

Introduction to Artificial Intelligence

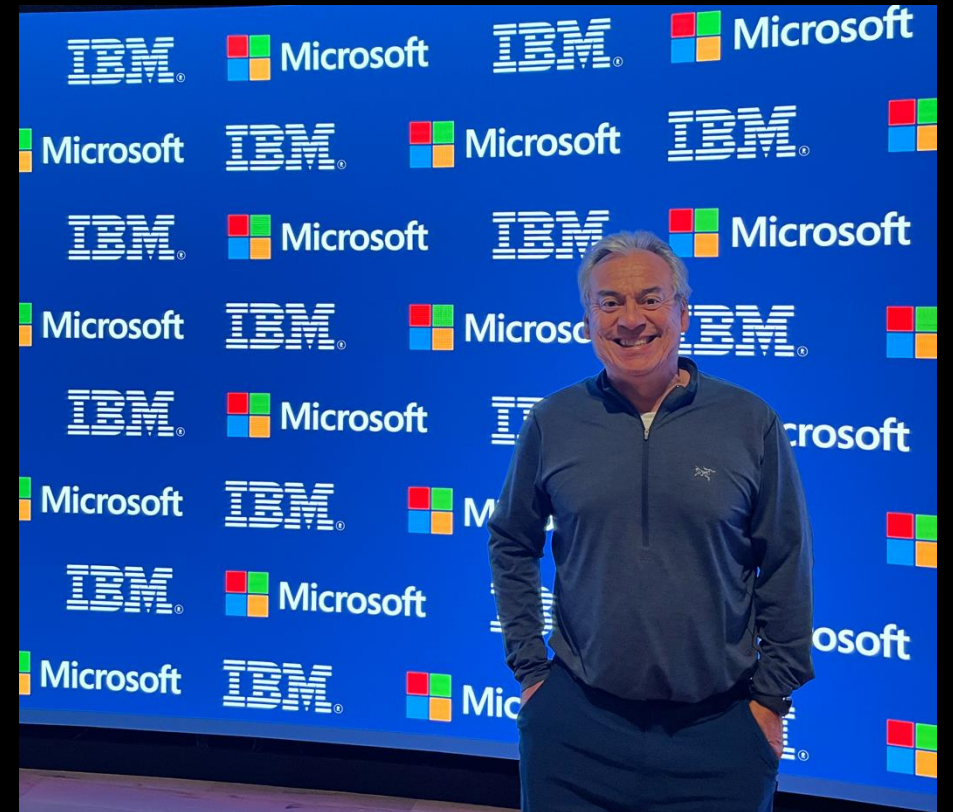
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Ricoh

Adjunct Instructor
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- Intros
- AI 101
- Generative AI
- Demos



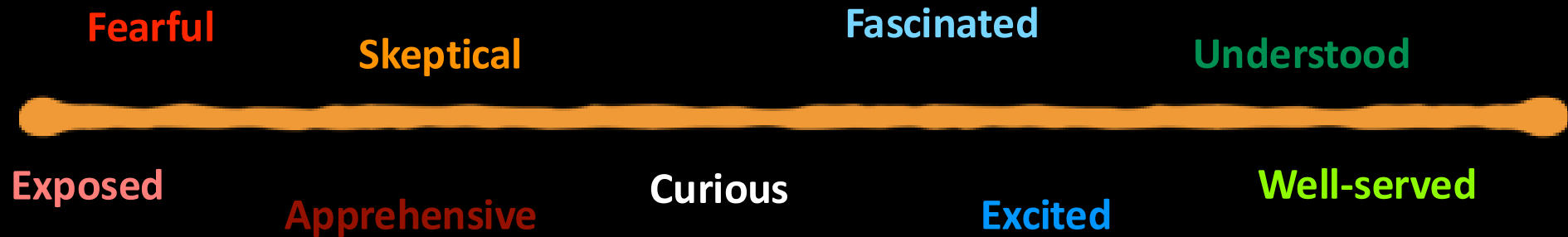
What is AI?

