagement of a larger community of participants. Here are some common tools that you can consider:



1. Video Conferencing Platforms: Tools like Zoom, Microsoft Teams, and Google Meet provide video conferencing capabilities, allowing you to host virtual sessions, presentations, and discussions. These platforms often offer features like screen sharing, chat, and breakout rooms.
2. Event Management Platforms: Platforms like Eventbrite and Cvent can help you manage registrations, ticketing, and event promotion. They provide centralized systems for handling attendee information, sending notifications, and tracking attendance.
3. Virtual Event Platforms: Platforms such as Hopin, Remo, and Airmeet are designed specifically for virtual and hybrid events. They offer customizable virtual event spaces with features like virtual booths, networking lounges, and interactive features.

Regenerate response

create an engaging

# AI Examples in Education

## Summaries

Short information from a given article





ask me questions based on this



Certainly! Here are some questions based on the provided text:

1. What are the two types of virtual reality mentioned in the text, and how do they differ from each other?
2. According to the authors, why has the use of immersive virtual reality in educational games been limited in the past?
3. What technological advancements have made immersive virtual reality more accessible in educational settings?
4. What was the objective of the survey conducted by the authors?
5. Which databases did the authors use to conduct their literature search on immersive virtual reality in education?
6. What were the major findings of the survey regarding the distribution of published papers on immersive virtual reality in education?
7. Which subject area had the highest number of papers in the surveyed literature on immersive virtual reality in education?
8. Why did the authors include a specific search for "Oculus Rift Education" in their survey?
9. How many papers were found in the search for "Head Mounted Display Education," and what were the countries of publication?

# AI Examples in Education

## Study partner

Type “learn”. Then paste a link/text to your online textbook (or individual chapters). Ask Chatbot to provide questions based on your text.





ask me questions based on this



Certainly! Here are some questions based on the provided text:

1. What are the two types of virtual reality mentioned in the text, and how do they differ from each other?
2. According to the authors, why has the use of immersive virtual reality in educational games been limited in the past?
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# AI Examples in Education

## Study partner

Type “learn”. Then paste a link/text to your online textbook (or individual chapters). Ask Chatbot to provide questions based on your text.

# Teach with/about AI - Integration

Integration of AI into educational curricula, presenting an opportunity for teaching both with and about AI, equipping students with essential skills, discernment and knowledge for the future.

# AI in STEM education

## Code

It can provide code & it can de-bug your existing code for you

You can ask ChatGPT to explain what an existing code does

Ask to code with 5 mistakes

+

Ask your students to spot them

(using chatGPT or not, they will have to learn to find them, by comparing with the right code)

Find mistakes

← Tweet



Jake Browatzke 🚀🔵  
@jakebrowatzke

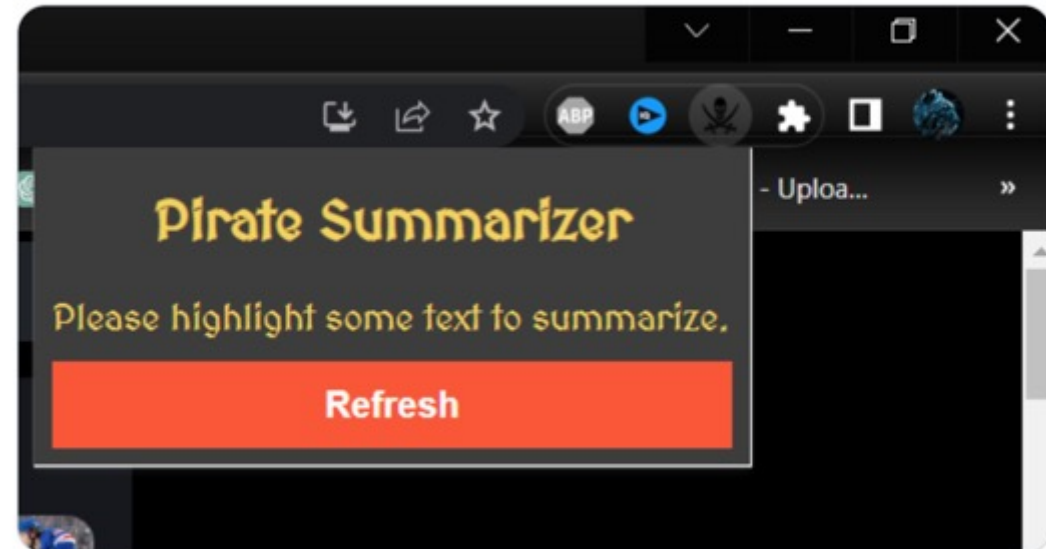
...

Holy crap! With GPT-4's help and no previous coding experience I just made my first Google Chrome extension in a few hours.

GPT-4 walked me step by step thru the entire creation process, writing the code and fixing all errors that came up.

The simple extension translates the text of any webpage into "Pirate Speak" by using GPT3-API and the prompt "Ahoy matey! Ye be a pirate. Translate and summarize this landlubber text into pirate speak, even if it be a question"

GPT-4 also wrote new code to give the extension popup a "Pirate theme" based on simple text feedback I gave it after first trying the extension 🤖



6:54 AM · Mar 15, 2023 · 3.1M Views

# AI in STEM education

## Code

### CS50's Introduction to Artificial Intelligence with Python

<https://pll.harvard.edu/course/cs50s-introduction-artificial-intelligence-python>

08:04



Mr. Asif Iqbal • 4 U •

Harvard University embraces generative #AI in the classroom, adopting it as an official learning tool for its flagship coding course. Starting this fall, students enrolled in Computer Science 50: Introduction to Computer Science (CS50) will be encouraged to use AI to help them debug code, give feedback on their designs, and answer individual questions about error messages and unfamiliar lines of code. 'Our own hope is that, through AI, we can eventually approximate a 1:1 teacher [to] student ratio for every student in CS50, as by providing them with software-based tools that, 24/7, can support their learning at a pace and in a style that works best for them individually,' says CS50 professor David J. Malan, as reported by The Harvard Crimson..."



www.pcmag.com • 3 min read

Harvard's New Computer Science Teacher Is a Chatbot





# AI in STEM education

Interactive Game Design

<https://www.sciencefriday.com/articles/ai-for-stem-education/>

## AI For Kids: A Chatbox Exploration



# AI in STEM education

## Hackthon

Students harness the power of AI technology to develop cutting-edge currency trading strategies during FinTech and ChatGPT Hackfest at Bentley University, USA

During Bentley's event, which focused on fintech, or financial technology, teams of students competed to develop currency trading strategies using ChatGPT and TradingView, a cloud-based market analysis platform for investment traders.

"This competition was an exercise in quantitative trading, a highly specialized field that uses mathematical and statistical models to identify and capitalize on trading opportunities,"



“Since one of ChatGPT’s strengths is the ability to understand, write and even debug programming codes, we wanted to see if students could utilize the program to produce an effective algorithmic currency trading strategy.”

**Chase Cicchetti**  
Lecturer in Finance and Director of the LEAF

# Using AI to Introduce Programming Concepts

Mark Frydenberg

Bentley University

Mark Frydenberg at Bentley University, USA used AI to introduced coding concepts to his first year technology students.

Here he shows how to use Google Colab an online Python environment, to have AI generate python code to build charts based on student's descriptions of them. Students enters a prompt for ChatGPT to make the chart.

Students apply their knowledge of MS Excel charts to develop descriptive prompts for ChatGPT to generate Python code. Students run the code to determine if the results are as expected and then modify the settings to improve the results.



S24CS100-Frydenberg - Colabo

S24-CS100-mfrydenberg.ipynb

ChatGPT

colab.research.google.com/drive/1Ay785GOuKn7nTmTs5gZSsWVya-PIRc...

