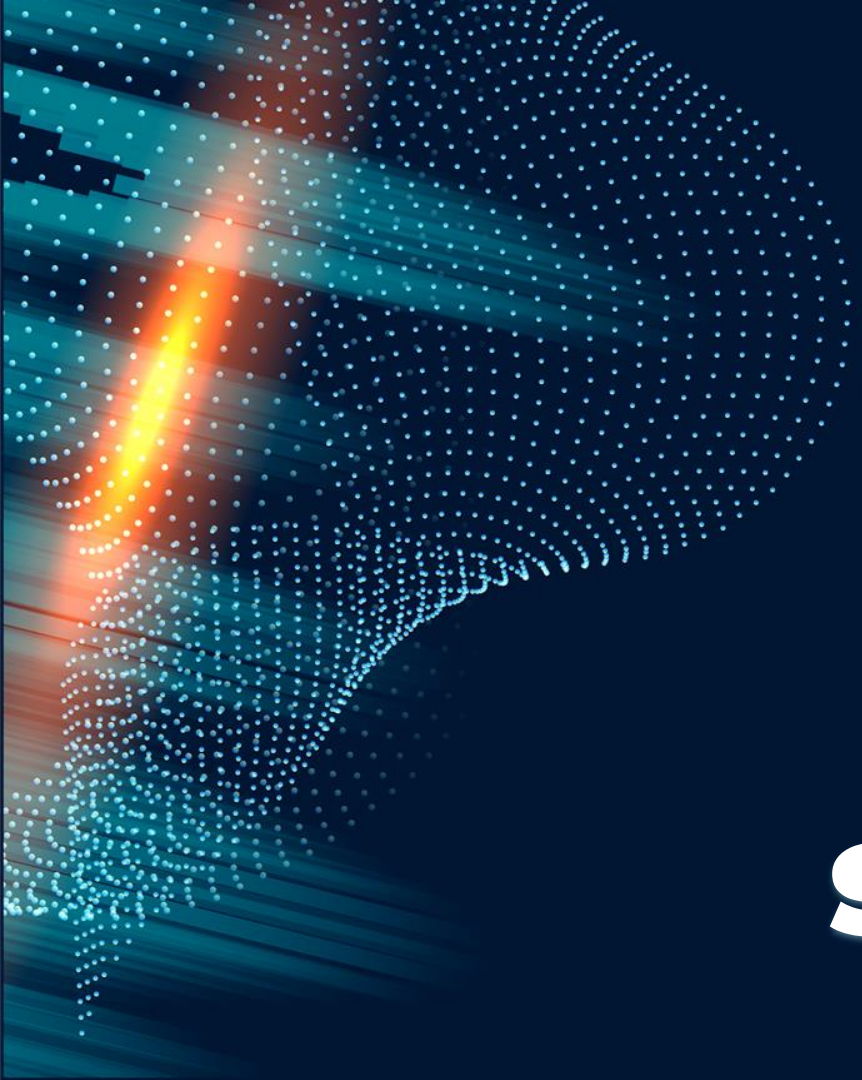
The AI Advantage

How to Use AI to Save Time, Reduce Stress, and Improve Student Outcome



When did AI start to shock you?


ChatGPT 3.5
2022 - 2023

The power of Generative AI

- Generate ideas
- Writing
- Translation
- Summarize reports
- Calculations
- Generate images
- Generate videos
- Etc.

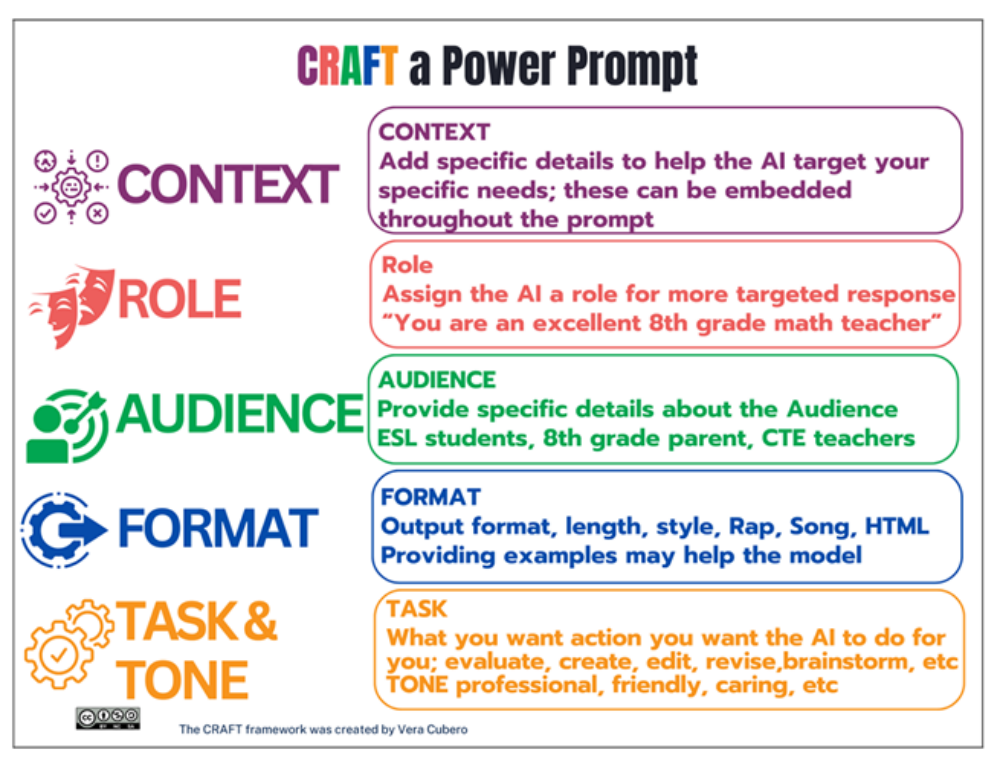
The Integration of AI and Education

- Generating Resources: AI creates notes, assignments, and class activities.
- Personalized Learning: Tailored resources for diverse learning styles and paces.

Difficulties

- We all know AI can help us, but:
- There's no time to learn and test
- Interacting with AIs to achieve desired outcomes can be time-consuming
- Prompt Engineering

Prompt Engineering



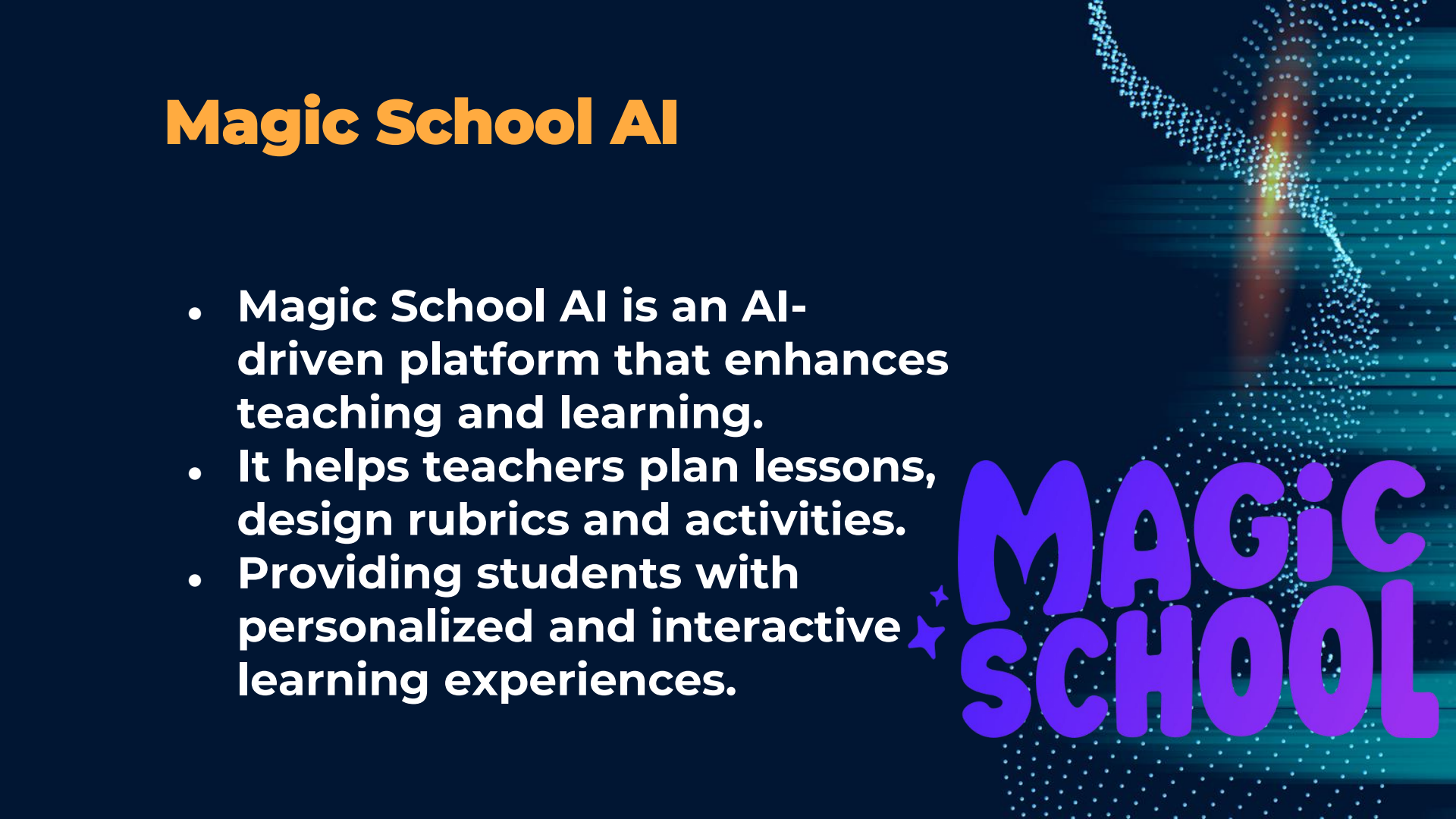
- North Carolina Department of Public Instruction. (2024, January 16). Generative AI Implementation Recommendations and Considerations for PK-13 Public Schools. https://www.dpi.nc.gov/press-release/ncdpi-generative-ai-implementation-recommendations-and-considerations-pk-13-public-schools/download

Good news

- There is a platform that makes it super easy to use AI in the classroom
- Quick setup, simple interaction, no complicated prompts needed.