www.slido.com

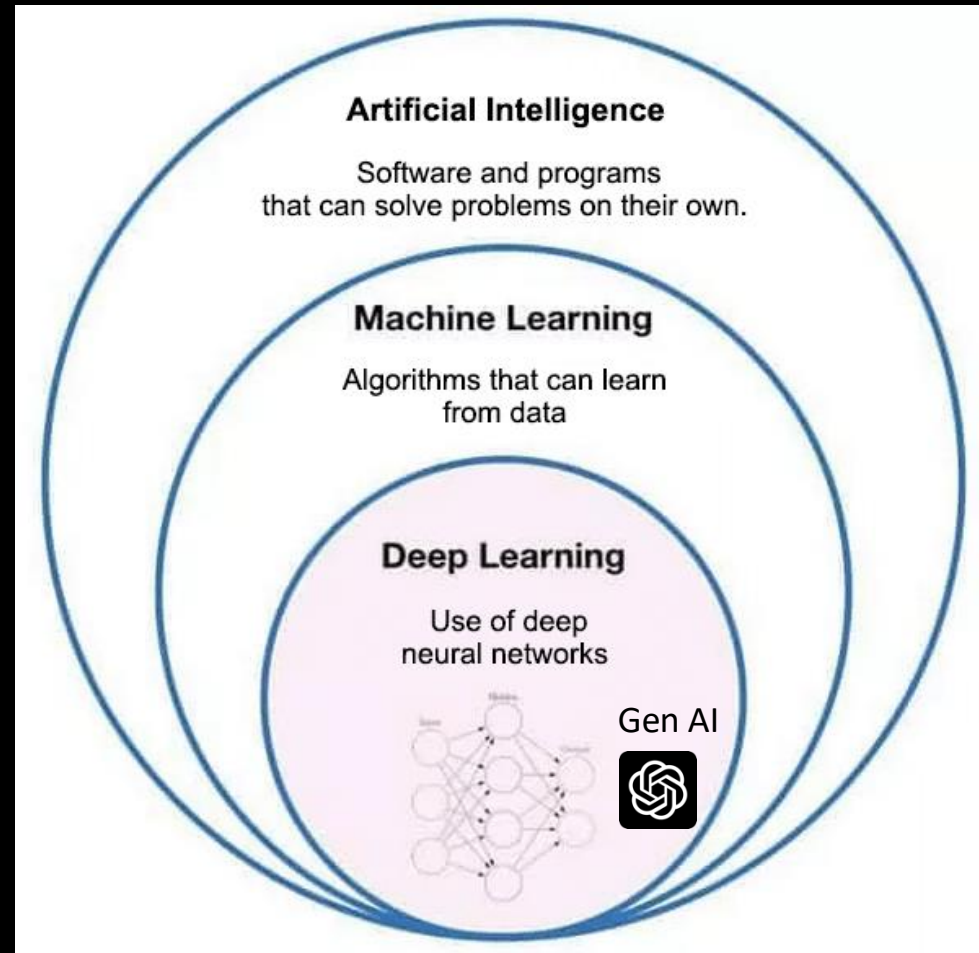
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AI Perception

What do people feel about AI?



What we know



What we know



Intelligence demonstrated by CU Students

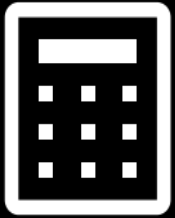


Exercise 1

How is AI being used today?

AI is Everywhere

AUTOMATION



Automating actions, processes, and alerts

CONVERSATION



Understanding text and answering questions in natural language

OPTIMIZATION



Analyzing data for patterns and outliers and deriving insights

RECOMMENDING AND INSIGHTS



Understanding needs and recommending solutions

PERSONALIZING



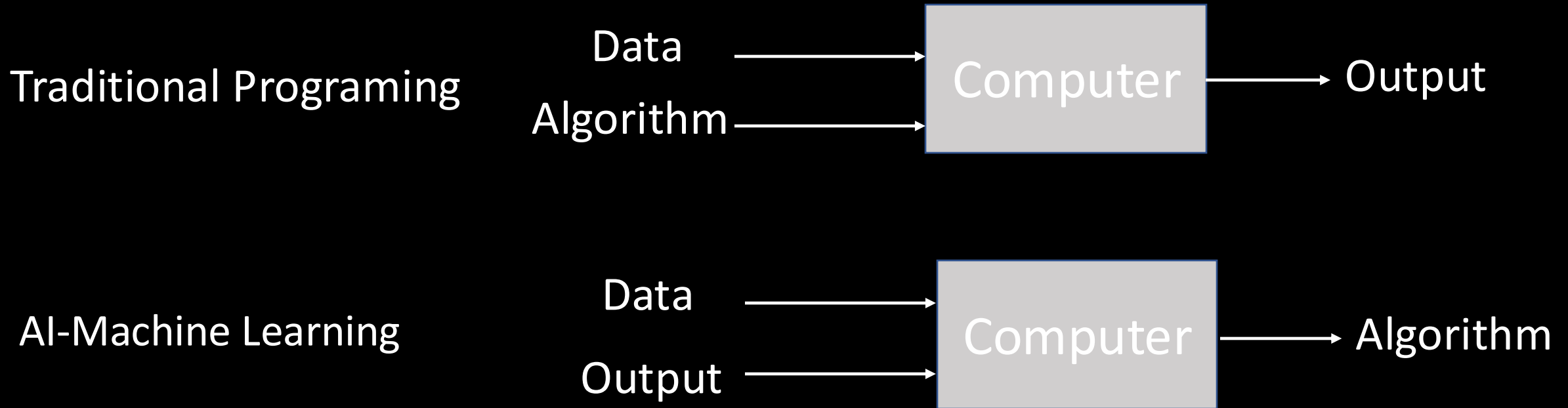
Personalizing experiences

VISUAL RECOGNITION



Recognizing objects in images and videos

Why Machine Learning?