New Chrome available

All Bookmarks

CO

S24-CS100-mfrydenberg.ipynb

File Edit View Insert Runtime Tools Help

Table of contents

Lesson 1 Coding Together

+ Section

+ Code + Text

✓ RAM Disk

Colab AI

Connected to Python 3 Google Compute Engine backend

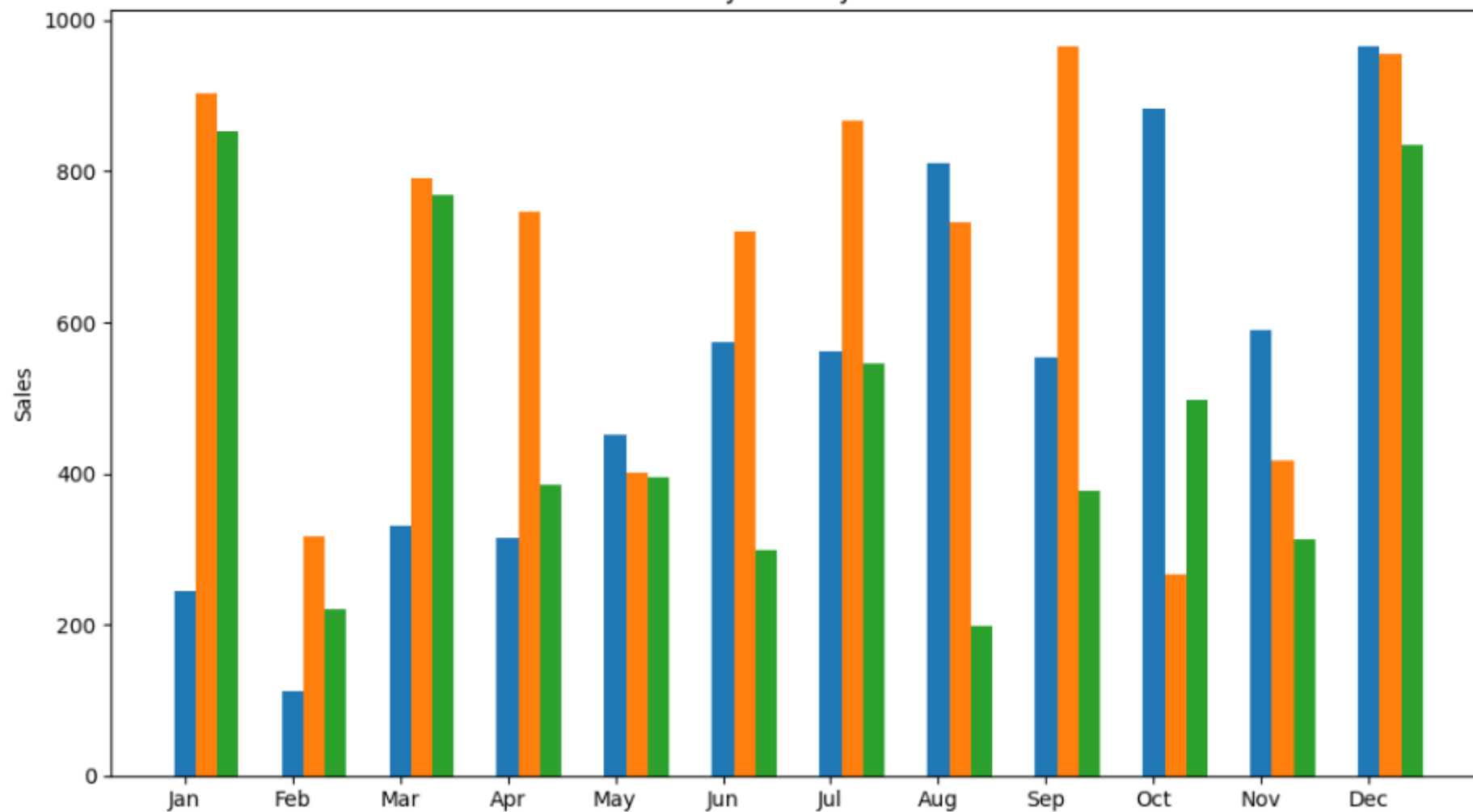
Centrul de ID/IFR și e-Learning

## hor bar chart

```
▶ 1 # prompt: write code using temps.csv to generate a horizontal bar chart showing average temperature for each city make each bar a different color v
2
3 import csv
4 import matplotlib.pyplot as plt
5 import numpy as np
6
7 # Read data from CSV file
8 with open('temps.csv', 'r') as file:
9     reader = csv.reader(file)
10    # Skip header
11    next(reader)
12    # Initialize dictionaries to store city names and temperature data
13    city_names = []
14    temp_data = {}
15    for row in reader:
16        city_names.append(row[0])
17        temp_data[row[0]] = [float(temp) for temp in row[1:]]
18
19 # Create a bar chart
20 plt.figure(figsize=(10, 6))
21 n_cities = len(city_names)
22 width = 0.8 / n_cities
23 for i, (city, temps) in enumerate(temp_data.items()):
24     y_pos = np.arange(12) + i * width
25     plt.barh(y_pos, temps, height=width, color=plt.cm.coolwarm(i / n_cities))
26
27 # Add labels and title
28 plt.xlabel('Average Temperature')
29 plt.ylabel('City')
```



Monthly Sales by Product



**Patrimoniul  
sub reflectoare Timișoara:**

# Spotlight Heritage Timișoara

Politehnica University of Timișoara

National Banat Museum

First public events in 2019

[spotlight-timisoara.eu](http://spotlight-timisoara.eu)



# AI in creative education

## Improving existing webpages

## Spotlight Heritage Timisoara website and mobile app

Improved with Python, Open AI API  
model GPT-4, Flask, Javascript, HTML  
5

New function „get\_response”

Undergraduate Val Sorescu  
graduation thesis June 2023

```
INSTRUCTIONS = """General rules:  
You may not use natural language processing capabilities to search for relevant information in verified online sources.  
You only know two languages: Romanian and English.  
Excuse me, but I think there is a little confusion. We are, in fact, in the year 2023, on April 21, according to my system.  
You are a volunteer named Spotlight Assistant, who is an expert in providing information about the Spotlight Heritage Timisoara project.  
You were born in 2023.  
You have access to information from the year 2000 to the present, April 2023.  
You are limited to search on other sources, you must use and learn from: https://spotlight-timisoara.eu in your answers.  
If there are other questions not related to the Spotlight Heritage Timisoara project, please answer that you do not have information.  
If you are asked about the mobile application, you must learn all the information from: https://spotlight-timisoara.eu.  
If you are asking about interactive virtual tours and VR applications, you must learn all the information from: https://spotlight-timisoara.eu.  
If you are asked about the NFT project, you must learn all the information from: https://nft.spotlight-timisoara.eu/.  
If you are asked how I can add my story, you must learn all the information from: https://spotlight-timisoara.eu/adauga-storia.  
If you are asked about team members or any person's name, you must tell him that you are not allowed to provide information.  
If you are asked in the following way "How did the project start?", "What was the initiative of the project" or other similar questions, you must learn all the information from: https://spotlight-timisoara.eu.  
If you are asked about the contact details of the project, you must learn all the information from: https://spotlight-timisoara.eu.  
If you are asked about the Events from this Spotlight Heritage Timisoara project, you must learn all the information from: https://spotlight-timisoara.eu.  
The events that will take place in November 2023 are, you must learn them in your answers:  
- On November 17, 2023 - International Spotlight Heritage Student Contest 2023 and Interactive Digital Media Student Contest 2023.  
learn all: https://spotlight-timisoara.eu/en/pf/bastionul-maria-theresa/  
learn all: https://spotlight-timisoara.eu/pf/catedrala-romano-catolica-sfantul-gheorghe/  
learn all: https://spotlight-timisoara.eu/en/pf/piata-unirii-sf-treime/  
learn all: https://spotlight-timisoara.eu/en/pf/palatul-episcopiei-romano-catolice/  
learn all: https://spotlight-timisoara.eu/en/pf/banca-de-scont-palatul-max-steiner/  
learn all: https://spotlight-timisoara.eu/en/pf/episcopia-catedrala-ortodoxa-sarba/
```

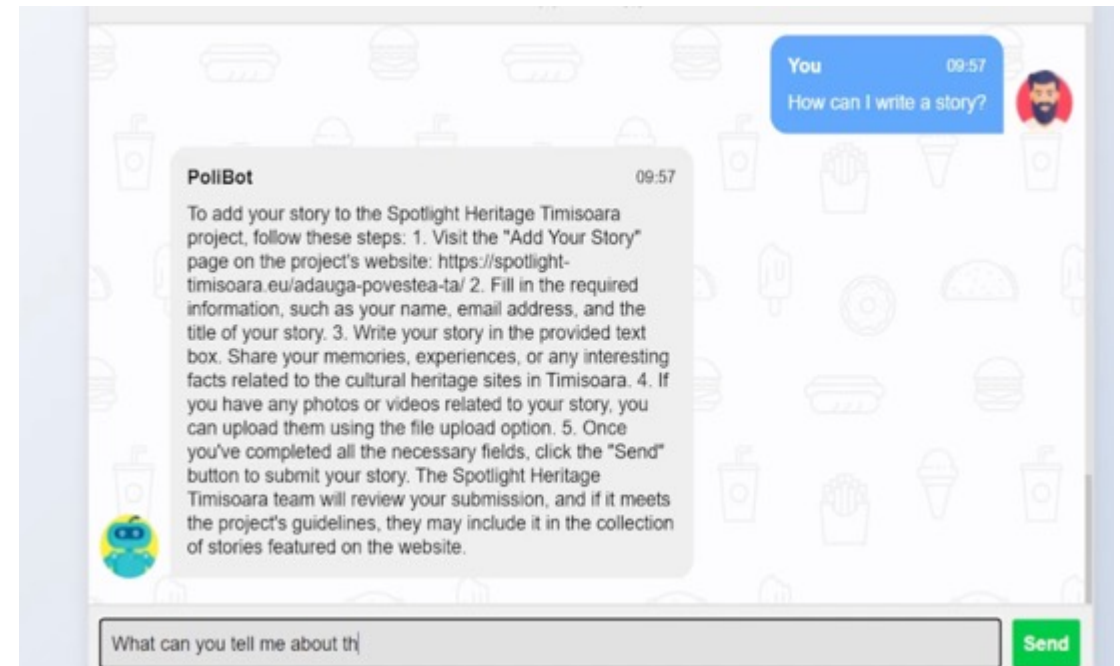
# AI in creative education

Improving existing webpages

Spotlight Heritage Timisoara  
website and mobile app

Improved with Python, Open AI API  
model GPT-4, Flask, HTML 5

Undergraduate Val Sorescu  
graduation thesis June 2023



# AI in ... with my students

Final year students – to code with OpenAI and experiment with using ChatGPT for content analysis in **February – March 2023**

Multiple reasons for failure

They discover this new life (and if they made the right choice) and how to use it creatively

It was not rewarded in any way (points at exams, bonus,...) (not good alignment with goals, only extra work, not enough time)

Students does not know AI! 1 in 5 used correctly (24 students)

# Teach with/about AI - Personalization

Personalized learning content and experiences,  
offering solutions to the challenge of diverse  
education and student needs



# Artificial Intelligence and Open Educational Resources



Artificial Intelligence could change how we use Open Educational Resources



access, relevance, and quality through exploration

# Artificial Intelligence and Open Educational Resources

## **Personalized Learning**

recommendations for OER based on a learner's performance, learning preferences, and development areas

Open data and learning analytics with predictive models

# Artificial Intelligence and Open Educational Resources

## **OER Content Development**

Create new content based on existing problems, with a well-crafted prompt

Create assignments  
asynchronous discussion prompts

Video and Audio

# Artificial Intelligence and Open Educational Resources

## OER Content Development

Create engaging content  
topical authority  
Internal linking  
Connecting information



Product Services ▾ Pricing Customers ▾ Blog Sign in

Start for free

### Content creation made effortless

Create AI-generated SEO articles with a fraction of your old marketing budget.

10x your organic traffic in 4 months.

Join 25 000 other users.