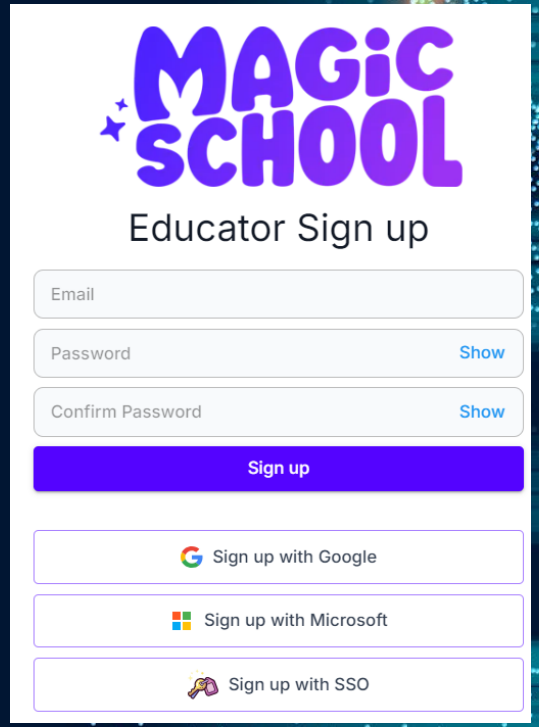
Magic School AI

- Magic School AI is an AI-driven platform that enhances teaching and learning.
- It helps teachers plan lessons, design rubrics and activities.
- Providing students with personalized and interactive learning experiences.

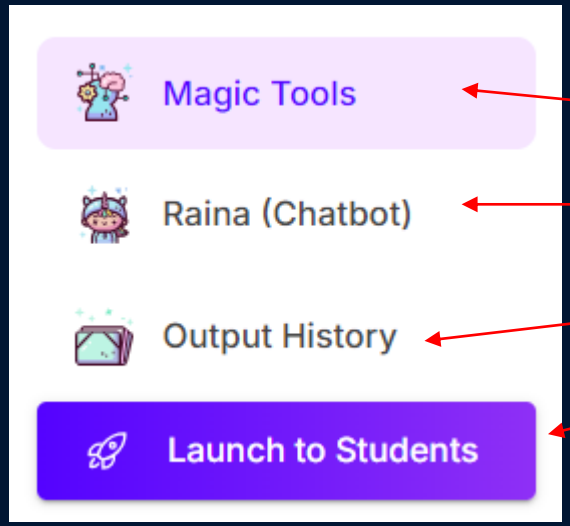


Register

- https://www.magicschool.ai/
- Click ”Sign up free”
- Click ”Continue with Google”



Interface



Over 80 AI tools
Chatbots
History logs
Student AI classroom

Useful AI

Favorites

Change Order

Worksheet Generator
Generate a worksheet based on any topic or text.

YouTube Video Questions
Generate guiding questions aligned to a YouTube video.

Lesson Plan
Generate a lesson plan for a topic or objective you're teaching.

Multiple Choice Quiz / Assessment
Create a multiple choice assessment, quiz, or test based on any topic, standard(s), or...

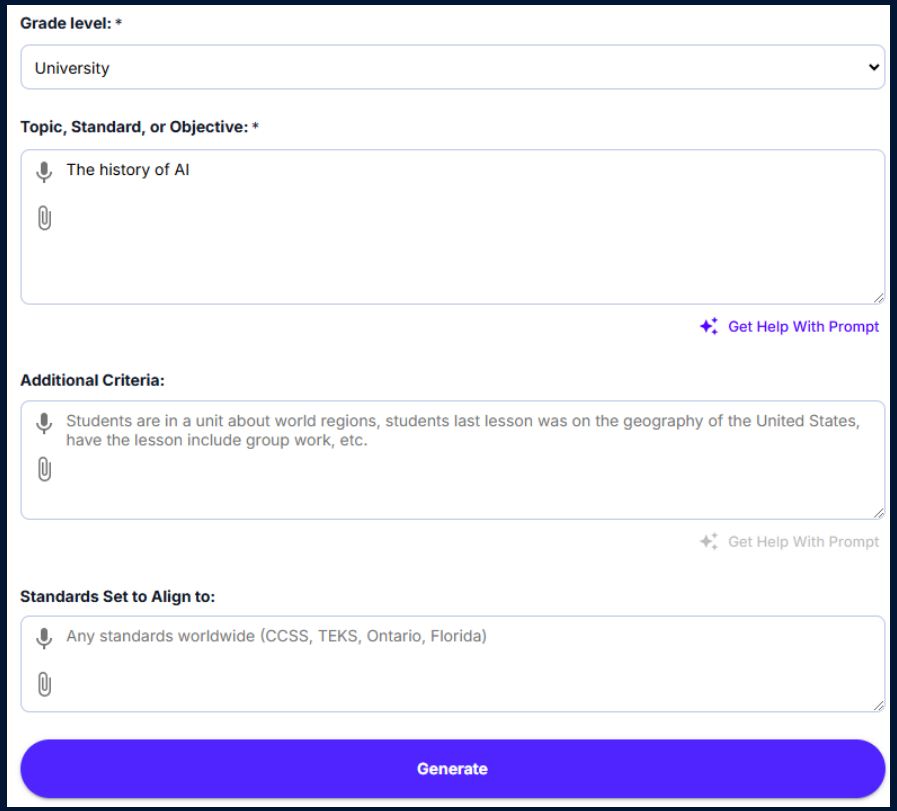
Report Card Comments
Generate report card comments with a student's strengths and areas for growth.

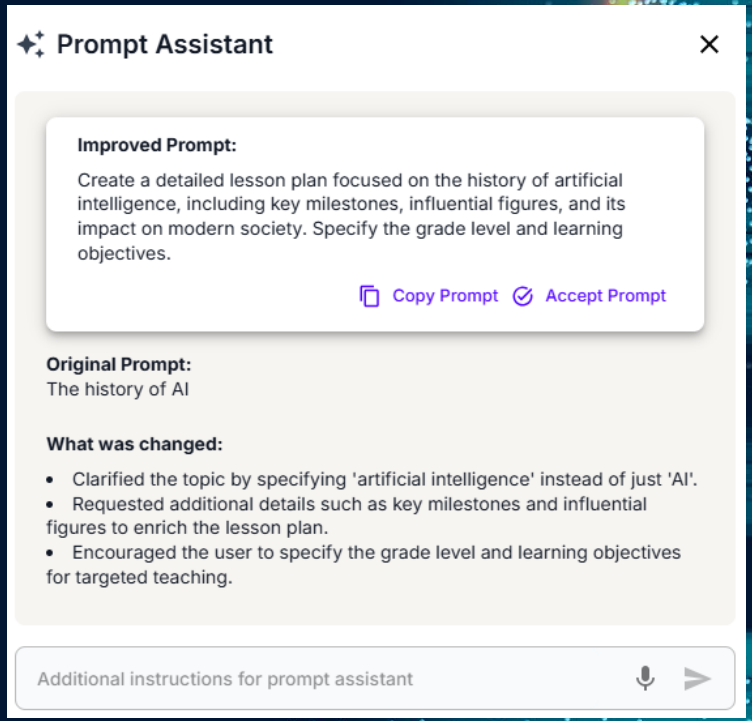
YouTube Video Summarizer
Get a summary of a YouTube video in whatever length you choose.

Rubric Generator
Have AI write a rubric for an assignment you are creating for your class in a table format.

Text Rewriter
Take any text and rewrite it with custom criteria however you'd like!

Lesson Plan


Grade level: *
University
Topic, Standard, or Objective: *
The history of AI
Get Help With Prompt
Additional Criteria:
Students are in a unit about world regions, students last lesson was on the geography of the United States, have the lesson include group work, etc.
Get Help With Prompt
Standards Set to Align to:
Any standards worldwide (CCSS, TEKS, Ontario, Florida)
Generate


Prompt Assistant
Improved Prompt:
Create a detailed lesson plan focused on the history of artificial intelligence, including key milestones, influential figures, and its impact on modern society. Specify the grade level and learning objectives.
Copy Prompt
Accept Prompt
Original Prompt:
The history of AI
What was changed:
• Clarified the topic by specifying 'artificial intelligence' instead of just 'AI'.
• Requested additional details such as key milestones and influential figures to enrich the lesson plan.
• Encouraged the user to specify the grade level and learning objectives for targeted teaching.
Additional instructions for prompt assistant

Lesson Plan

Grade level: *

University

Topic, Standard, or Objective: *

Create a comprehensive lesson plan on the history of artificial intelligence, including key milestones, influential figures, and major developments in the field. Please specify the grade level and learning objectives.

Get Help With Prompt

Additional Criteria:

Students are in a unit about world regions, students last lesson was on the geography of the United States, have the lesson include group work, etc.

Get Help With Prompt

Standards Set to Align to:

Any standards worldwide (CCSS, TEKS, Ontario, Florida)

Generate

- **Milestones in AI Development**: Timeline of major advancements, such as the Turing Test, the invention of neural networks, and the rise of machine learning.
- **Influential Figures**: Key contributors like Alan Turing, John McCarthy, and Geoffrey Hinton, and their roles in AI history.
- **Major Developments**: Overview of significant technologies, including natural language processing and computer vision.
- **Ethical Considerations**: Discussion on the implications of AI advancements on society and ethical concerns.
- **Future of AI**: Speculation on potential future developments in the field.

OPENING:

- Begin with a thought-provoking question: "What do you think is the most important invention in the history of technology, and why?"
- Present a brief video clip showcasing AI in everyday life to capture student interest.
- Facilitate a quick discussion based on the video to engage students in thinking about AI.

INTRODUCTION TO NEW MATERIAL:

- Present the key points through a multimedia presentation, including images, videos, and timelines.
- Encourage students to take notes during the presentation, highlighting important names and dates.
- Anticipate the misconception: "AI is a recent development," and clarify that AI has roots going back to the mid-20th century.