AI provides systems the ability to **automatically** learn from **experience** (without being programmed)

Exercise 2

PB&J Recipe



Exercise 1

Program how to make a Peanut Butter & Jelly sandwich

1. Get ingredients (PB, Jelly, Bread)
2. Get cooking utensils (plate, knives)
3. Get two slices of bread
4. Open PB, Jelly jars
5. With a knife spread 2 Tablespoons of peanut butter on one piece of bread
6. With a different knife, spread 2 Tablespoons of jelly on the other slice of bread
7. Put the slices together
8. Toddler adaptation: cut off crusts before serving.
9. Place on plate & serve



Exercise 3

Machine Learning:

Sample



Label



dog



cat



horse

Human Learning:

We learn through

Cat or Dogs



Long Ear Black nose

dog



Machine Learning:

Sample



Label



dog



cat



horse

Human Learning:

We learn through

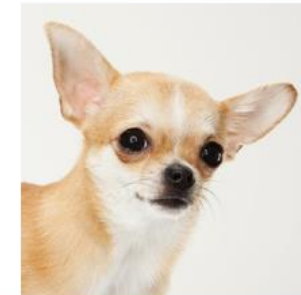


Examples

Long Ear Black nose



Diagrams



Comparisons

Exercise 4

Passing truck in
highway



Passing truck in highway

Don't Follow Closely Behind Prior to Passing

- As you prepare to pass, keep a healthy distance between your car and the truck in front of you. At minimum, 30 feet should separate the two vehicles. Signal clearly to indicate your next move.

Pass in the Left Lane

- The left lane is referred to as the 'passing lane' for a reason; it's the safest place to pass any vehicle, but particularly trucks and buses. It's frustrating to be stuck behind a slow truck in the left lane, but resist the urge to pass on the right side.

Don't Linger in the Truck's Blind Spot

- Trucks have huge blind spots on both sides. Pass promptly while still abiding by the speed limit. Don't hang out in the blind spot area, which, in the left (passing) lane, constitutes the truck's entire front half.

Recognition

- With GPS navigation, HiRes cameras, Laser-radar cameras: Location, speed of trucks, road conditions, emergency lane
- With Image Recognition: Turn signal (!lamp), paper or debris on the road

Insights

- Data is fed into multiple CPUs + collected data + rules
- Manufacturer knows who has the right of the way, when trucks can pass + MM miles driven have feedback on different driving style

Action (Cognitive Decision)

- Assist (alerts driver)
- Act (Pass or Not pass, Measure decision effects, feedback loop, and share w other cars)

Demos

Future of AI Example (Semantic Analysis)

The Wining Shot

The soccer game was nearly over. The two teams were tied, one to one.

Alice kicked the ball. Oops! She kicked it the wrong way.

"What a bad kick," Alice thought.

But wait!. Her teammate John jumped to stop the ball. The ball went off John into the goal!.

Alice's team won the game. Hooray! It was not a bad kick, after all.

Who won the game?

Why?

Future of AI Example

The Wining Shot

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Who won the game?

Answer: Alice's team

Correct

Explanation: Alice's team won the game because Alice's team had more points than the other team

✓ Correct

ChatGPT

JE

read this: The Wining Shot

The soccer game was nearly over. The two teams were tied, one to one.

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Alice's team won the game. Hooray! It was not a bad kick, after all.

ChatGPT

JE

who won the game



Alice's team won the game, even though Alice initially thought she had made a bad kick. John's quick thinking and intervention helped the team to score the winning goal, and they were able to secure victory in the game.

JE

why?



Alice's team won the game because John was able to use his skills and reflexes to intercept the ball, even though Alice's kick was not aimed in the right direction. John's intervention caused the ball to go into the goal, which resulted in a score for Alice's team. Since this happened near the end of the game and there was no time left for the other team to catch up, Alice's team won the game with a score of 2-1.

Agenda

Intro

GenAI

Closing

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Generative AI

GPT-x

Prompt:

Write a tagline for an ice cream shop.

Response:

We serve up smiles with every scoop!