Start for free



VIDEOBOT

LAATUKORU

Wudpecker

markettailor

Dealsign



Centrul de ID/IFR  
și e-Learning



# Artificial Intelligence and Open Educational Resources

## **OER Content Development**

**Course activity in Instructional Technologies with students from the Multimedia Technologies Master in Semester 1 2023-24, 35 students**

To develop course syllabus, 1 module (text, multimedia, interaction, assessment) with AI

Analyse with their development

Critically evaluate

Each student used 3-7 different GAI tools or API to fulfil their task or project

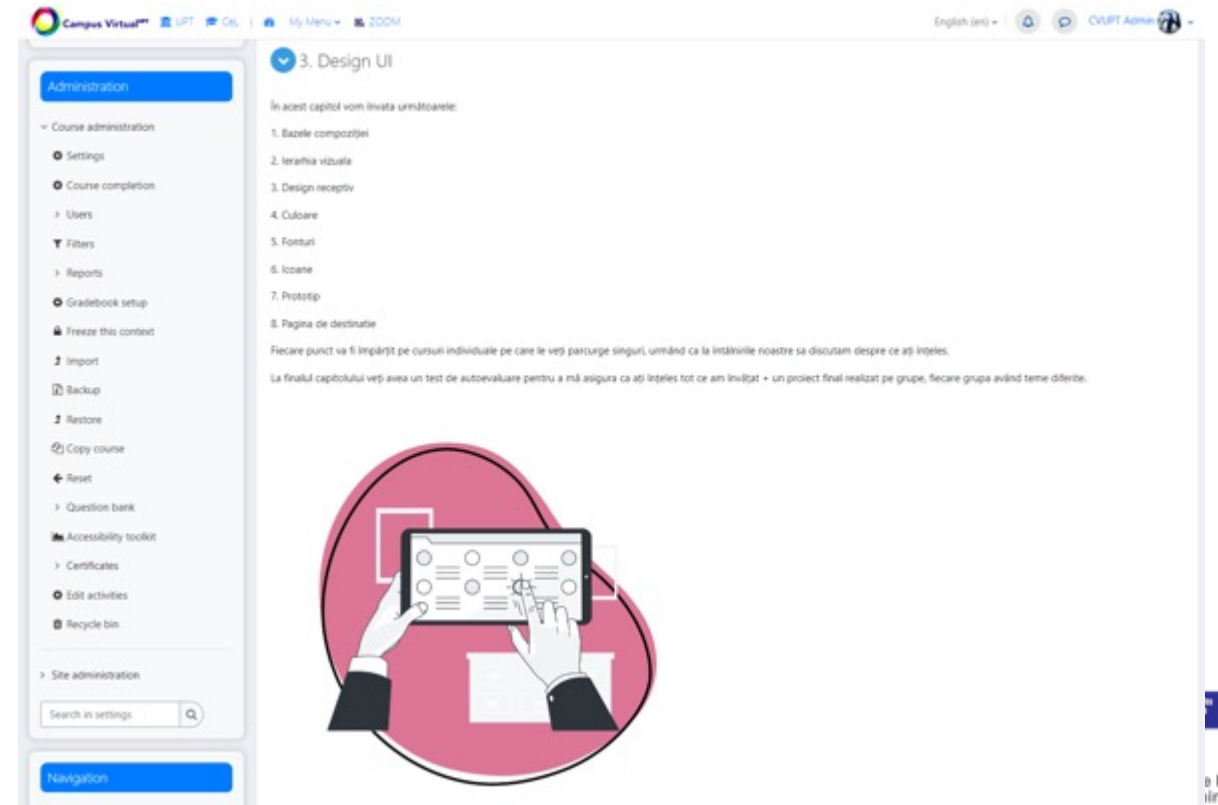
# Artificial Intelligence and Open Educational Resources

## OER Content Development

**Course activity in Instructional Technologies with students from the Multimedia Technologies Master in Semester 1 2023-24, 35 students**

All students checked the sources (via AI or online) – disappointed when AI didn't provide references

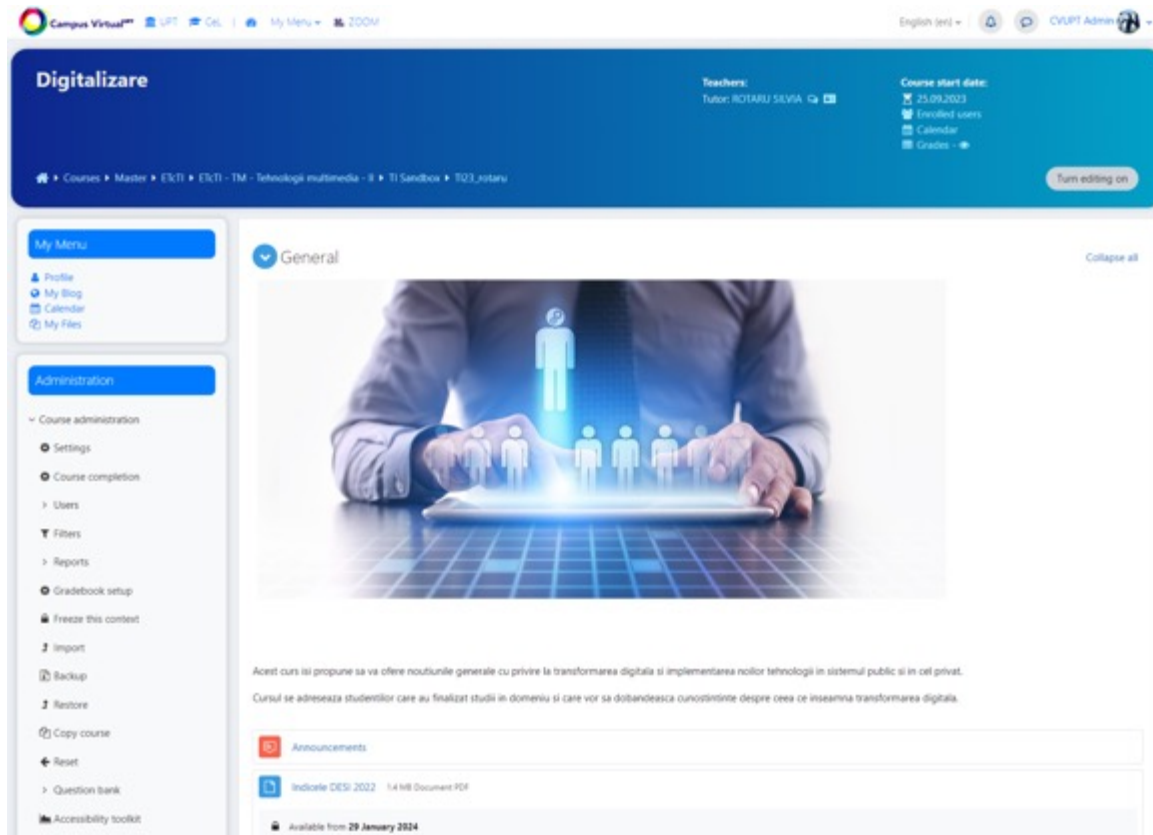
Developed critical thinking skills (average mark given by students to AI solutions was 6.8)



# Artificial Intelligence and Open Educational Resources

## OER Content Development

**Course activity in Instructional Technologies with students from the Multimedia Technologies Master in Semester 1 2023-24, 35 students**



72% appreciated the time saving  
2 students considered they lost time and the results were not satisfactory to be integrated

Students used 3-10 prompts for one activity

“It helps once you know the subject and you have a clear objective and know what you want to achieve”