GUIDED PRACTICE:

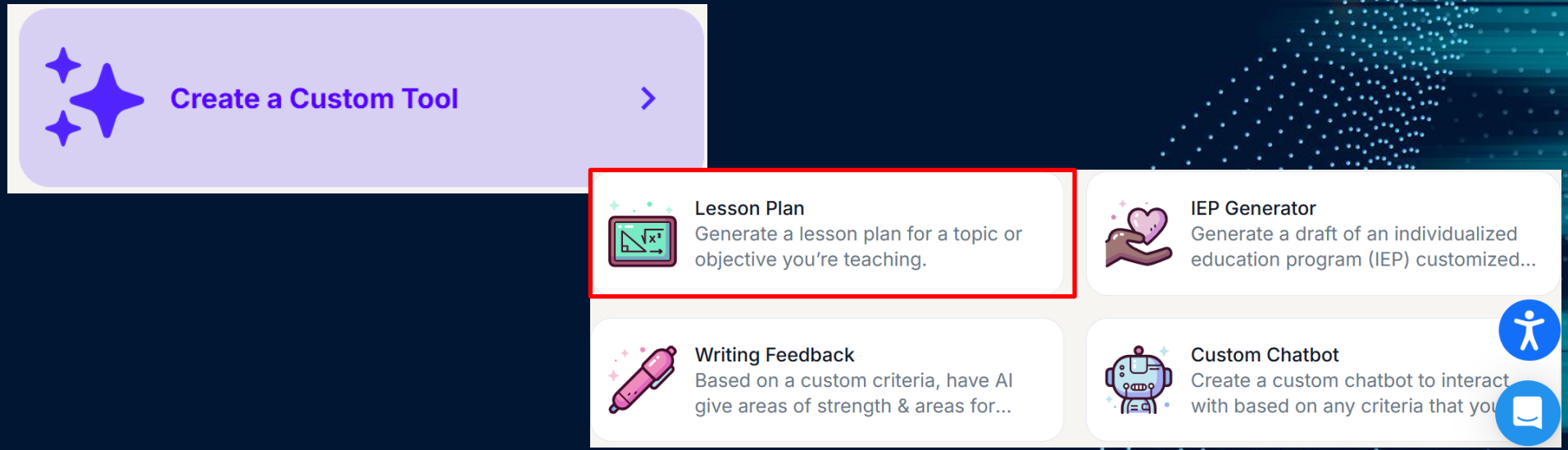
- Break students into small groups and assign each group a different milestone to research.
- Provide guiding questions to scaffold their research, starting with basic facts and progressing to the significance of their assigned milestone.
- Monitor groups as they work, providing feedback and ensuring they stay focused on their research.

INDEPENDENT PRACTICE:

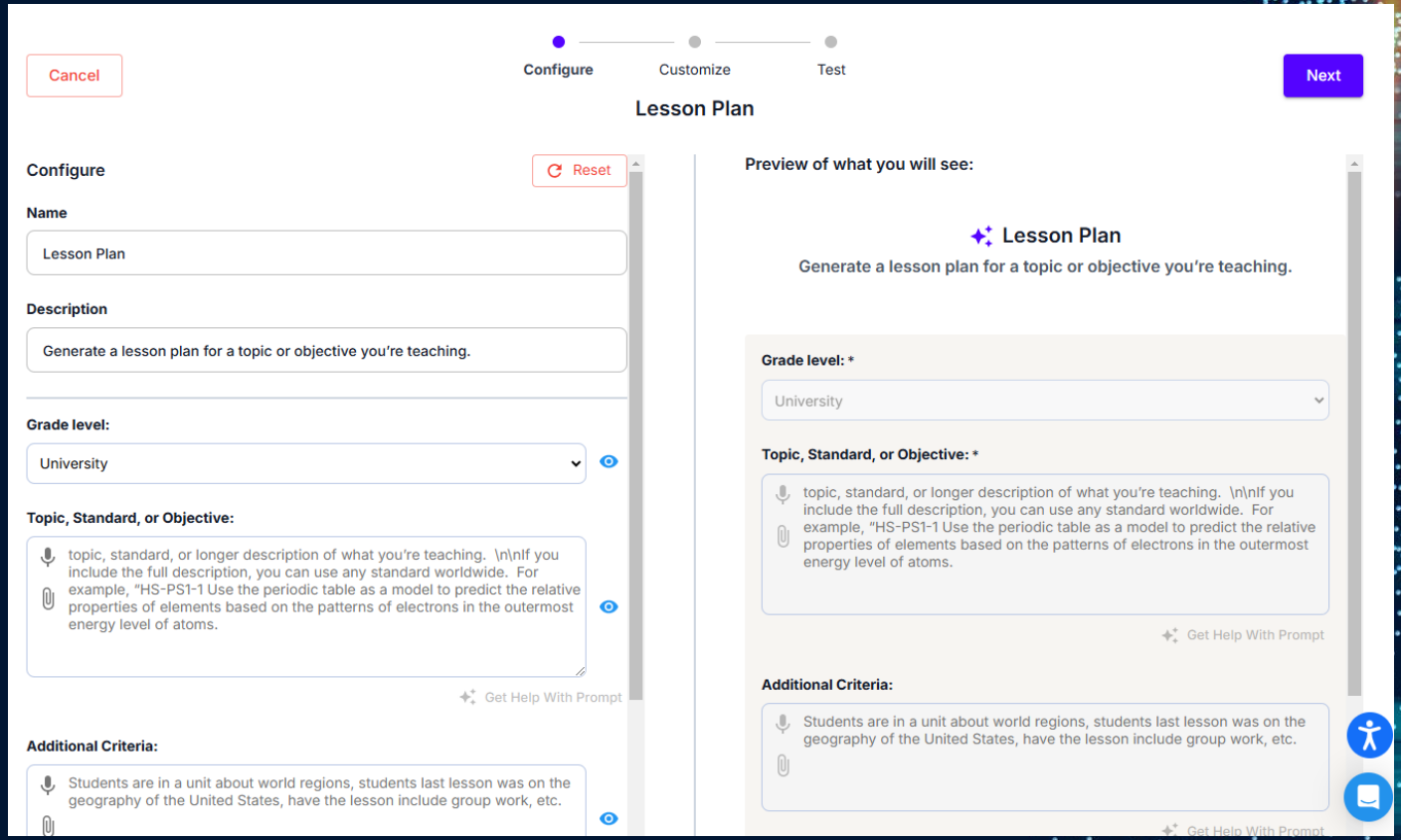
- Assign students to create individual timeline projects using digital tools or poster boards.
- The project should include visuals, descriptions, and connections between milestones.
- Set expectations for presentation quality and creativity, encouraging them to express their understanding of AI's history.

Create a Custom Tool

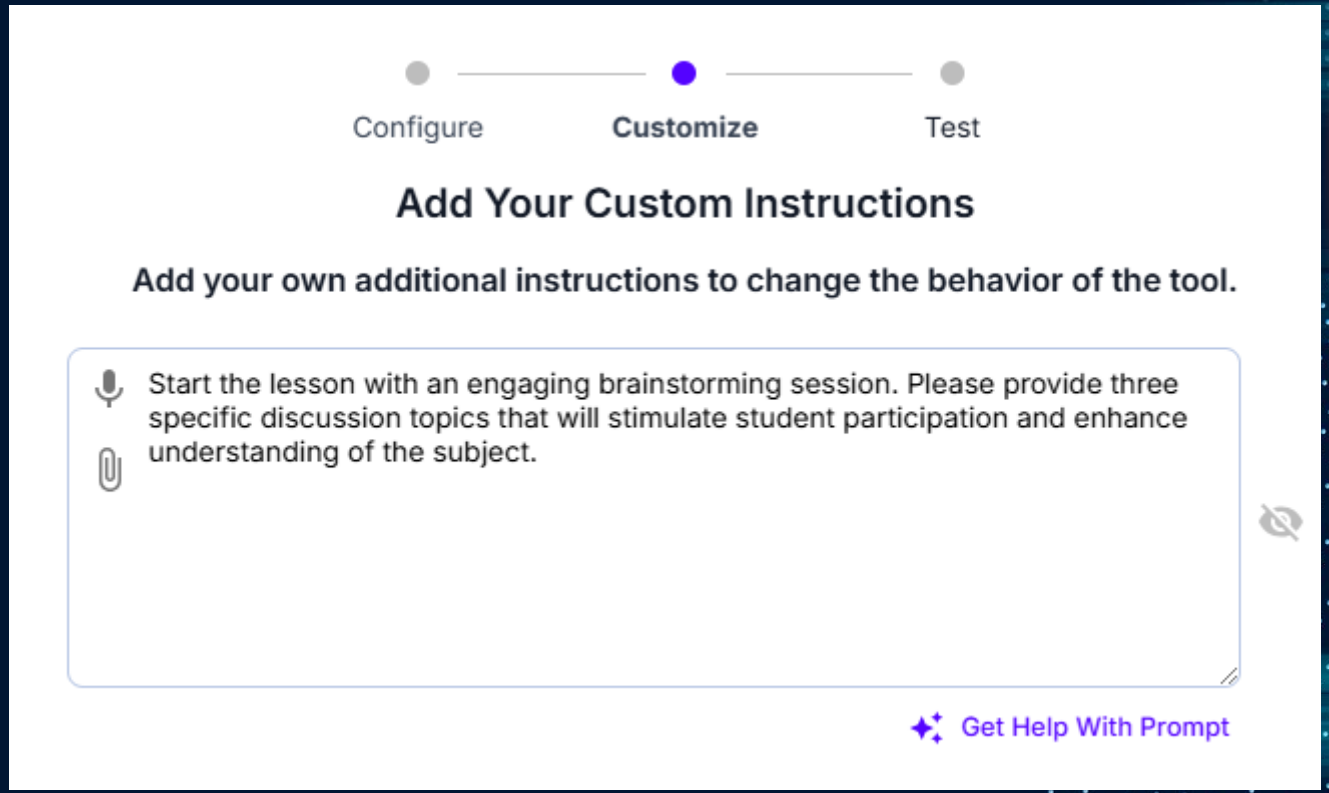
- save your settings, eliminating the need to repeatedly enter the same settings each time.