Codex

Prompt:

```
Table customers, columns =  
[CustomerId, FirstName,  
LastName, Company, Address,  
City, State, Country,  
PostalCode]
```

Create a SQL query for all customers in Texas named Jane
query =

Response:

```
SELECT *  
FROM customers  
WHERE State = 'TX' AND  
FirstName = 'Jane'
```

DALL·E

Prompt: A white Siamese cat

Response:

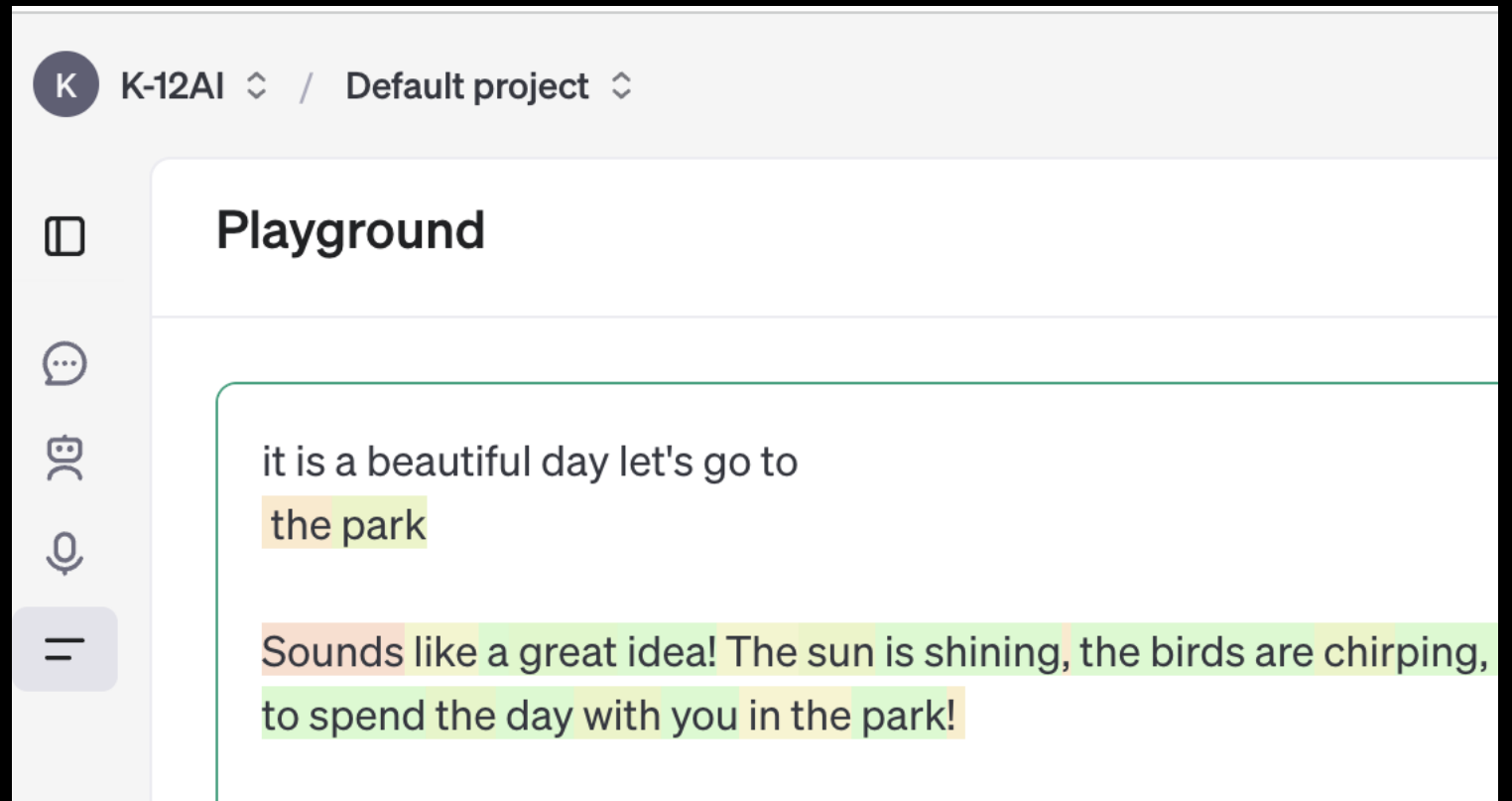


ChatGPT

The best thing about AI is it can be used for...