# Artificial Intelligence and Open Educational Resources

## OER Translation and Localization

millions OERS are in EN

Automated translation tools powered by AI

Automated translation and text to voice

Personalisation and adaptation

MOOC integration

<https://digitallibrary.io/>



Google Translate



ChatGPT



Microsoft Bing

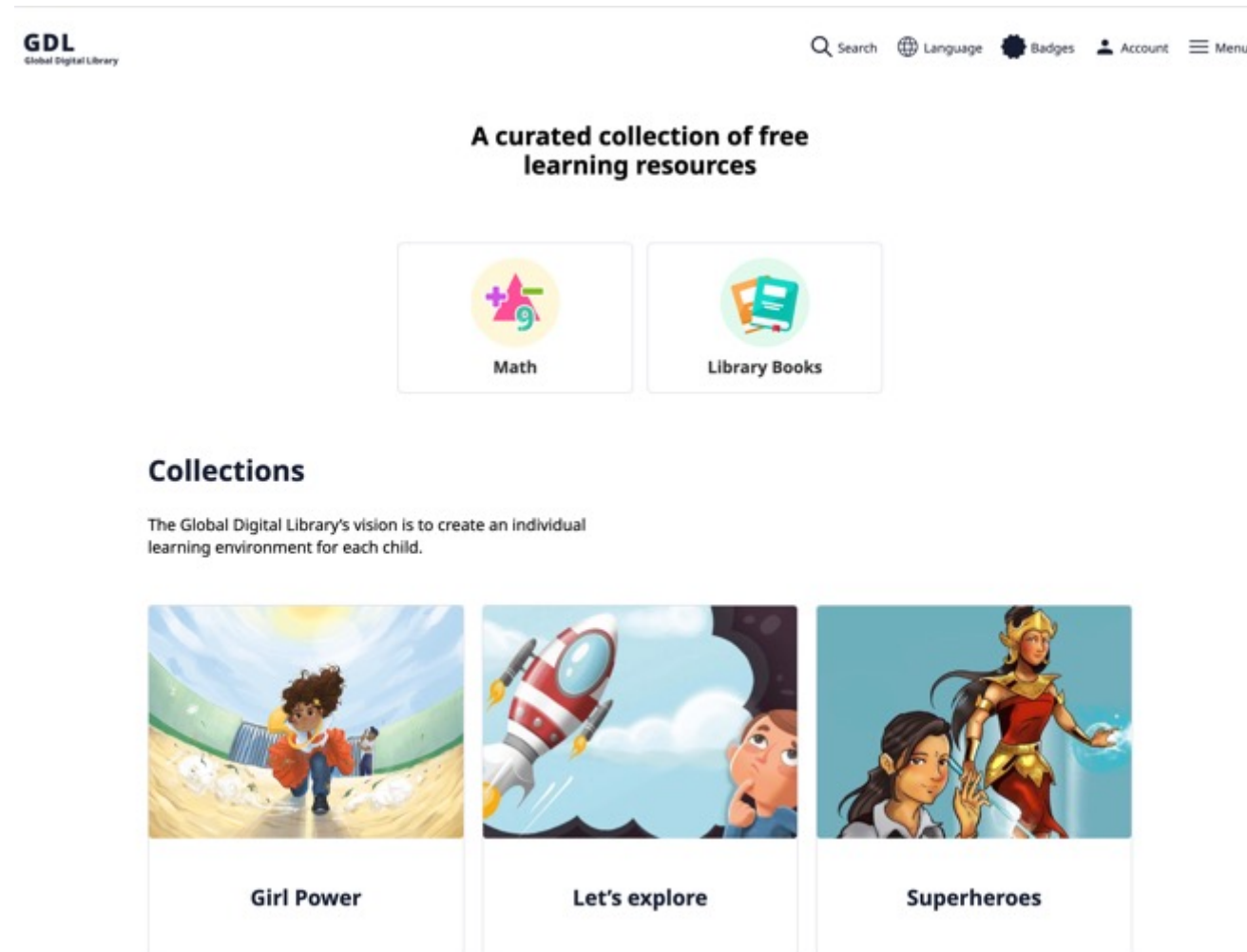


SMARTLING



# Artificial Intelligence and Open Educational Resources

## OER Content Development



[Global Digital Library  
https://digitallibrary.io/](https://digitallibrary.io/)



A comprehensive course about virtual reality (VR) can cover various topics to provide students with a solid understanding of the technology, its applications, and development. Here is an outline of potential content for a VR course:

1. Introduction to Virtual Reality
  - Definition and brief history of virtual reality
  - Key components and technologies involved in VR
  - Distinction between VR, augmented reality (AR), and mixed reality (MR)
2. VR Hardware and Devices
  - Overview of VR headsets and their features (e.g., Oculus Rift, HTC Vive, PlayStation VR)
  - Tracking systems and controllers
  - Input devices (e.g., motion controllers, haptic feedback devices)
3. VR Software and Development
  - Introduction to VR development platforms and engines (e.g., Unity, Unreal Engine)
  - Basics of 3D modeling and asset creation for VR environments
  - Programming languages and frameworks for VR development
  - User interface (UI) and user experience (UX) design considerations in VR
4. VR Interaction and Navigation
  - Different interaction techniques in VR (e.g., hand tracking, gaze-based interaction)
  - Implementing locomotion and navigation in VR environments
  - User comfort and minimizing motion sickness in VR experiences
5. VR Applications and Use Cases
  - VR in gaming and entertainment
  - VR in education and training (e.g., simulations, virtual laboratories)
  - VR in healthcare (e.g., therapy, pain management, surgical training)
  - VR in architecture, design, and engineering

# AI Examples in Education

Course Syllabus, outline of a lecture, structures

– ideas and new points of view

Course activities

Comprehensive examples

Personalised activities/  
exercises

# Artificial Intelligence and Open Educational Resources

## **OER Content Development**

### **Course activity in Instructional Technologies with students from the Multimedia Technologies Master**

To develop course syllabus, 1 module (text, multimedia, interaction, assessment) with AI

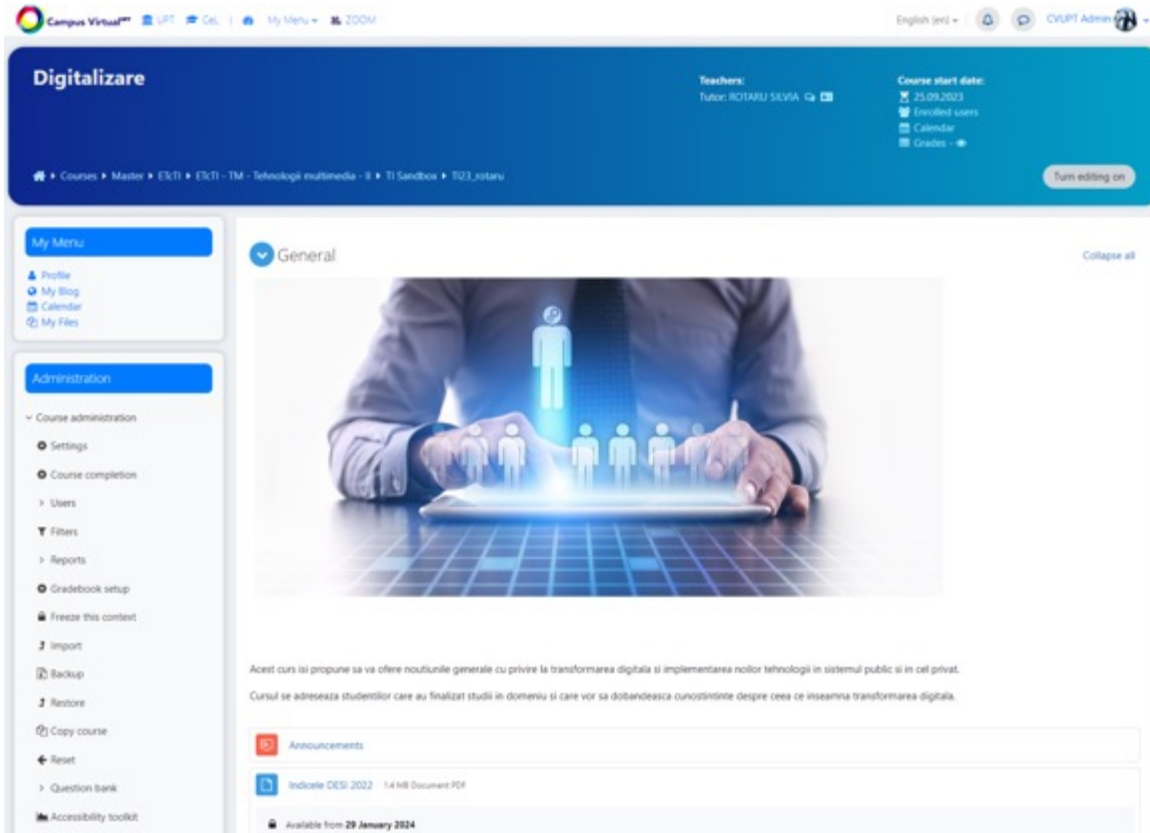
Analyse with their development

Critically evaluate

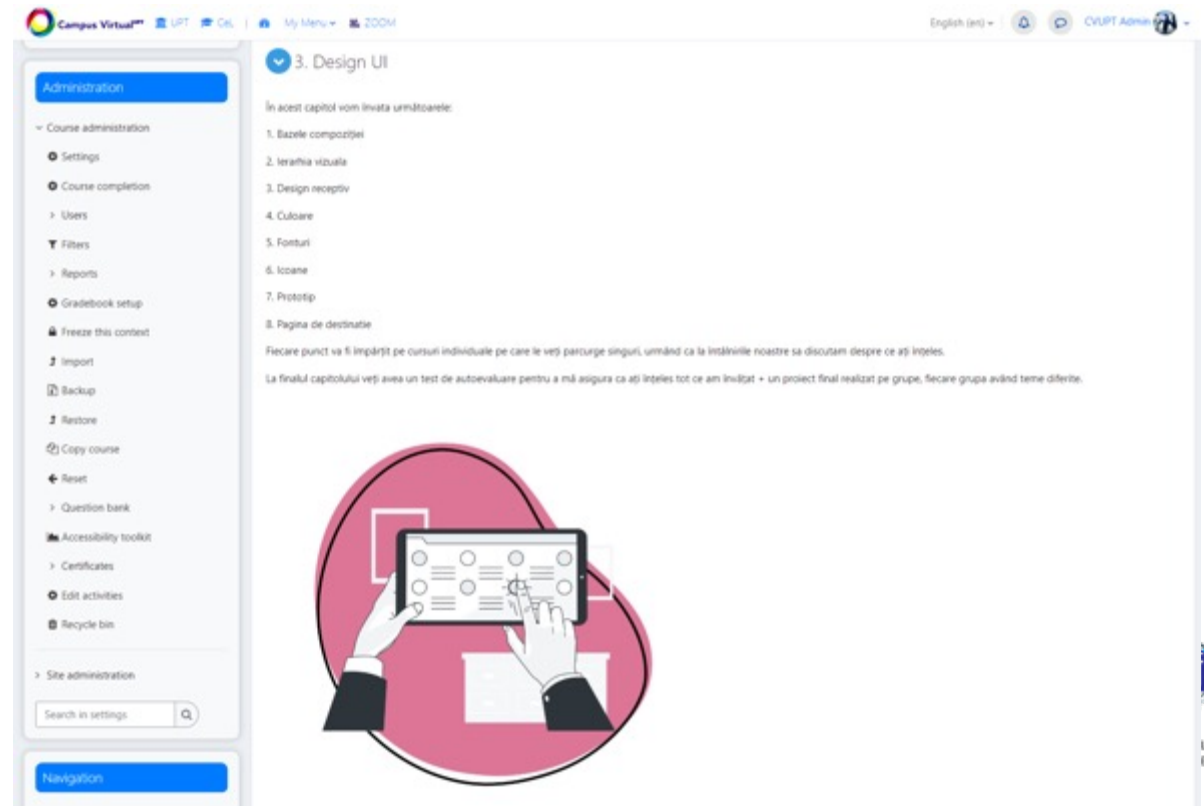
# Artificial Intelligence and Open Educational Resources

## OER Content Development

## Course activity in Instructional Technologies with students from the Multimedia Technologies Master



The screenshot displays the Campus Virtual LMS interface for a course titled "Digitalizare". The header bar is blue and contains the course title, a list of teachers (Tutor: ROTARIU SILVIA), and the course start date (25.09.2023). Below the header, there is a navigation menu on the left with options like "My Menu" and "Administration". The main content area shows a "General" section with a large image of a person interacting with a digital interface. Below the image, there is a paragraph of text in Romanian, followed by an "Announcements" section and a link to a document titled "Indicatie OCIS 2022".