Create a Custom Tool



Create a Custom Tool

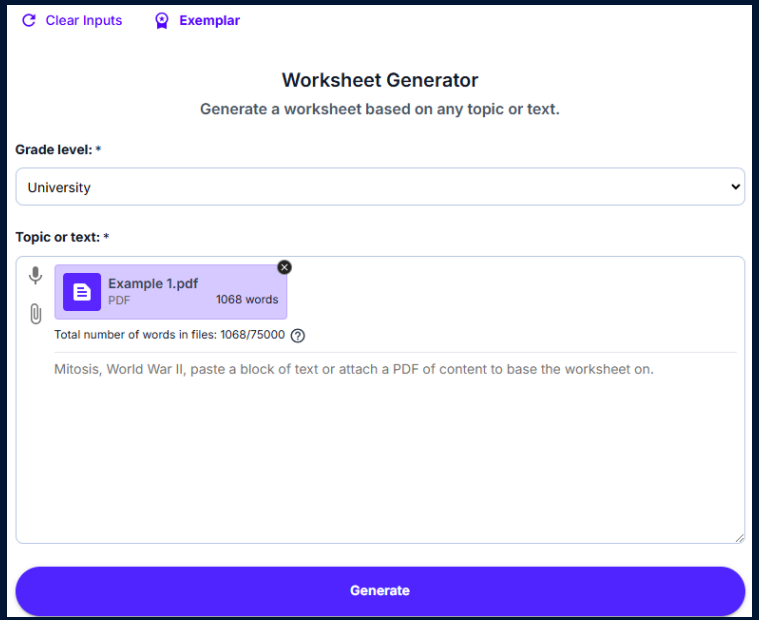


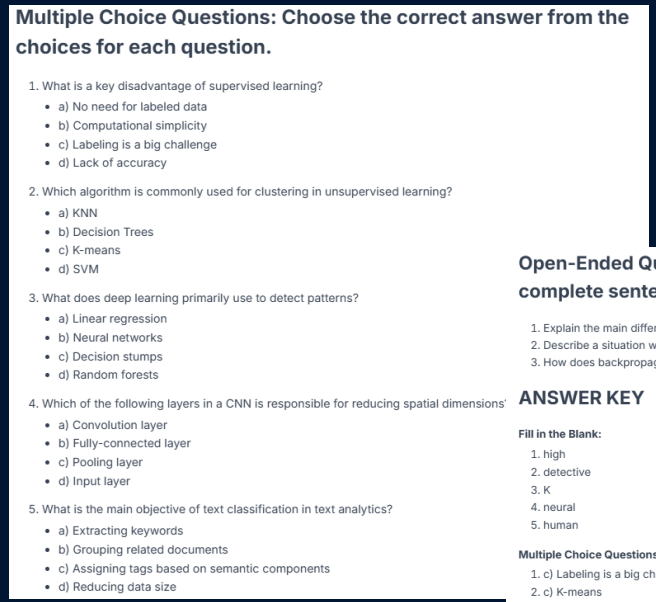
Create a Custom Tool

GUIDED PRACTICE:

- Divide students into small groups to create a mind map of the history of neural networks.
- Provide example scenarios where neural networks are used (e.g., image recognition, language processing).
- Scaffold questioning:
  - Start with: What is a neural network?
  - Move to: How did the perceptron model evolve?
  - End with: What are the implications of deep learning in society?
- Monitor group discussions by circulating and providing feedback.

Worksheet Generator





Multiple Choice Questions: Choose the correct answer from the choices for each question.

1. What is a key disadvantage of supervised learning?
   - a) No need for labeled data
   - b) Computational simplicity
   - c) Labeling is a big challenge
   - d) Lack of accuracy
2. Which algorithm is commonly used for clustering in unsupervised learning?
   - a) KNN
   - b) Decision Trees
   - c) K-means
   - d) SVM
3. What does deep learning primarily use to detect patterns?
   - a) Linear regression
   - b) Neural networks
   - c) Decision stumps
   - d) Random forests
4. Which of the following layers in a CNN is responsible for reducing spatial dimensions?
   - a) Convolution layer
   - b) Fully-connected layer
   - c) Pooling layer
   - d) Input layer
5. What is the main objective of text classification in text analytics?
   - a) Extracting keywords
   - b) Grouping related documents
   - c) Assigning tags based on semantic components
   - d) Reducing data size

Open-Ended Questions: Answer the following questions in complete sentences.

1. Explain the main difference between supervised and unsupervised learning.
2. Describe a situation where unsupervised learning could be beneficial.
3. How does backpropagation improve the accuracy of neural networks?

ANSWER KEY

Fill in the Blank:

1. high
2. detective
3. K
4. neural
5. human

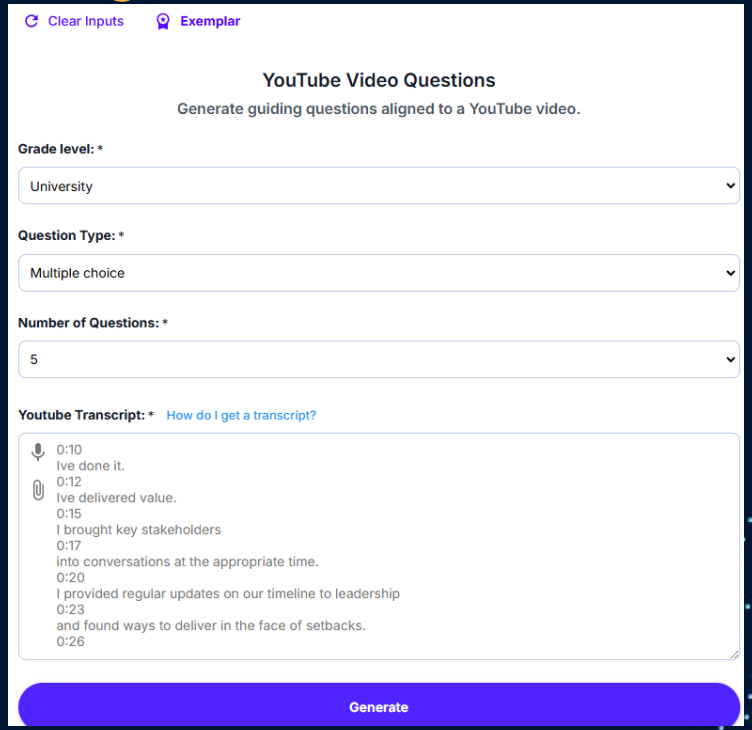
Multiple Choice Questions:

1. c) Labeling is a big challenge
2. c) K-means
3. b) Neural networks
4. c) Pooling layer
5. c) Assigning tags based on semantic components

Open-Ended Questions:

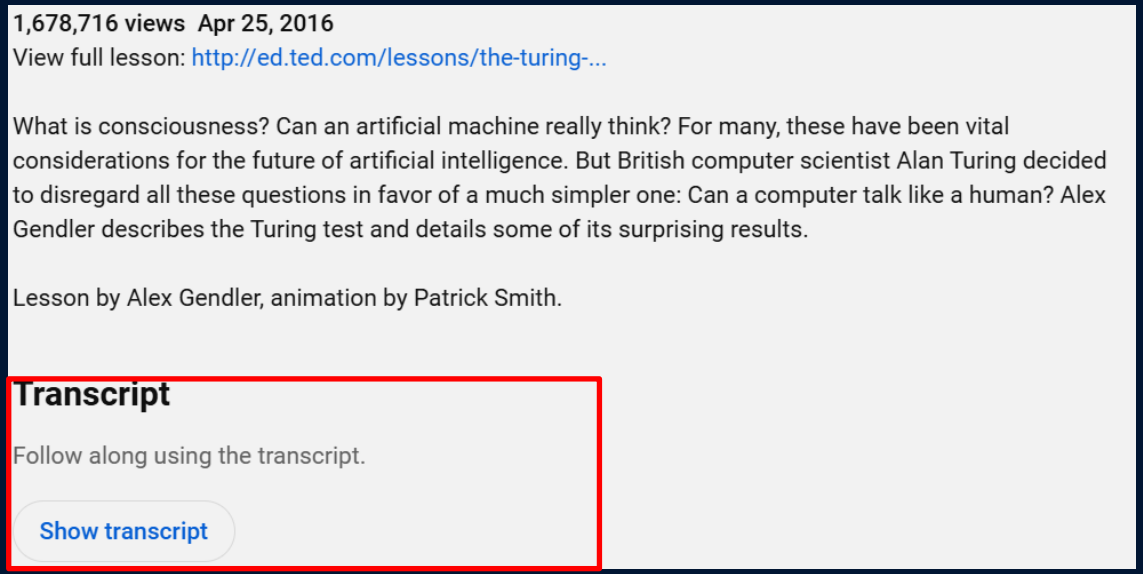
1. Supervised learning requires labeled data to guide the learning process, while unsupervised learning works with unlabeled data to find patterns and relationships.
2. Unsupervised learning could be beneficial in a situation where large amounts of data are available without labels, such as customer segmentation in marketing.
3. Backpropagation improves the accuracy of neural networks by adjusting neuron weights based on errors, iterating until the loss is minimized for more accurate predictions.

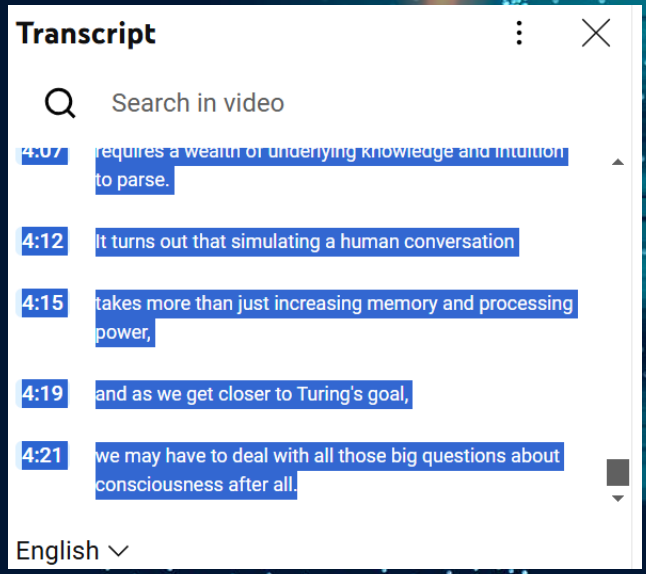
YouTube Video Questions



https://www.youtube.com/watch?v=3wLqsRLvV-c

YouTube Video Questions





https://www.youtube.com/watch?v=3wLqsRLvV-c

YouTube Video Questions

1. What was Alan Turing's primary question regarding artificial intelligence?
a. Can machines perform surgery?
b. Can a computer talk like a human?
c. Does consciousness exist in machines?
d. Can computers solve complex equations?