- Research
- Content creation
- Automation
- Solve complex problems

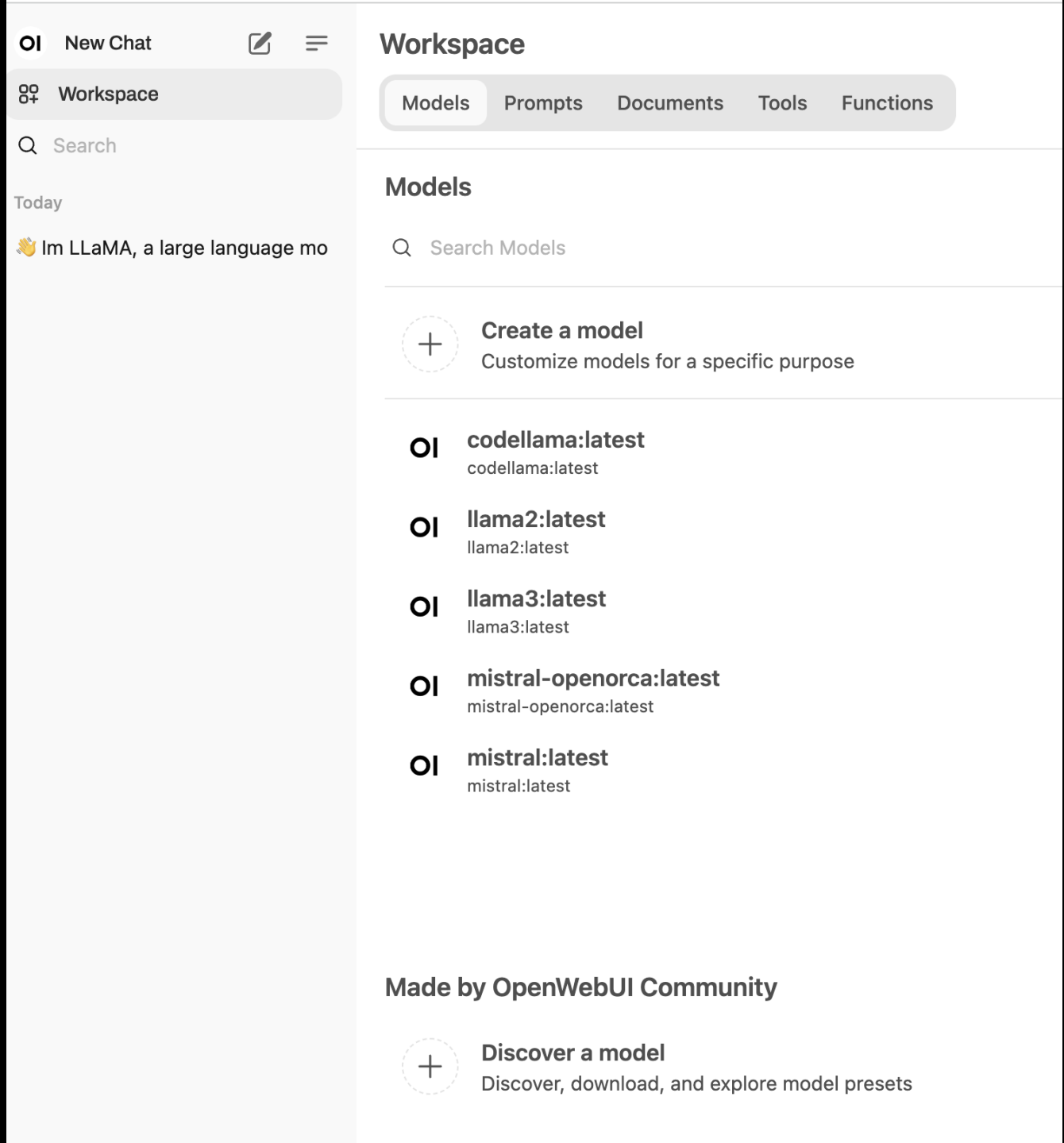
playground



<https://platform.openai.com/playground/complete>

Local LLMs

<https://docs.openwebui.com/>



Agents

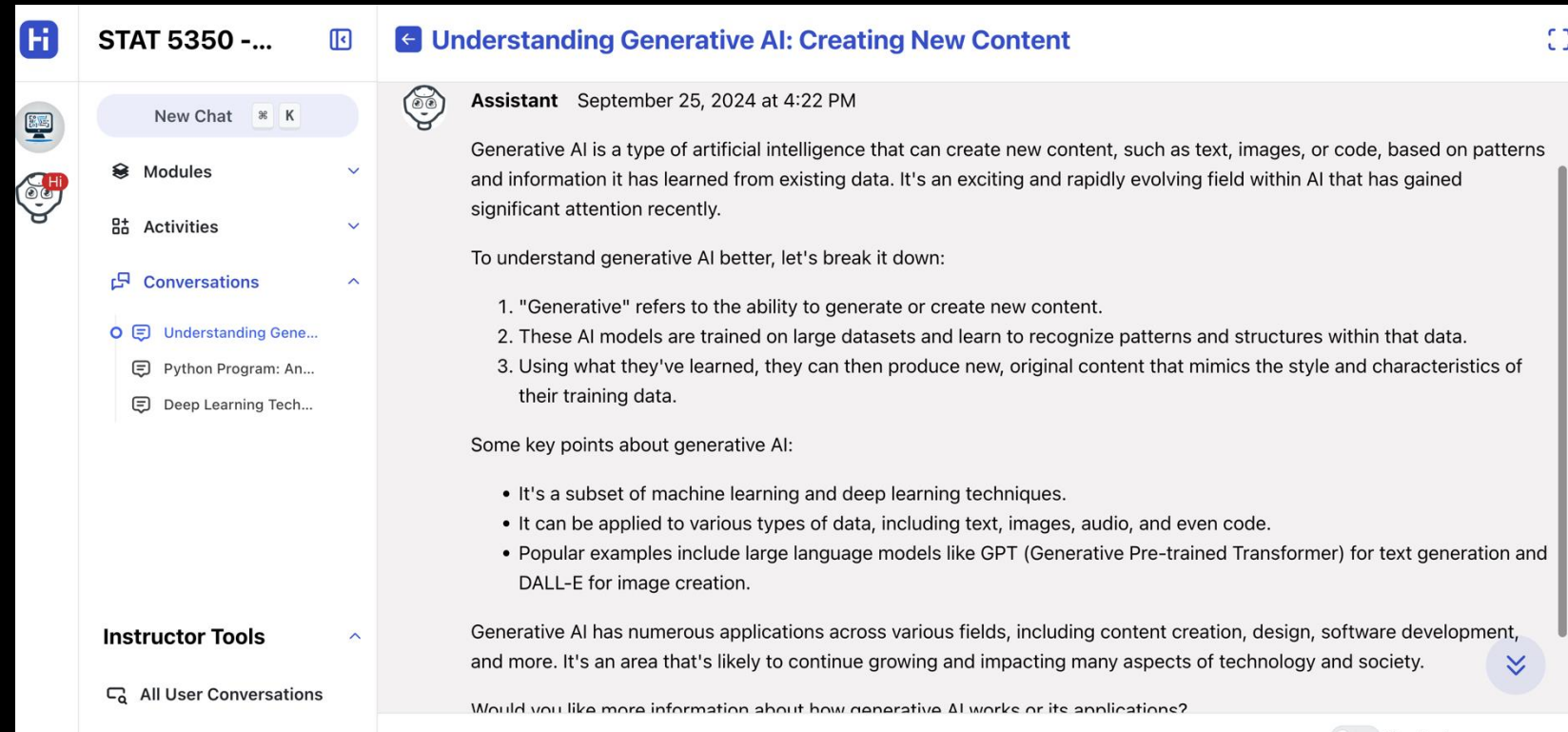
Large Action Models (LAMs)

- Prompt
- Plan
- Code
- Results

<https://va.landing.ai/home>

AI Uses

Hi TA



The screenshot displays the HITA AI application interface. On the left is a sidebar with a navigation menu containing 'New Chat', 'Modules', 'Activities', 'Conversations', and 'Instructor Tools'. The main area shows a chat window titled 'Understanding Generative AI: Creating New Content'. The chat history includes a message from the 'Assistant' dated September 25, 2024, at 4:22 PM. The assistant's response defines Generative AI, lists three points to understand it better, provides key points about it, and mentions its various applications. The interface also shows a 'Python Program: An...' and 'Deep Learning Tech...' in the chat history.

STAT 5350 -...

New Chat

Modules

Activities

Conversations

Understanding Gene...

Python Program: An...

Deep Learning Tech...

Instructor Tools

All User Conversations

Understanding Generative AI: Creating New Content

Assistant September 25, 2024 at 4:22 PM

Generative AI is a type of artificial intelligence that can create new content, such as text, images, or code, based on patterns and information it has learned from existing data. It's an exciting and rapidly evolving field within AI that has gained significant attention recently.

To understand generative AI better, let's break it down:

1. "Generative" refers to the ability to generate or create new content.
2. These AI models are trained on large datasets and learn to recognize patterns and structures within that data.
3. Using what they've learned, they can then produce new, original content that mimics the style and characteristics of their training data.

Some key points about generative AI:

- It's a subset of machine learning and deep learning techniques.
- It can be applied to various types of data, including text, images, audio, and even code.
- Popular examples include large language models like GPT (Generative Pre-trained Transformer) for text generation and DALL-E for image creation.