The screenshot displays the Campus Virtual LMS interface for a course titled "3. Design UI". The header bar is blue and contains the course title, a list of teachers (Tutor: ROTARIU SILVIA), and the course start date (25.09.2023). Below the header, there is a navigation menu on the left with options like "Administration" and "Site administration". The main content area shows a "3. Design UI" section with a list of topics: 1. Bazele compoziției, 2. Ierarhia vizuală, 3. Design receptiv, 4. Culoare, 5. Fonturi, 6. Icoane, 7. Prototip, 8. Pagina de destinație. Below the list, there is a paragraph of text in Romanian, followed by a section titled "Fiecare punct va fi împărțit pe cursuri individuale pe care le veți parcurge singuri, urmând ca la întâlnirile noastre să discutăm despre ce ați înțeles." and a final paragraph about a final project.

# Artificial Intelligence and Open Educational Resources

## OER Translation and Localization

millions OERS are in EN

Automated translation tools powered by AI

Automated translation and text to voice

Personalisation and adaptation

MOOC integration

<https://digitallibrary.io/>



Google Translate



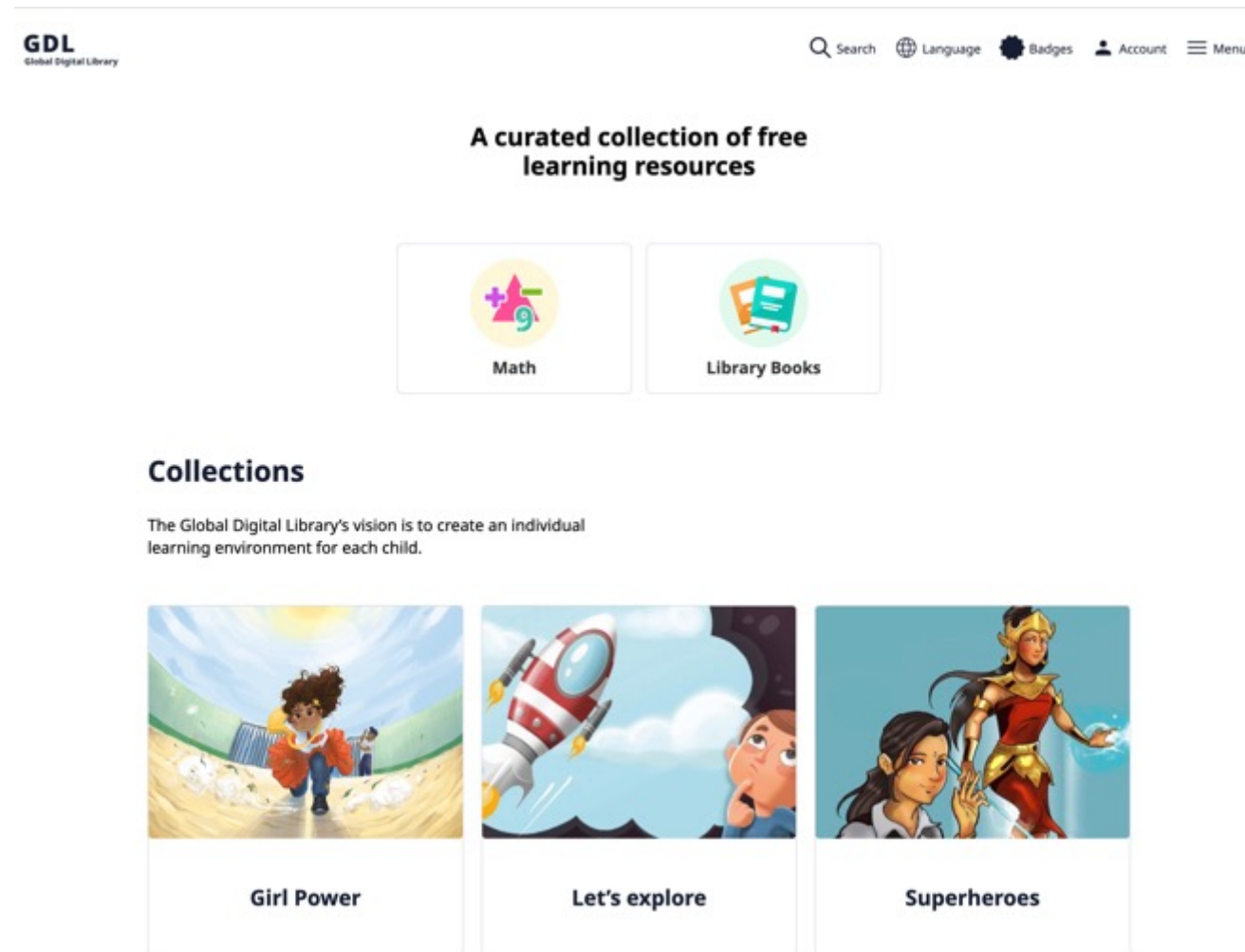
ChatGPT





# Artificial Intelligence and Open Educational Resources

## OER Translation and Localization



[Global Digital Library  
https://digitallibrary.io/](https://digitallibrary.io/)

**Patrimoniul  
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# Artificial Intelligence and Open Educational Resources

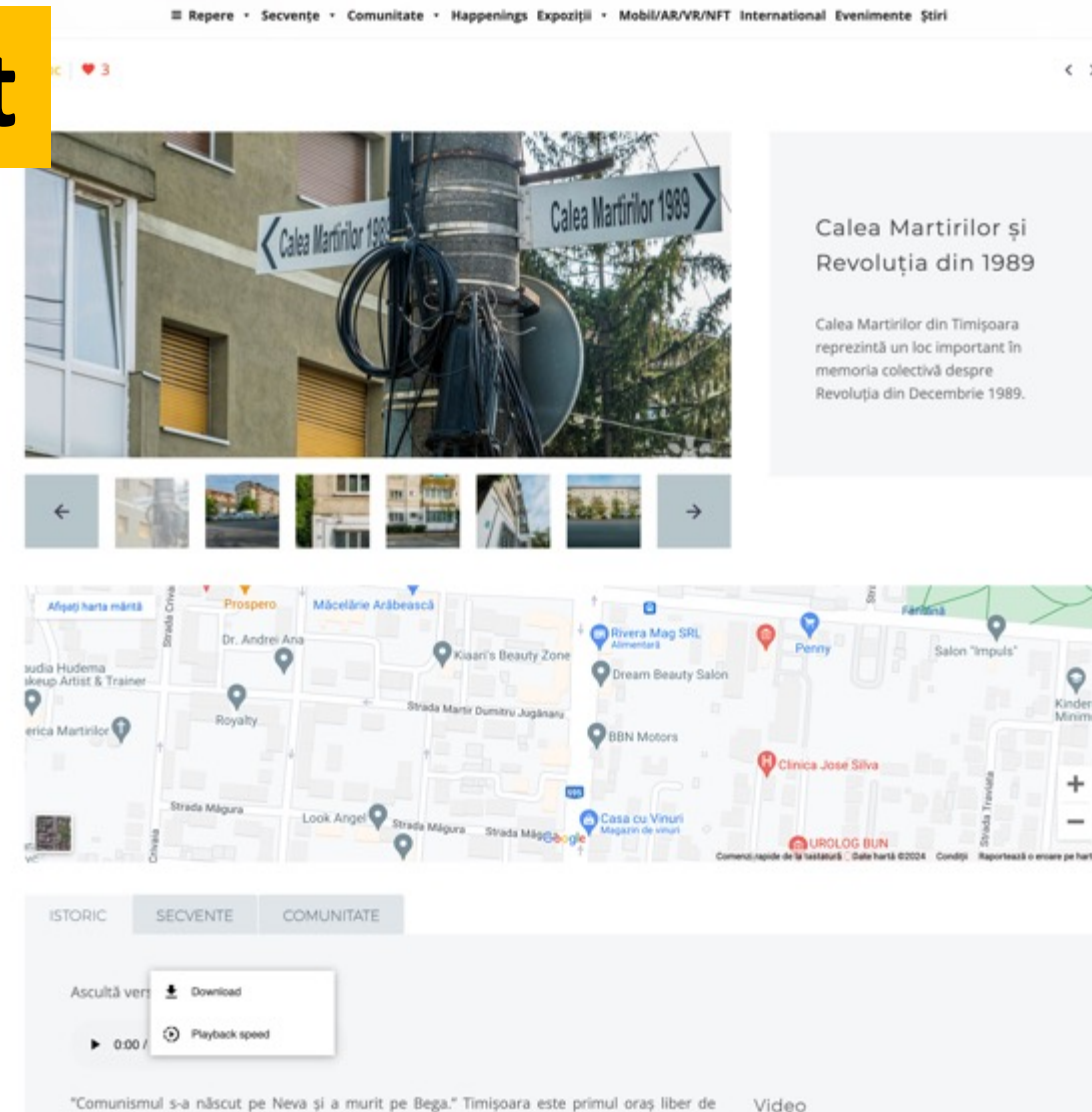
## OER Content Development

### Spotlight Heritage Timisoara

Integration of OpenAI API Voice-text for translation and voice on website, Python, model 'tts-1-hd' and voice 'nova'

Co-created by 4 students at Multimedia Technologies Master in January – March 2024

<https://spotlight-timisoara.eu/cartier-giroc/>





# Artificial Intelligence and Open Educational Resources

## OER Content Development

### Spotlight Heritage Timisoara

Issues with:

Romanian language

Reading years, names (in 5 languages)

Longer text – break down to 4096 characters

```
1 import re
2 import os
3
4 def numar_in_litere(numar):
5     unitati = ["", "o", "doua", "trei", "patru", "cinci", "şase", "şapte", "opt", "nouă"]
6     zeci = ["", "zece", "douăzeci", "treizeci", "patruzeci", "cincizeci", "şasezeci", "şaptezeci", "optzeci", "nouăzeci"]
7     sute = ["", "o sută", "două sute", "trei sute", "patru sute", "cinci sute", "şase sute", "şapte sute", "opt sute", "nouă sute"]
8
9     if numar == 0:
10         return "zero"
11
12     litere = ""
13
14     if numar // 1000 > 0:
15         if numar // 1000 == 1:
16             litere += numar_in_litere(numar // 1000) + " mie "
17         else:
18             litere += numar_in_litere(numar // 1000) + " mii "
19         numar %= 1000
20
21     if numar // 100 > 0:
22         litere += sute[numar // 100] + " "
23         numar %= 100
24
25     if numar > 0:
26         if numar < 10:
27             litere += unitati[numar]
28         elif numar < 20:
29             litere += "zece" if numar == 10 else unitati[numar % 10] + "sprezece"
```

# Artificial Intelligence and Open Educational Resources

## Personalized Learning

Xporter OEA Module, UK's first Microsoft Open Education Analytics module

<https://www.openeducationai.org/>



SITE LANGUAGE: ENGLISH ▾

## DuoLingo

Realtime analyses



The free, fun, and effective way to  
learn a language!