2. What is the Turing Test designed to evaluate?
a. A machine's ability to perform tasks.
b. A computer's ability to replace a human in conversation without being detected.
c. The intelligence of human beings.
d. The memory capacity of computers.

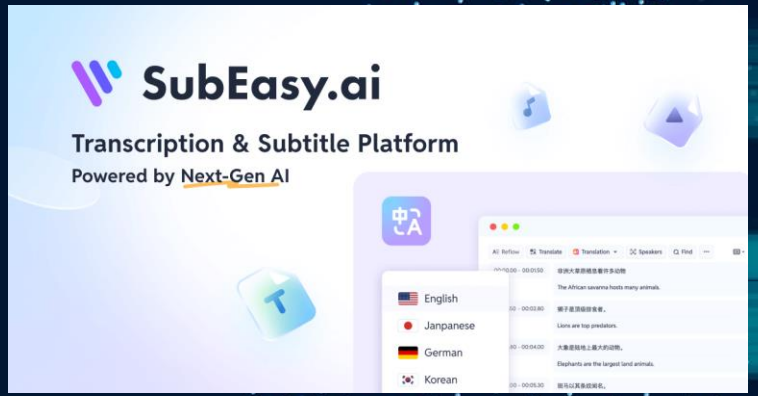
Answer Key:

1. b 0:31
2. b 0:56
3. c 1:43

https://www.youtube.com/watch?v=3wLqsRLvV-c

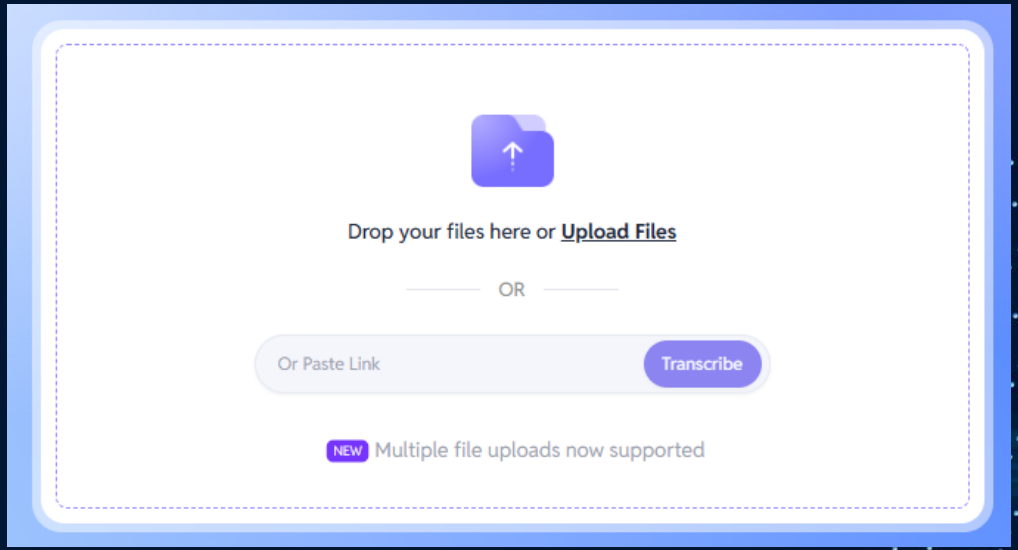
Subeasy AI

- If the YouTube videos do not have captions
- https://www.subeasy.ai/
- 3 free transcriptions per day



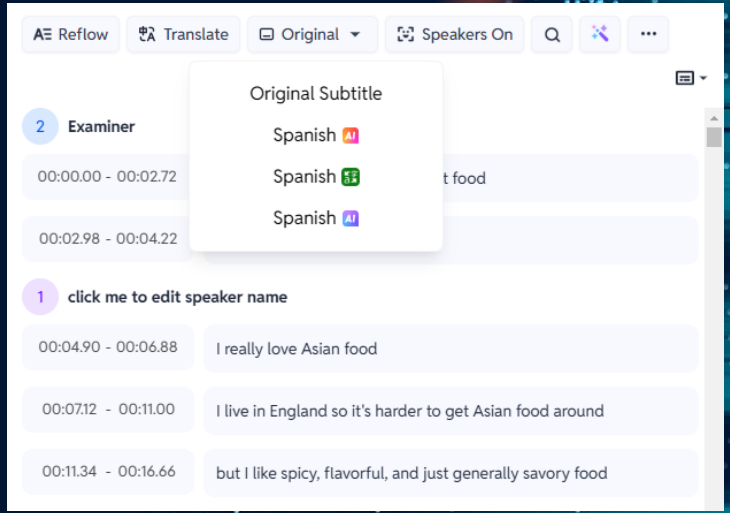
Subeasy AI

- **Upload your file / link**

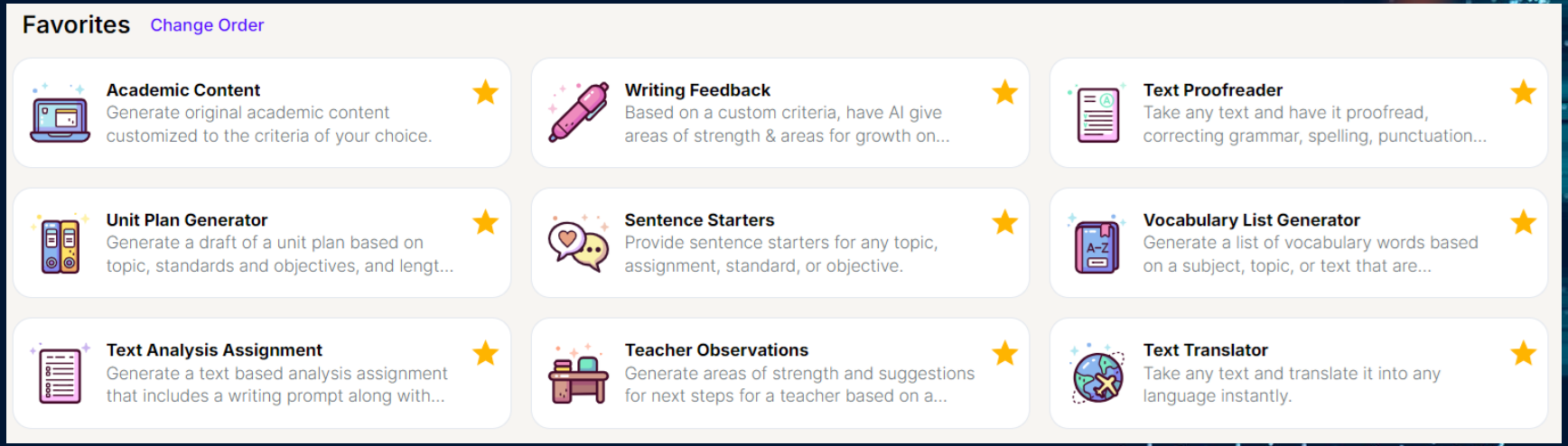


Subeasy AI

- You can create subtitles in the original language or translate them into other languages.



Other useful tools



Writing Feedback

Writing Feedback

Based on a custom criteria, have AI give areas of strength & areas for growth on student work.

Grade level: *

University

Describe the assignment: *

Include the description of the assignment.

Type of Feedback or Rubric

Give feedback on... If you have a rubric, attach it.

Additional instructions for the type of feedback?

Focus the feedback on the conventions category of the rubric, make sure to focus on the use of evidence

Get Help With Prompt

Insert the writing you want feedback on:

Copy, then paste your written work here that you want AI feedback on.

Areas of Strength:

- Your reflection demonstrates strong understanding of AI concepts learned in the course, particularly in explaining machine learning methods and specific AI tools. Your statement that "Understanding these concepts helped me grasp how AI systems learn and make decisions" shows good synthesis of learning.
- You effectively addressed two significant AI issues (copyright and employment) with specific examples and technologies. Your discussion of "diffusion models and transformer architectures" shows technical understanding of the subject matter.
- Your analysis of potential solutions is well-thought-out, especially your suggestion for "a new structure for AI-generated content" including specific recommendations like mandatory disclosure and new licensing frameworks.

Areas for Growth:

- Consider providing more specific examples from your personal learning experience. While you mention tools like "Teachable Machine, Copilots, and Gamma AI," you could elaborate on how you specifically used these tools.
- Your discussion of AI's impact on employment could be strengthened with more specific data or examples beyond the CNN citation. Consider incorporating additional sources to support your arguments.
- The conclusion could be more impactful by offering more specific reflections on how your newfound AI knowledge will influence your future academic or professional endeavors.