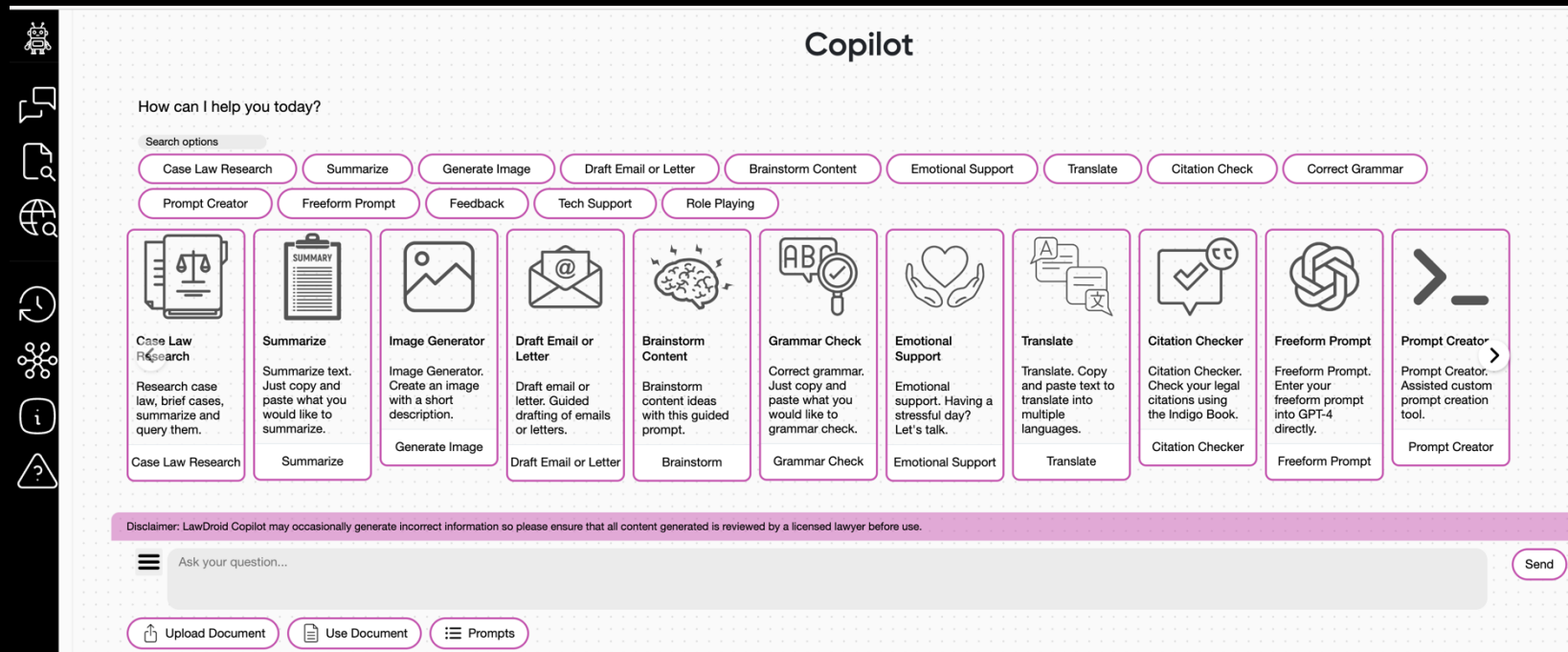
Generative AI has numerous applications across various fields, including content creation, design, software development, and more. It's an area that's likely to continue growing and impacting many aspects of technology and society.

Would you like more information about how generative AI works or its applications?