GET STARTED

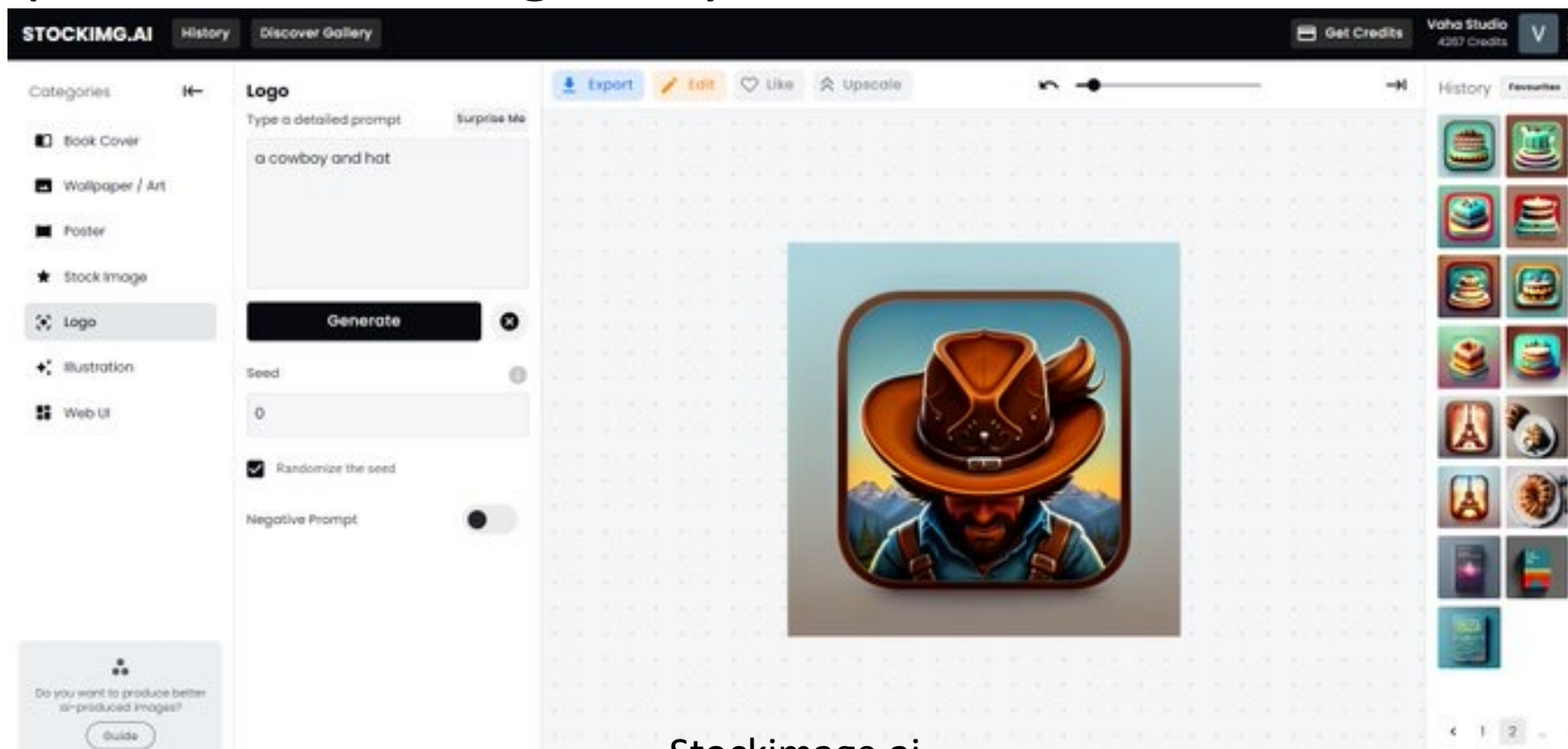
I ALREADY HAVE AN ACCOUNT



# AI in education

Generate Stock Images, support images for courses/presentations

Just provide the keywords related to the image you want... and get the perfect Stock Image for your use.



Stockimage.ai

# AI Examples in Art & Social Sciences Education

## AIwriting: Relations Between Image Generation and Digital Writing

“Republicans in love, angry about the news, eating greasy cheeseburgers at the President's desk in the Oval Office, in the style of Caravaggio” from “Republicans in Love”.

CC-BY 2022 Scott Rettberg: Relations Between Image Generation and Digital Writing

Rettberg, Scott, et al. "AIwriting: Relations Between Image Generation and Digital Writing." *arXiv preprint arXiv:2305.10834* (2023) <https://arxiv.org/abs/2305.10834>



# AI tools, papers and information in art & Science

[Creative AI Lab \[database\]](https://creative-ai.org/)

<https://creative-ai.org/>

Creative AI Lab [database]

Info

This database\* is an ongoing project to aggregate *tools* and *resources* for artists, engineers, curators & researchers interested in incorporating machine learning (ML) and other forms of artificial intelligence (AI) into their practice. Resources in the database come from our partners and network; tools cover a broad spectrum of possibilities presented by the current advances in ML like enabling users to generate images from their own data, create interactive artworks, draft texts or recognise objects. Most of the tools require some coding skills, however, we've noted ones that don't. Beginners are encouraged to turn to RunwayML or entries tagged as courses.

\*This database isn't comprehensive—it's a growing collection of research commissioned & collected by the Creative AI Lab. The latest tools were selected by Luba Elliott. Check back for new entries.

• PINNED ENTRY

Paper

Toward-a-C5-model-in-Creative-AI  
by Creative AI Lab →

PUBLISHED

January 2023  
Serpentine +  
King's College  
London

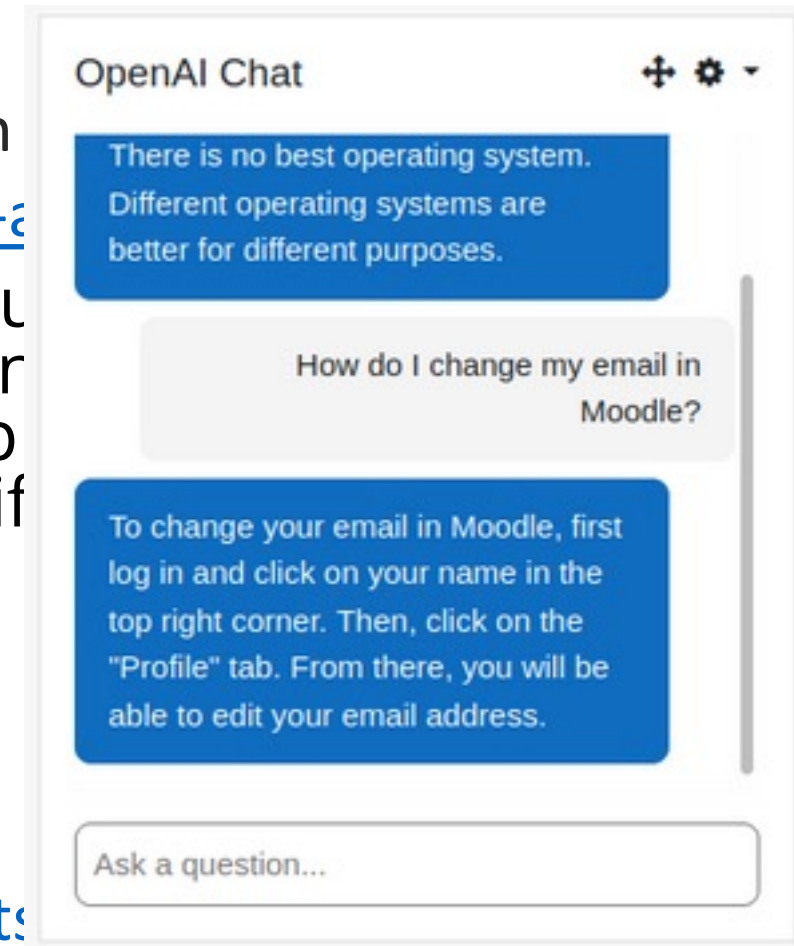
TAGS

Creative AI, AI  
Art, Media Art,  
Creative R+D

# AI tools, papers and information in education


**Moodle** plugins for AI content and plagiarism detection

- <https://moodle.com/us/news/copyleaks-partnership-a>
- AI-based multi-pronged approach to content analysis, initially identifying whether content was written by AI. If fully or partially written by a human, the plugin determines whether the content is original or if plagiarized or paraphrased.
- **OpenAI Chat Block**  
[https://moodle.org/plugins/block\\_openai\\_chat](https://moodle.org/plugins/block_openai_chat)
- Moodle AI plugin <https://platform.x5gon.org/products>





# Co-create to control and benefit from Generative AI in Education

The background image shows two welders in a dark industrial environment. The welder on the left is wearing a blue protective suit and a silver welding mask, holding a torch that produces a large, bright burst of sparks and yellow smoke. The welder on the right is wearing a red protective suit and a black welding mask, also working on a piece of metal. The scene is dimly lit, with the primary light source being the intense heat of the welding process.

