



Κέντρο Υποστήριξης
Διδασκαλίας και Μάθησης
Ιόνιο Πανεπιστήμιο

Intro to ChatGPT

An AI-based tool for the academic community



Artificial Intelligence (AI)



Artificial Intelligence (AI) refers to the ability of computers or machines to perform tasks that typically require human intelligence.



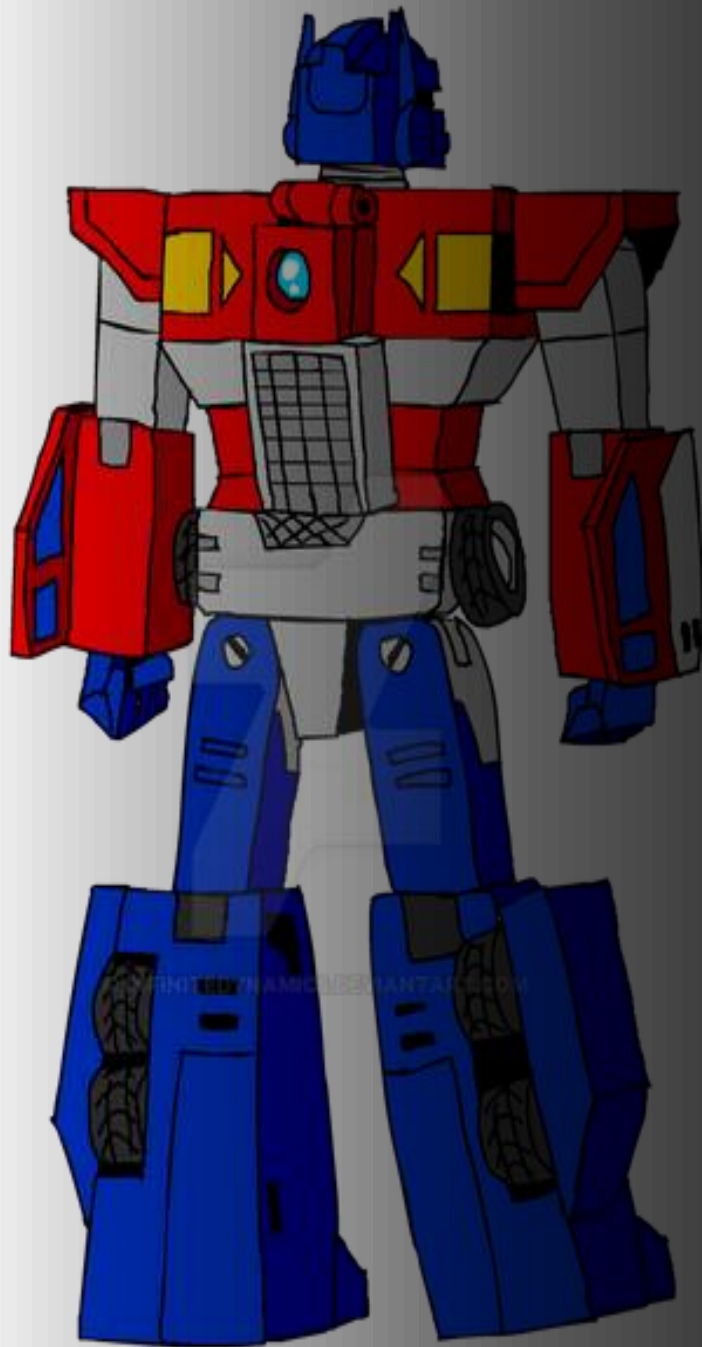
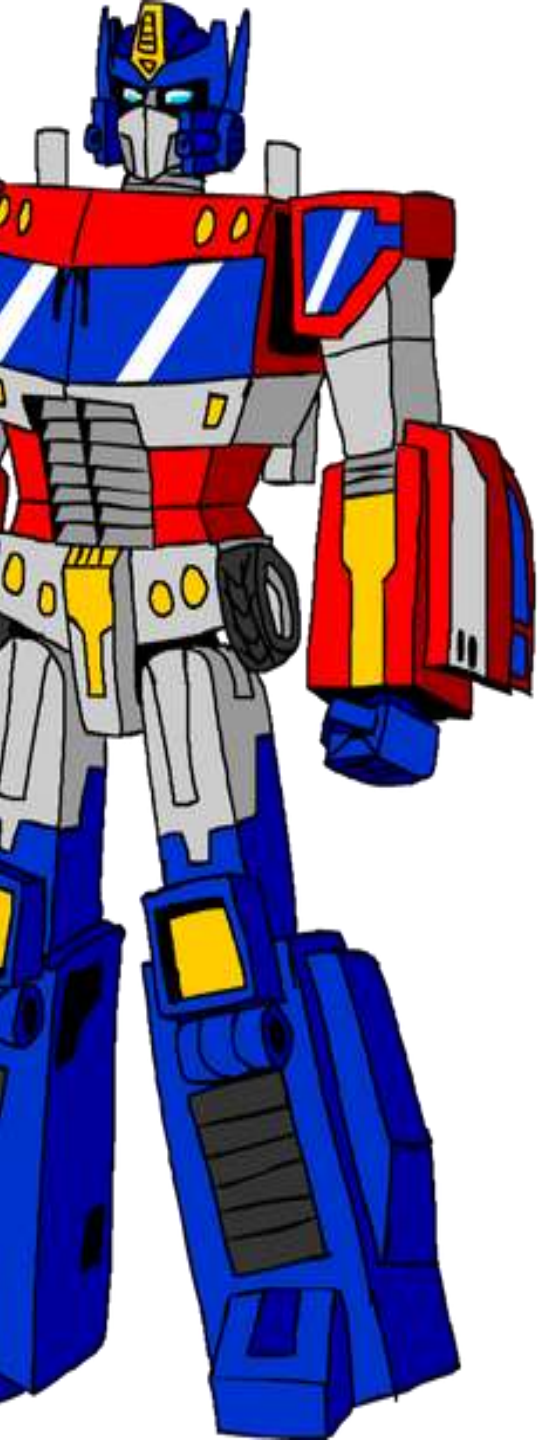
These tasks include things like understanding natural language, making decisions, solving problems, recognizing patterns, and learning from experience.