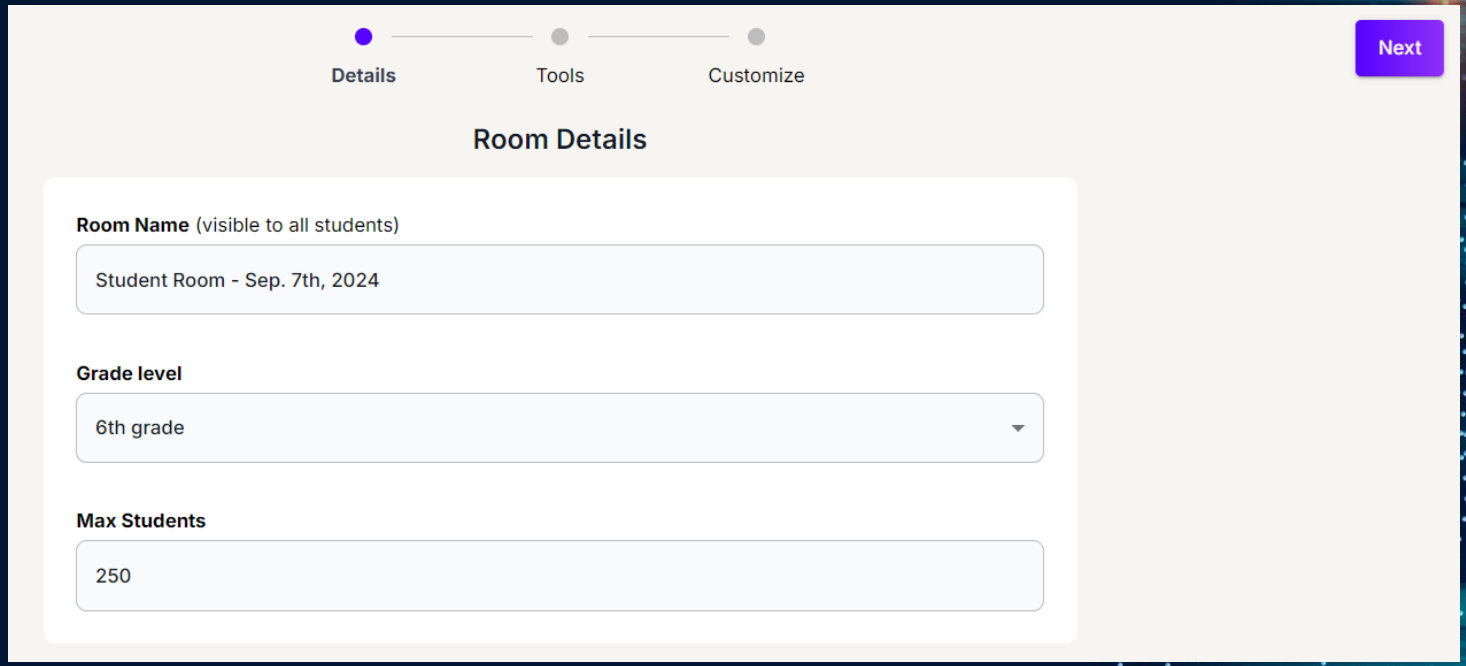
General Feedback on Writing Mechanics:

- Work on paragraph transitions to improve flow. For example, the shift between your personal learning experience and AI issues sections could be smoother.
- Consider using more varied sentence structures. Many of your sentences follow similar patterns, particularly in the AI issues section.
- Your citation format is appropriate, but consider incorporating in-text citations throughout the paper to strengthen your arguments, especially when discussing employment statistics.

Student AI classroom

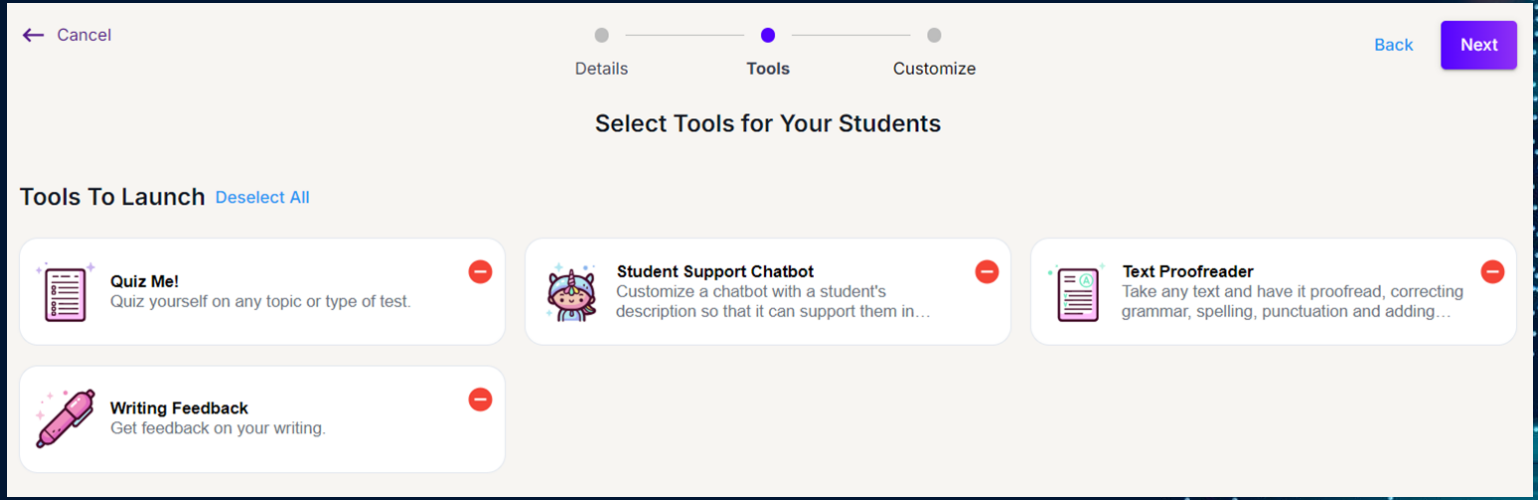
Select AI tools that are suitable for students to enhance their learning and monitor their progress. (PS: The current features are not designed for assigning or submitting homework; they are intended solely to support learning.)

Student AI classroom Setup



Student AI classroom

Choose AI tools that are appropriate for students.



Student AI classroom

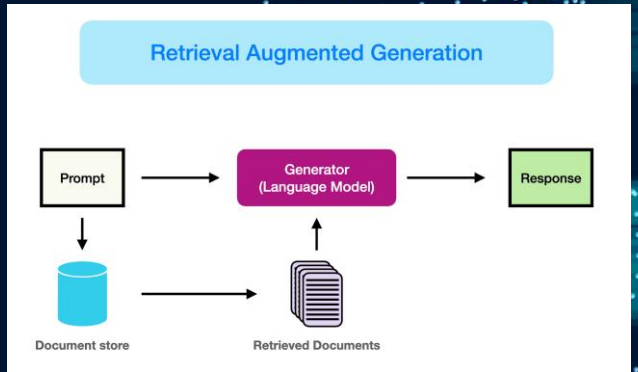
Assist their learning and track their progress.

Limitations of Common GPT Models

- Outdated Database
- Weak/Wrong References

RAG (Retrieval Augmented Generation)

- RAG is an innovative framework that combines the strengths of LLMs with an external retrieval mechanism.
- This allows models to access up-to-date information from external sources before generating responses.



Perplexity AI

- Advanced AI search engine
- Accesses current information from the internet
- Retrieves data from scholarly sources

Perplexity AI

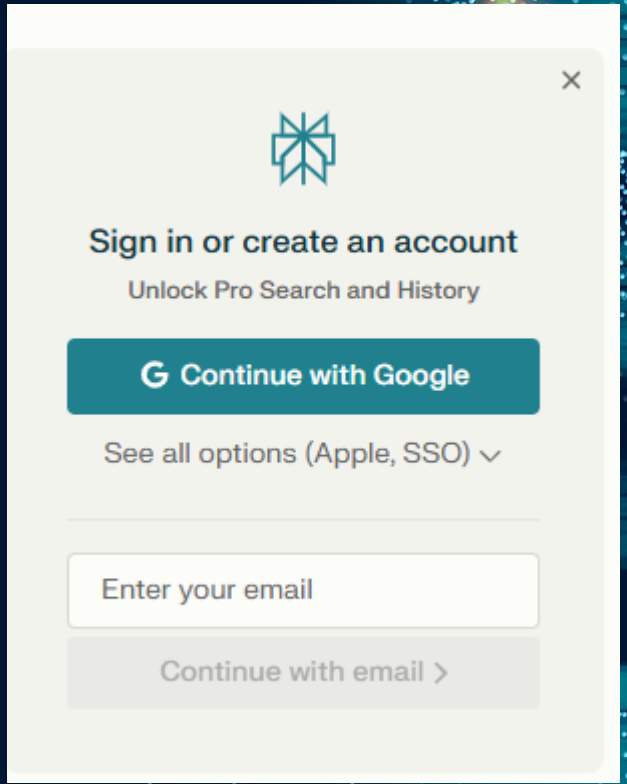
- **Nvidia CEO Jensen Huang uses Perplexity AI 'almost every day'**

(Mark Tyson. "Nvidia CEO Jensen Huang uses Perplexity AI 'almost every day' – ChatGPT is also a favorite." Tom's Hardware, 24 Feb. 2024, www.tomshardware.com/tech-industry/artificial-intelligence/nvidia-ceo-jensen-huang-uses-perplexity-ai-almost-every-day-chatgpt-is-also-a-favorite)

(Image credit: Nvidia)

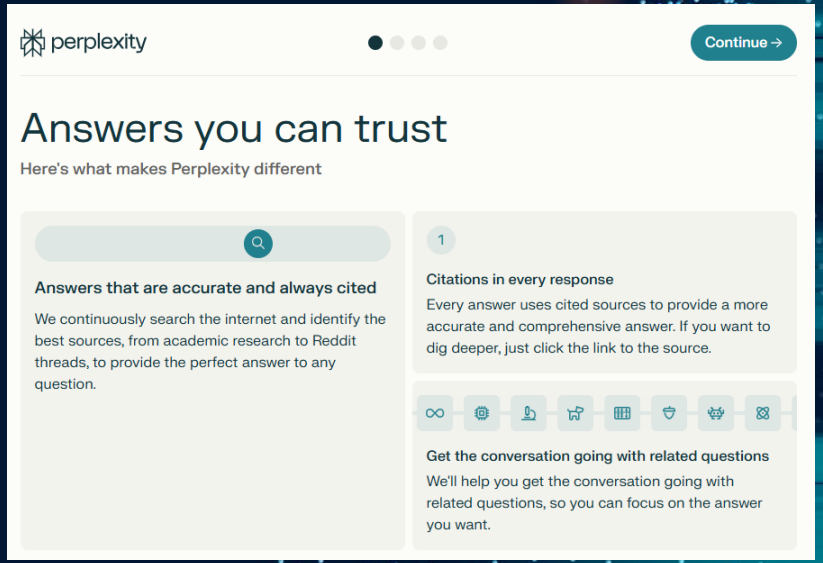
Registration

- https://www.perplexity.ai/
- Login with Google



Compare with ChatGPT

- Provide answers with cited sources to help deepen the exploration of the issue



Please ask Perplexity the following questions

1. What is Deepseek
2. I am a university lecturer, and I would like to introduce Deepseek to my students, focusing on its key features and architecture within 15 minutes. Since they are not familiar with AI, please use simple wording; metaphors are recommended.