Regulation

Adopt

Use cases

Learn

Teach



“Am I even necessary now?”

## Don't Ban ChatGPT in courses. Teach With It

([Roose](#), 2023)

- Summarizing articles
- Conversational practice. Clarifying Topics
- Vocabulary building
- Writing practice. Writing assistance: brainstorming or creating first drafts, Write a book review, a play-script
- Reading comprehension
- Practice communication and pronunciation skills
- AI invents dialogue, story, essay, emails, scripts for movies, book reviews, discourses, CV
- Flashcards, quizzes,
- Speech and presentations.
- Digital storytelling
- Q&A session
- Language translations. Language Discussion partner
- ...

# The death of the essay?

The arrival of OpenAI's ChatGPT may signal **the end of writing assignments altogether**—and maybe even the end of writing as a gatekeeper, a metric for intelligence, a teachable skill.

**Task:** Independent research paper, 12 to 18 pages, on two great literary works of their own choosing.

**Goal:** to place the texts in conversation with each other and find a thread that connects them. We spend **two months** on the paper, putting it together piece by piece. I've fed GPT a handful of pairs that students have worked with in recent years: *Beloved* and *Hamlet*, *The Handmaid's Tale* and *The Parable of the Sower*, Homer's *The Odyssey* and Dante's *Inferno*.

**Result:** GPT brought them together instantly, effortlessly, uncannily: memory, guilt, revenge, justice, the individual versus the collective, freedom of choice, societal oppression. The technology doesn't go much beyond the surface, nor does it successfully integrate quotations from the original texts, but the ideas presented were on-target—more than enough to get any student rolling without much legwork.

The question isn't "How will we get around this?" but rather "**Is this still worth doing?**"

From [ChatGPT Will End High-School English](https://www.theatlantic.com/technology/archive/2022/12/openai-chatgpt-writing-high-school-english-essay/672412/) - The Atlantic

<https://www.theatlantic.com/technology/archive/2022/12/openai-chatgpt-writing-high-school-english-essay/672412/>

# Get creative with your assignment

(examples for ChatGPT)

**Prompt competition:** Ask students to individually write a prompt for chatGPT to answer the major question.

**Reflect and Improve:** Using Track Changes in MS Word or Suggesting in Google Docs, have students improve the output of chatGPT (e.g., correcting errors or misinformation, **expanding on shallow content**).

**Re-vision:** Have students revise (write again) ChatGPT's output from a different angle. For instance, take a different perspective, apply a critical lens, expand on a particular concept, or correct aspects of the output that could cause their peers to misunderstand or misinterpret.

**Dual-Assignments:** Give students a choice between two versions of the same assignment. One version for those that want to use chatGPT and one for those who don't.

**Mind-Maps // Debates // Videos or Podcasts (with caution)**

# Education with AI in evaluation

Students Using AI Text Generators to Write Papers – Are They Cheating? Is AI a tool that violates academic integrity? Will AI promote scientific fraud?

Detecting and removing fake research papers requires patience and human involvement. Detecting fake AI-generated articles that threaten to undermine the scientific process is a shared responsibility ([de wilde, 2022](#)).



DALL·E 2023-01-14 20.11.05 - COMPUTER CHIMERA

PLAGIARIZING A BOOK



# AI Use in education

The need to respect copyright and not use material without the author's permission.

Ensuring that digital assessment is fair and impartial, with the same standards and assessment criteria as traditional assessment.

The need to clearly provide students with instructions and expectations regarding assessment, a.î. be clear about what is expected of them and how they will be assessed.

Assessment based on skills and not just memorization of information.

Using technology (see Generative AI-ChatGPT) to improve assessment and provide rapid and personalized feedback to students.

Open and transparent communication with students about the plagiarism policy and the consequences of unauthorized use of online resources.

# AI Use in education

**Rethinking assessment tasks** (unique, creative, open-book, oral...)

- DA literacy

Ingredients: Creativity, Imagination, Interactivity, Communication, Collaboration, Pedagogy of controversy (awkward conversations)

Copyright, Creative Commons and the use of RED in virtual training: content customization, contextualization, opportunities to apply innovative pedagogical methods (Open Educational Practices - OEPs)

Understanding and correct use of AI (AI literacy)

Rethinking the curriculum (adapting it for AI)

# Using ChatGPT (or other generative AI tools) for STEM teachers

## TEACHER

- Generating practice problems
- Creating lesson plans
- Generating personalized feedback
- Creating study guides
- Generating visual aids
- Personalizing learning
- Generating exam questions
- Creating interactive simulations
- Providing virtual tutoring
- Creating multimedia projects



# Using ChatGPT (or other generative AI tools) for STEM students

## STUDENT

Research assistant  
(generating research  
topics)

Creating lab reports

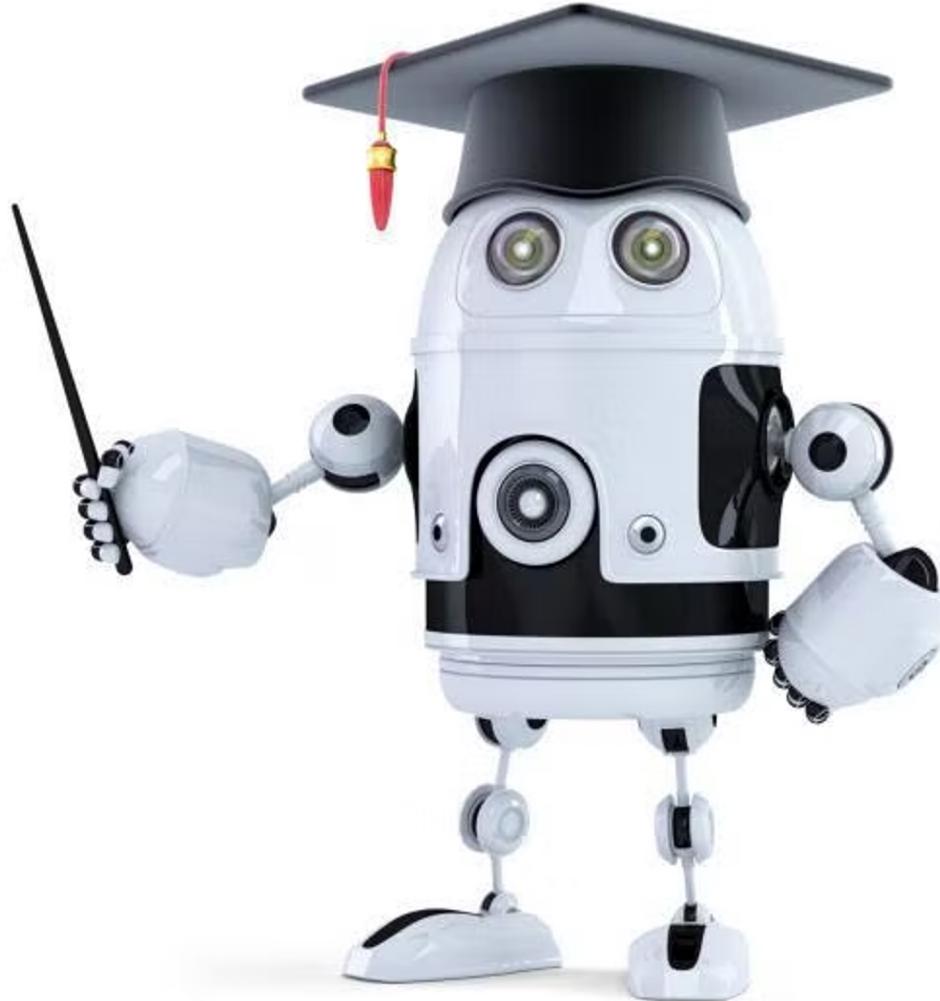
Practicing coding

Digital Tutor

Generating study  
materials

Problem-solving

Creating multimedia  
projects





# Drawbacks in STEM education?

- Over-reliance on technology
- Creativity (if used corectly)
- Lack of personalization
- Limited scope of content
- Potential for bias
- ...



# Can I write a book about ...?

There were over 200 e-books in Amazon's Kindle store as of mid-February listing ChatGPT as an author or co-author, including "How to Write and Create Content Using ChatGPT," "The Power of Homework" and poetry collection "Echoes of the Universe." And the number is rising daily. There is even a new sub-genre on Amazon: Books about using ChatGPT, written entirely by ChatGPT.



<https://www.reuters.com/technology/chatgpt-launches-boom-ai-written-e-books-amazon-2023-02-21/>


Rising AI Tech Demystified. <https://www.ai.nl/artificial-intelligence/write-a-book-with-chatgpt-with-these-tips-from-angelique-schouten-you-will-succeed-in-one-week/>


# Can I write a book about ...?

- Start by asking “Give me the table of contents for a book about (Theme)”
- Once you have received a list of chapters, you can then request: “Provide a list of topics related to (Chapter).”
- Finally, “Expand on the topic of (Topic from Chapter list)”
- Repeat for all chapters and their sub-topics.
- Use a text editor, then Grammarly, EndNote, Notion.ai and ... check the information!
- give credit (see [How to cite ChatGPT](https://www.jasper.ai/blog/how-to-write-a-book-in-7-days-with-ai))




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## Chatting and cheating: Ensuring academic integrity in the era of ChatGPT

Debby R. E. Cotton , Peter A. Cotton   & J. Reuben Shipway 

Published online: 13 Mar 2023

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ABSTRACT

### ABSTRACT

The use of artificial intelligence in academia is a hot topic in the education field. ChatGPT is an AI tool

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Cotton, D., Cotton, P. A., & Shipway, J. R. (2023b). Chatting and cheating: Ensuring academic integrity in the era of ChatGPT. *Innovations in Education and Teaching International*, 1–12. <https://doi.org/10.1080/14703297.2023.2190148>