app.hita.ai

AI Uses

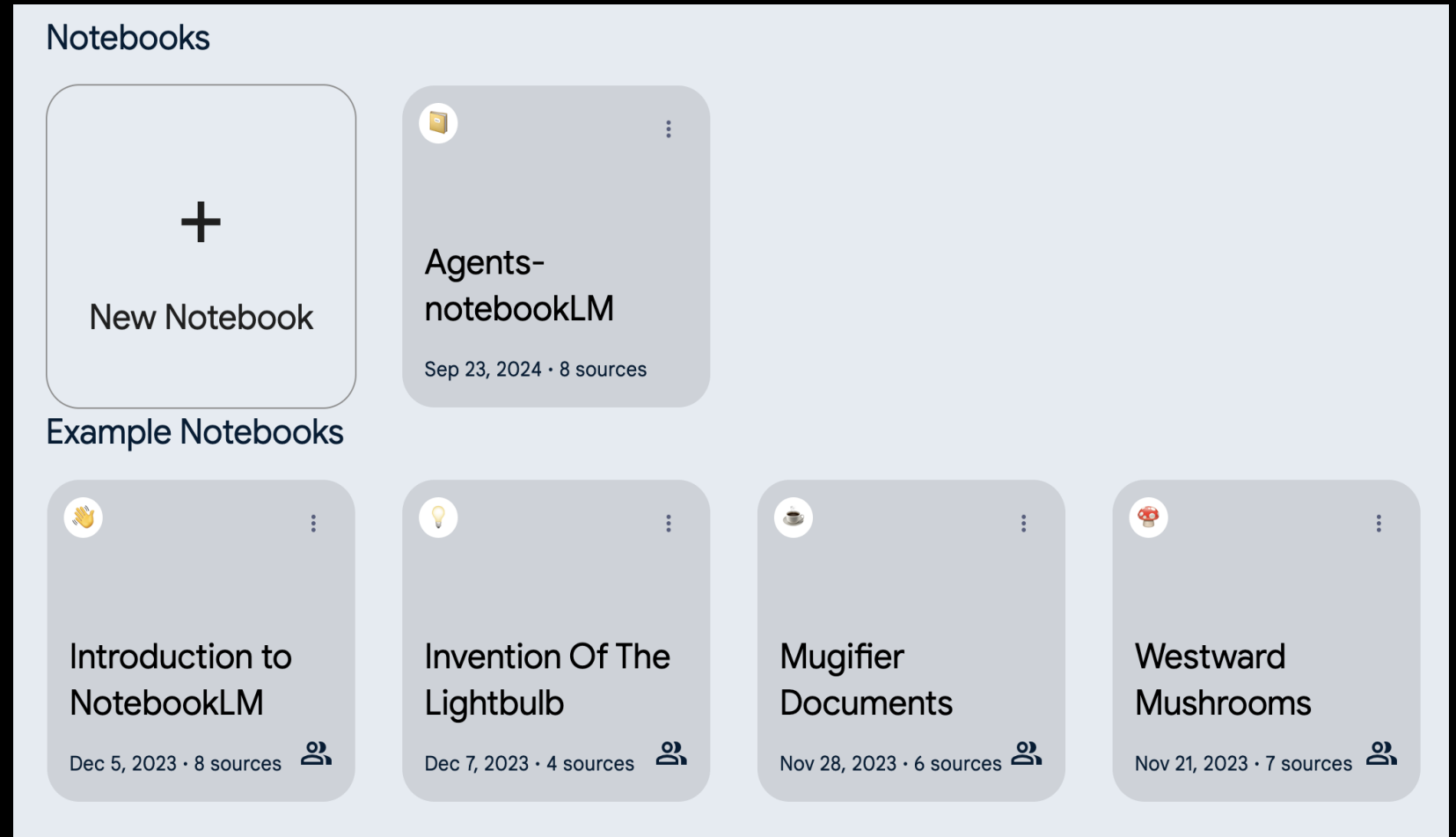
LawDroid



<https://copilot.lawdroid.com/copilot>

AI Uses

NotebookLM



<https://notebooklm.google.com/>

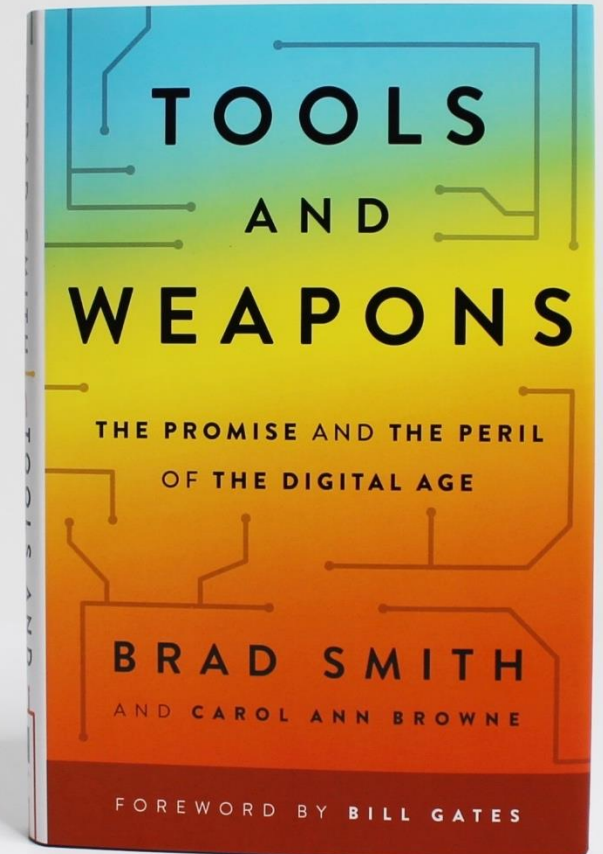
Q&A

Why responsible AI?

“The more powerful the tool, the greater the benefit or damage it can cause...Technology innovation is not going to slow down. The work to manage it needs to speed up.”

Brad Smith

President and Chief Legal Officer, Microsoft



Drives governance
policy effectiveness
while tracking how data
is used and its value to
the company

Data Steward

Builds data pipelines that power
dashboards and data platforms
while ensuring high quality

Data Engineer

Prepares data to tease out
the insights they're looking
for, without IT involvement

Data Scientist



Business Analyst

Works with data to apply insights
to the business strategy

App Developer

Makes insights immediately
actionable and adds intelligence
to apps in straightforward manner

Applied
Deep
Learning

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<https://github.com/jiportilla/giveback>

We are hiring

<https://github.com/iportilla/Ricoh>