Question 1

What is Deepseek

DeepSeek - Wikipedia
en.wikipedia

DeepSeek: The Chinese AI app that has the worl...
bbc

deepseek-ai (DeepSeek) - Hugging Face
huggingface

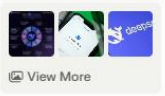
+4 sources

Answer

DeepSeek is a Chinese artificial intelligence company based in Hangzhou, Zhejiang, founded in July 2023 by Liang Wenfeng, co-founder of the hedge fund High-Flyer [1]. The company specializes in developing large language models (LLMs) and has gained significant attention for its cost-effective approach to AI development.

Key Features and Achievements:

- **Low-Cost Development**: DeepSeek's models are developed at a fraction of the cost compared to competitors like OpenAI. For instance, its V3 model was trained for approximately $6 million, significantly less than the hundreds of millions spent by other companies [1] [2].
- **Performance**: DeepSeek's models, such as DeepSeek-R1, offer performance comparable to leading models like OpenAI's GPT-4, despite the lower development costs [1].
- **Technological Innovations**: DeepSeek incorporates advanced technologies like Mixture of Experts (MoE) and multi-head latent attention in its models, enhancing efficiency and reducing memory usage [1].
- **Market Impact**: The release of DeepSeek's chatbot app in January 2025 led to it becoming the most downloaded free app on the US iOS App Store, causing significant market fluctuations, including a drop in Nvidia's stock price [1] [2].



Search Videos +

Generate Image +

Question 2

What is Deepseek? Differences from... kalm

Everything About DeepSeek: Key Feature... popai

LLM (ML) Job Interviews - Resources - Mimansa... mimansajaiswal.gith...

+5 sources

Answer

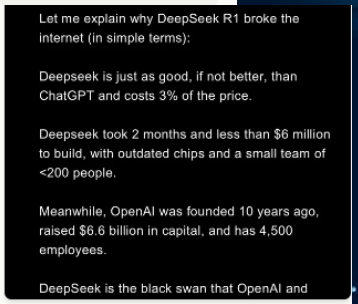
Introducing DeepSeek to your students can be engaging and straightforward. Here's a simplified explanation of its key features and architecture, using metaphors to help them understand:

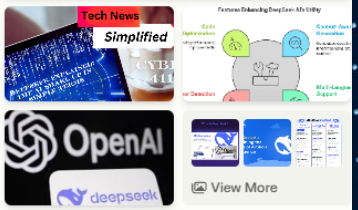
Introduction to DeepSeek

Imagine you're in a vast library with millions of books. Traditional search engines are like librarians who find books based on keywords. DeepSeek is like a super-smart librarian who not only finds books but also understands what you're looking for, why you need it, and even suggests related books you might not have thought of.

Key Features of DeepSeek

1. **Advanced Data Analysis**: DeepSeek is like a powerful microscope that helps you see the details in a large dataset. It uses artificial intelligence (AI) to analyze data from many sources, making it easier to understand complex information.
2. **Natural Language Processing (NLP)**: Think of NLP as a translator who understands what you mean, not just what you say. DeepSeek uses NLP to interpret your questions and provide relevant answers.
3. **Real-Time Processing**: Imagine having a super-fast computer that can process information instantly. DeepSeek can analyze data in real-time, which is useful for applications that need quick responses.
4. **Mixture-of-Experts (MoE) System**: Picture a team of experts, each specializing in a different area. DeepSeek's MoE system is like this team, where only the relevant experts are called upon to solve a problem, making it efficient and accurate.
5. **Multi-Head Latent Attention (MLA)**: This feature is like having multiple spotlights that shine on different parts of a complex problem, helping DeepSeek understand it better.



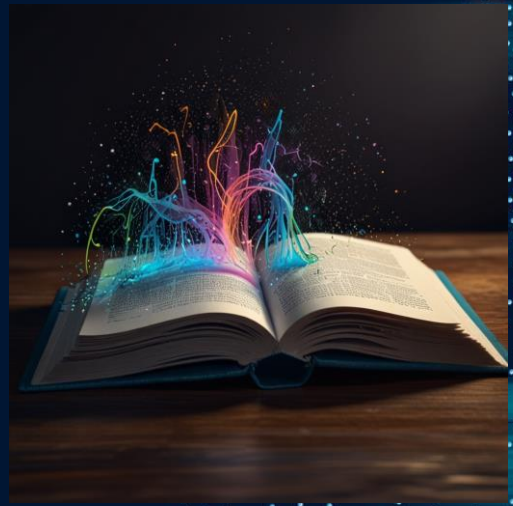


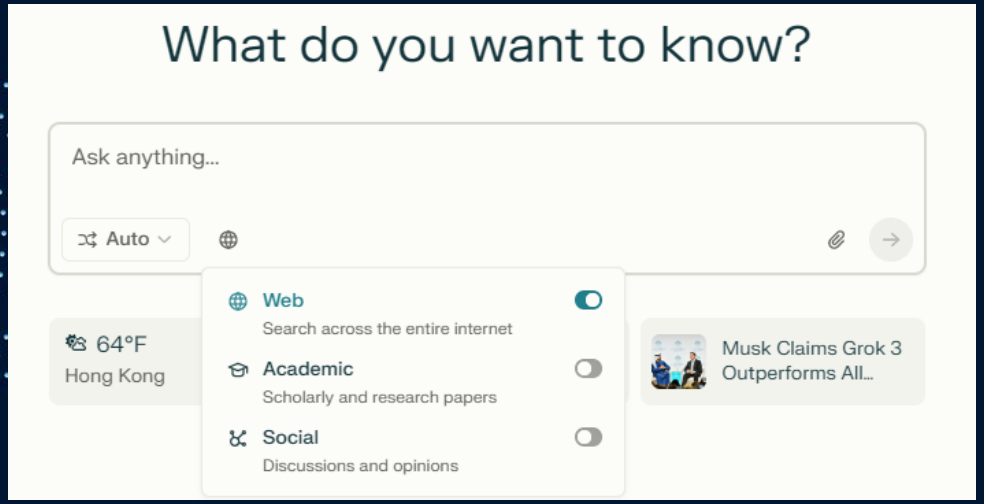
Search Videos +

Generate Image +

Tips

1. Need to verify the wordings (It uses GPT 3.5 to summarize information in the free version)
2. Need to verify the links