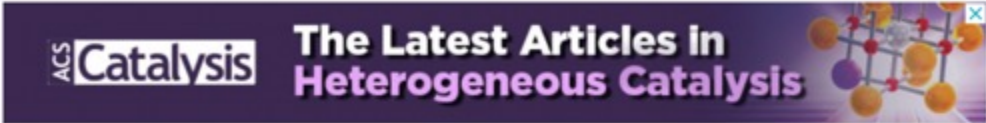


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## Best Practices for Using AI When Writing Scientific Manuscripts

### Caution, Care, and Consideration: Creative Science Depends on It


Jillian M. Buriak\*, Deji Akinwande, Natalie Artzi, C. Jeffrey Brinker, Cynthia Burrows, Warren C. W. Chan, Chunying Chen, Xiaodong Chen, Manish Chhowalla, Lifeng Chi, William Chueh, Cathleen M. Crudden, Dino Di Carlo, Sharon C. Glotzer, Mark C. Hersam, Dean Ho, Tony Y. Hu, Jiaxing Huang, Ali Javey, Prashant V. Kamat, Il-Doo Kim, Nicholas A. Kotov, T. Randall Lee, Young Hee Lee, Yan Li, Luis M. Liz-Marzán, Paul Mulvaney, Prineha Narang, Peter Nordlander, Rahmi Oklu, Wolfgang J. Parak, Andrey L. Rogach, Mathieu Salanne, Paolo Samori, Raymond E. Schaak, Kirk S. Schanze, Tsuyoshi Sekitani, Sara Skrabalak, Ajay K. Sood, Ilja K. Voets, Shu Wang, Shutao Wang, Andrew T. S. Wee, and Jinhua Ye

**Cite this:** *ACS Nano* 2023, 17, 5, 4091–4093  
Publication Date: February 27, 2023  
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Science is communicated through language. The media of language in science is multimodal, ranging from lecturing in classrooms, to informal daily discussions among scientists, to prepared talks at conferences, and, finally, to the pinnacle of science communication, the formal peer-reviewed publication. The arrival of language tools driven by artificial intelligence (AI), like ChatGPT, (1) has generated an explosion of interest globally. ChatGPT has set the record for the fastest growing user base of any application in history, with over 100 million active users in just two months, as of the end of January 2023. (2) ChatGPT is merely the first of many AI-based language tools, with announcements of more either in preparation or soon to be launched. (3–5) Many in scientific research and universities around the world have raised concerns of ChatGPT's potential to transform scientific communication (6) before we have had time to consider the ramifications of such a tool or verified that the text it generates is factually correct. The human-like quality of the text

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This publication has no figures.



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## Our recommendations for the use of AI language bots for scientific communication:

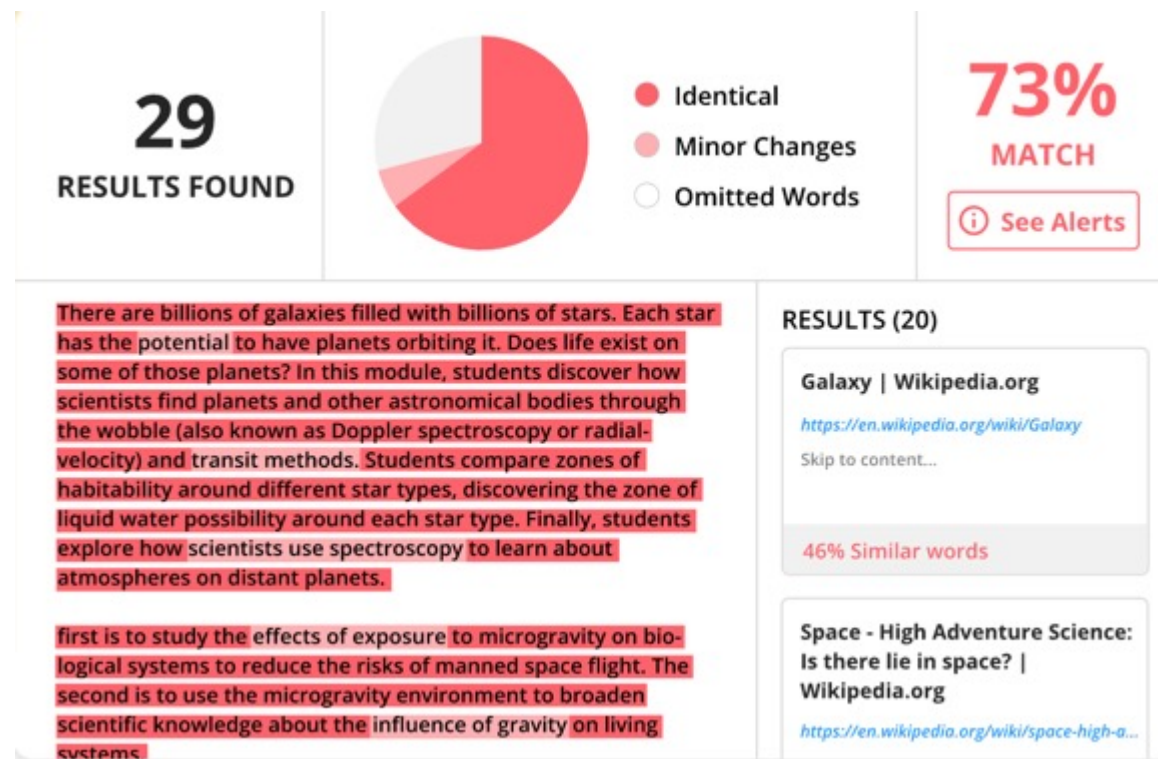
- (i) Acknowledge, in the Acknowledgments and Experimental Sections, your use of an AI bot/ChatGPT to prepare your manuscript. Clearly indicate which parts of the manuscript used the output of the language bot, and provide the prompts and questions, and/or transcript in the Supporting Information.
- (ii) Remind your coauthors, and yourself, that the output of the ChatGPT model is merely a very early draft, at best. The output is incomplete, might contain incorrect information, and every sentence and statement must be considered critically. Check, check, and check again. And then check again.
- (iii) Do not use text verbatim from ChatGPT. These are not your words. The bot might have also reused text from other sources, leading to inadvertent plagiarism.
- (iv) Any citations recommended by an AI bot/ChatGPT need to be verified with the original literature since the bot is known to generate erroneous citations.
- (v) Do not include ChatGPT or any other AI-based bot as a co-author.<sup>10,19</sup> It cannot generate new ideas or compose a discussion based on new results, as that is our domain as humans. It is merely a tool, like many other programs, for helping with the formulation and writing of manuscripts. Please refer to *ACS Nano* [author guidelines](#) for more information.
- (vi) ChatGPT cannot be held accountable for any statement or ethical breach. As it stands, all authors of a manuscript share this responsibility.
- (vii) And most importantly, do not allow ChatGPT to squelch your creativity and deep thinking. Use it to expand your horizons, and spark new ideas!

## Can an AI chatbot be the author of a scholarly paper?

Buriak, Jillian M., et al. "Best Practices for Using AI When Writing Scientific Manuscripts: Caution, Care, and Consideration: Creative Science Depends on It." *ACS nano* 17.5 (2023): 4091-4093. <https://pubs.acs.org/doi/10.1021/acsnano.3c01544>

# Plagiarism detectors

[Turnitin](#) (Integrate [AI Writing Detector](#) into Its Products since April 2023), [ithenticate](#), [Grammarly Plagiarism Checker](#), [AI Text Classifier](#), [GPTZero for Educators](#), [CrossPlag](#), [AI Content Detector](#), [Originality.ai](#), [DetectGPT](#), [Ai Writing Check](#), [PlagiBot](#), [Writer.com](#), [Plag](#), [PlagiarismCheckerAI](#)




# AI in Turnitin

The screenshot shows the Turnitin Feedback Studio interface. At the top, the user is identified as 'Silviu Vert' and the document as 'IEEE Open Cipri Radu'. The document content includes sections like 'INDEX TERMS' and 'INTRODUCTION'. The 'INTRODUCTION' section starts with: 'Image enhancement is a set of techniques used to improve the quality, clarity, or perceptibility of an image. The goal of image enhancement is to make the image more visually appealing, or useful for a specific application.' The text is highlighted in red, indicating AI detection. A notification pop-up in the center reads: 'New messaging for scores under 20%'. The pop-up text states: 'As a result of customer feedback and additional testing, we learned that AI writing detection results under 20% have a higher incidence of false positives. In order to reduce the likelihood of misinterpretation, we have changed the AI indicator to contain an asterisk for percentages less than 20 to call attention to the fact that the score is less reliable. It is essential to understand the limitations of AI detection before making decisions about a student's work. We encourage you to learn more about Turnitin's AI detection capabilities before using the tool.' The bottom of the screen shows 'Page: 1 of 17' and 'Word Count: 14519'.

This screenshot shows a different view of the Turnitin Feedback Studio interface. The document is titled 'www.researchgate.net'. The 'INTRODUCTION' section is visible, starting with: 'Image enhancement is a set of techniques used to improve the quality, clarity, or perceptibility of an image. The goal of image enhancement is to make the image more visually appealing, or useful for a specific application.' The text is highlighted in red, indicating AI detection. A notification pop-up in the center reads: 'New messaging for scores under 20%'. The pop-up text states: 'As a result of customer feedback and additional testing, we learned that AI writing detection results under 20% have a higher incidence of false positives. In order to reduce the likelihood of misinterpretation, we have changed the AI indicator to contain an asterisk for percentages less than 20 to call attention to the fact that the score is less reliable. It is essential to understand the limitations of AI detection before making decisions about a student's work. We encourage you to learn more about Turnitin's AI detection capabilities before using the tool.' The bottom of the screen shows 'Page: 1 of 17' and 'Word Count: 14519'.



# Co-create to control and benefit from Generative AI in Education

The background image shows two welders in a dark industrial environment. The welder on the left is wearing a blue protective suit and a silver welding mask, holding a welding torch. The welder on the right is wearing a red protective suit and a black welding mask. A large, bright burst of yellow and orange sparks is emanating from the point where the torch meets the workpiece, creating a dramatic focal point. The overall atmosphere is one of intense industrial activity.

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