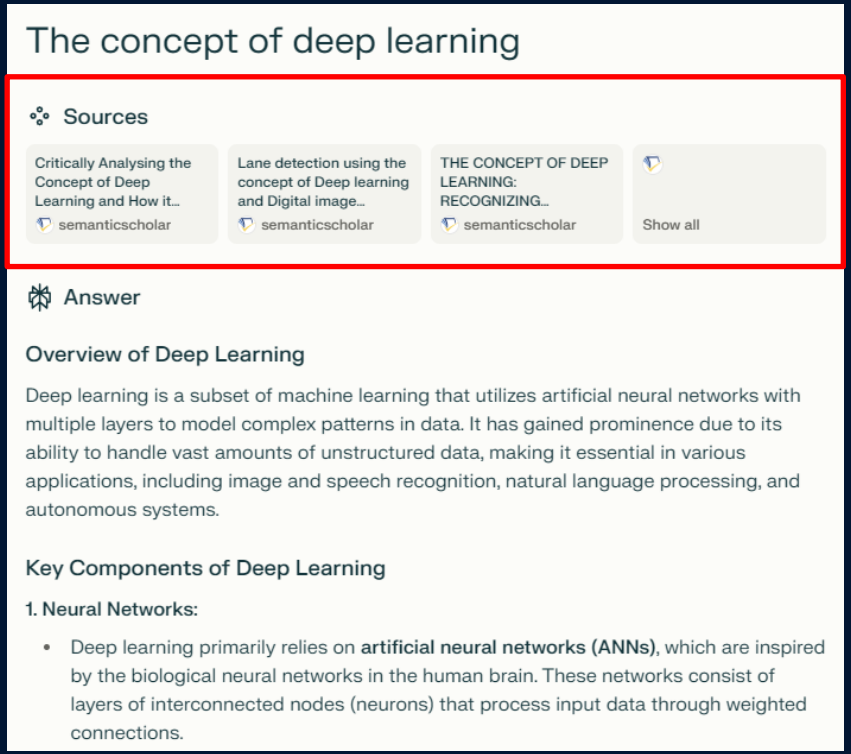




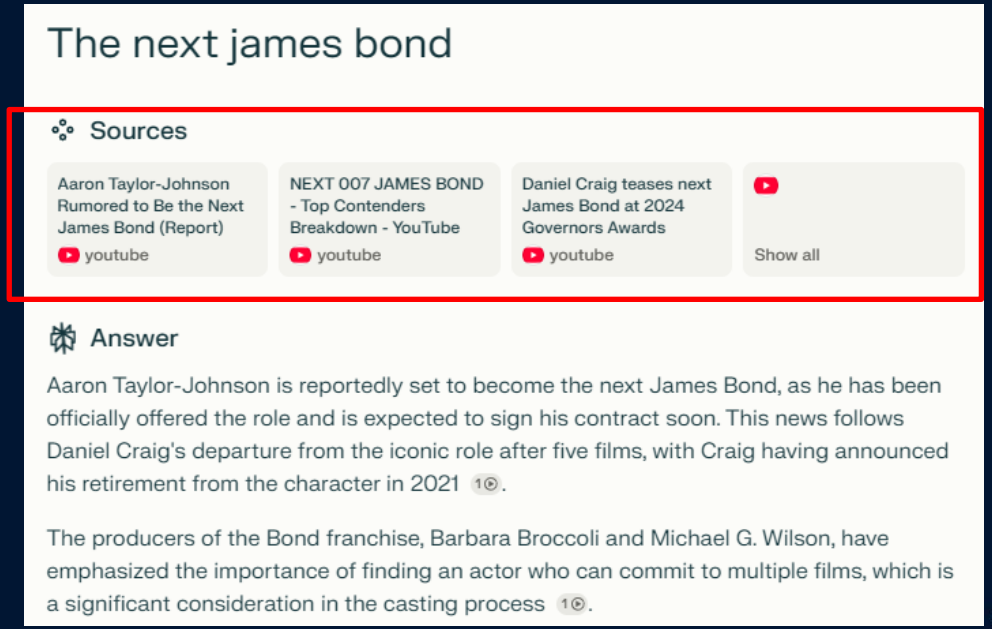
Furthermore

You can choose a specific group of references

Academic Search

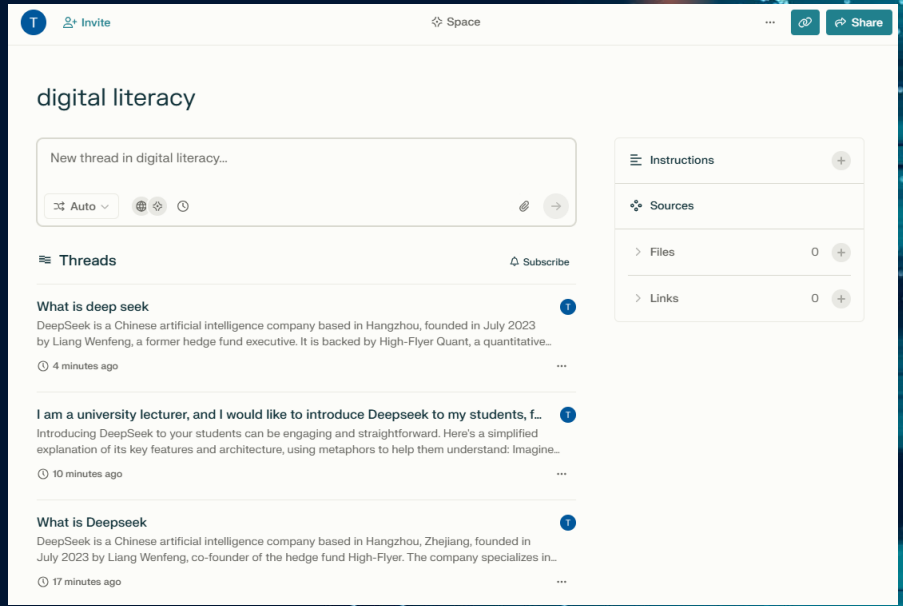


Video Search (App version)

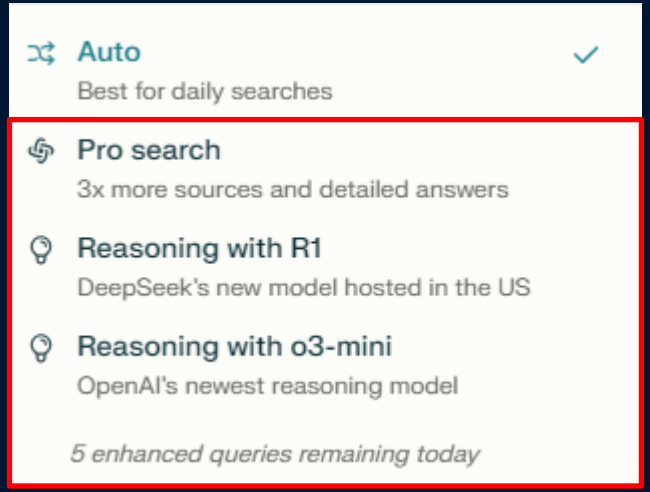


Space

- **Organize: Save research, sources, and insights in one place.**
- **Collaborate and Share: Exchange knowledge and perspectives for collective understanding.**



Different LLMs



The DeepSeek model in Perplexity is hosted on servers based in the US and Europe, meaning that your data is not shared with the model provider or with China.
Furthermore, they have eliminated all censorship on answers. You can ask it about any topic, even ones that are censored on the DeepSeek app, giving you unbiased and accurate answers. (Perplexity, 2025)

Pro Search

Tax saving tips in Hong Kong

Budget 2025: Taxpayers will see lower tax... hongkongfp | Hong Kong SAR - Individual - Deductions ... taxsummaries.pwc | 9 Ways to Reduce Your Personal Tax in Hong... hkcompanyregistrat... | +17 sources

Answer

Here are some tax-saving tips in Hong Kong:

1. Mandatory Provident Fund (MPF) Contributions

- **Deduction Limit**: Up to HKD 18,000 per year.
- **Benefit**: Reduces taxable income, thus lowering your tax liability [2] [3].

2. Voluntary MPF Contributions and Qualifying Annuity Premiums

- **Deduction Limit**: Up to HKD 60,000 per year.
- **Benefit**: Additional tax savings on top of mandatory contributions [2] [4].

3. Charitable Donations

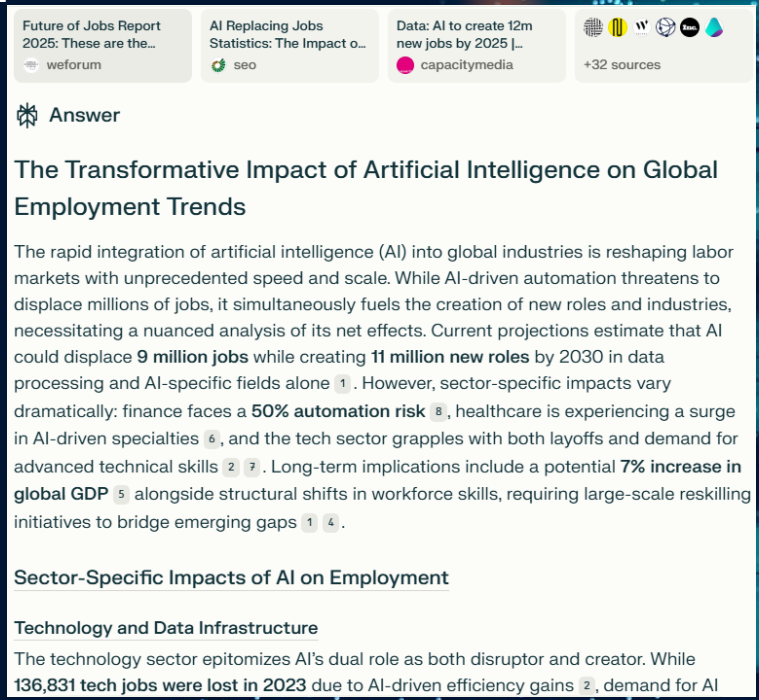
- **Deduction Limit**: Up to 35% of assessable income.
- **Benefit**: Encourages philanthropy while reducing taxable income [2] [3].

4. Home Loan Interest Deduction

- **Deduction Limit**: Up to HKD 100,000 (HKD 120,000 if residing with a child born on or after 25 October 2023) per year.
- **Benefit**: Reduces taxable income for homeowners [2] [3].

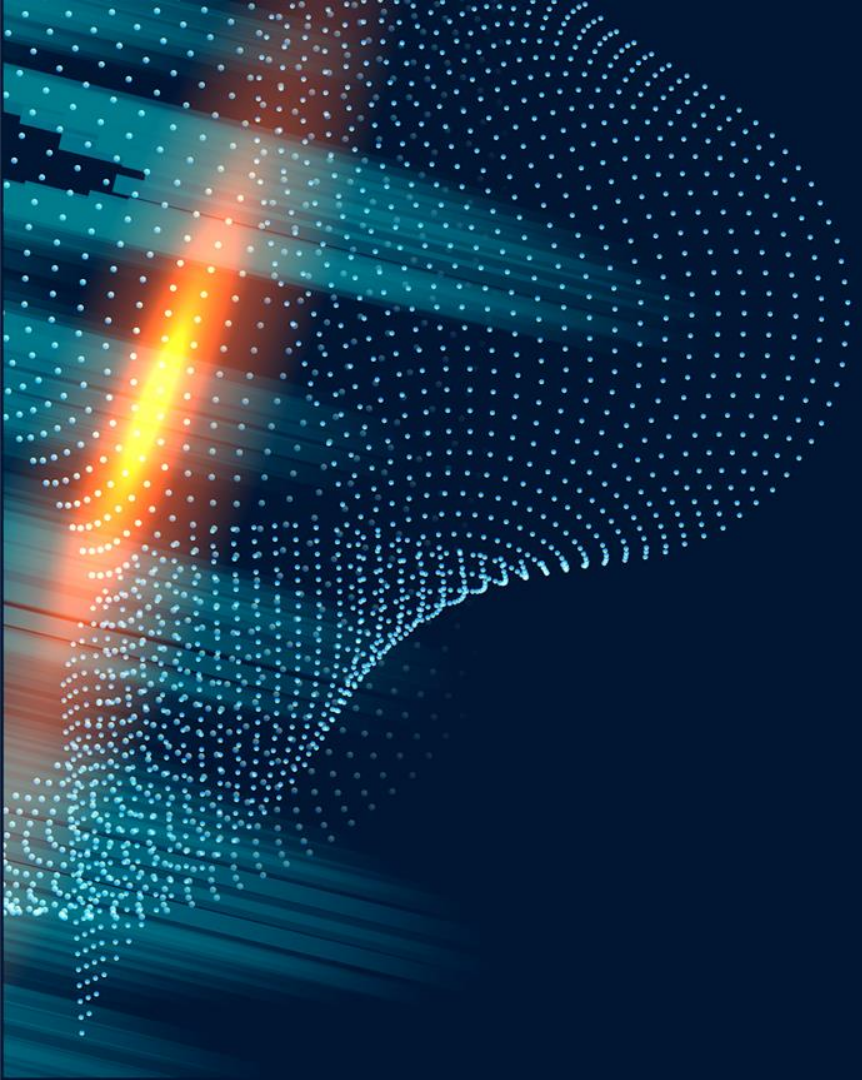
Deep Research

Examine the effects of AI on employment trends across various industries. Include statistical data on both job displacement and job creation, and analyze the long-term implications for the workforce



AI tools selection

1. Privacy and Security
    - https://www.magicschool.ai/privacy
    - Perplexity: https://www.perplexity.ai/help-center/en/articles/10354855-what-data-does-perplexity-collect-about-me
2. Easy to Use
3. Mobile friendly
4. Cost



Q&A