AI systems use algorithms, data, and sometimes machine learning to mimic human-like cognitive functions, enabling them to perform tasks such as speech recognition, image analysis, and more.



AI is used in a wide range of applications, from virtual assistants like Siri to self-driving cars, and it continues to advance and impact various aspects of our daily lives.



- A deep learning model that adopts the mechanism of self-attention, differentially weighting the significance of each part of the input data
- Used primarily in NLP and CV
- Designed to process sequential input data, such as natural language, to solve translation and text summarization

Transformers

Thus, a transformer algorithm:

- takes as input millions of chat
- tries to identify patterns in the text
- looks for words the commonly co-occur
- identifies rules about grammar etc making a latent representation for the world

GPT (Generative Pretrained Transformer)

- Language prediction model: can take input text and transform it into what it predicts the most likely result
- Trained with vast body of internet text to spot patterns in a process called generative pre-training
- Trained on Common Crawl, WebText2 and Wikipedia
- First trained supervised (forced to answer correctly)
- GPT-3 has more than 175 billion params

ChatGPT Training

- ChatGPT was trained using “[Reinforcement Learning from Human Feedback](#)” (RLHF). Initially, the model went through a process called supervised fine-tuning, where OpenAI trainers played the role of both a human user and an AI bot.
- Chat GPT was later improved by creating a reward model to be used for the next step – **reinforcing learning**. This involved AI trainers interacting with the tool to generate responses. Then grading them from best to worst, based on quality.
- With this information, OpenAI could **further fine-tune** the model using its own technique called [Proximal Policy Optimization](#).
- ChatGPT’s data comes from a **massive dataset** that includes a diverse range of sources such as websites, books, news articles, and journals.

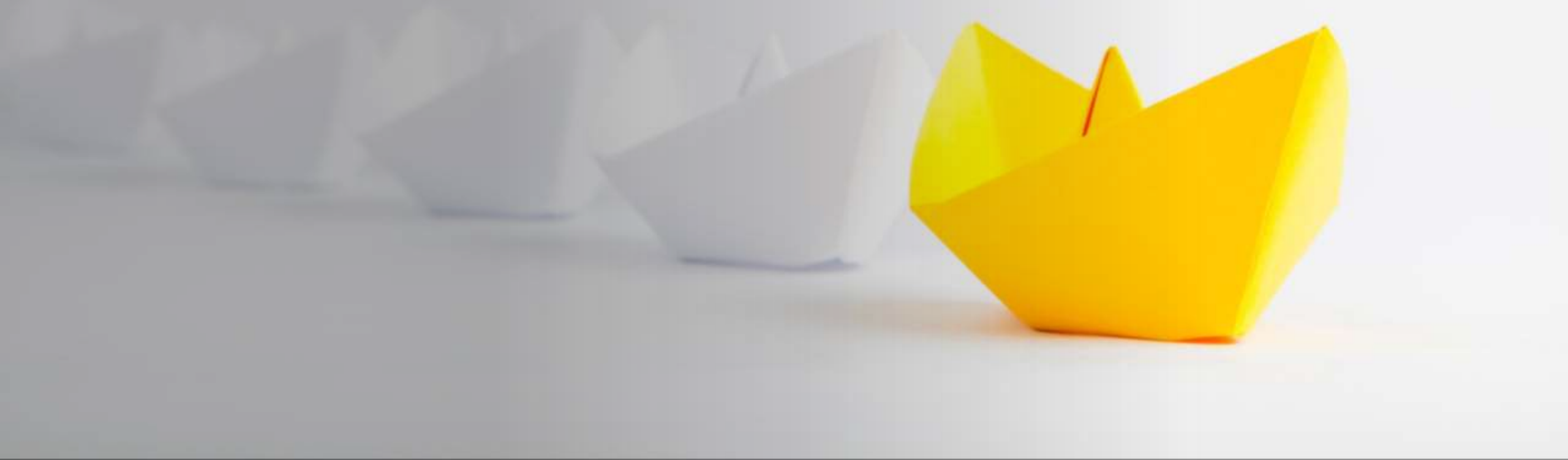
ChatGPT can create memes, quizzes, recipes, comic strips, blog posts and advertising copy; write music, jokes and social media posts; automate conversational tasks, responding to any text that a person types into the computer with a new piece of text appropriate to the context; translate text into programmatic commands (vice versa); perform sentiment analysis; extract information from contracts; generate a hexadecimal colour based on a text description; write boilerplate code; find bugs in existing code; mock up websites; generate simplified summarizations of text; translate between programming languages; perform malicious prompt engineering and phishing attacks and many other..

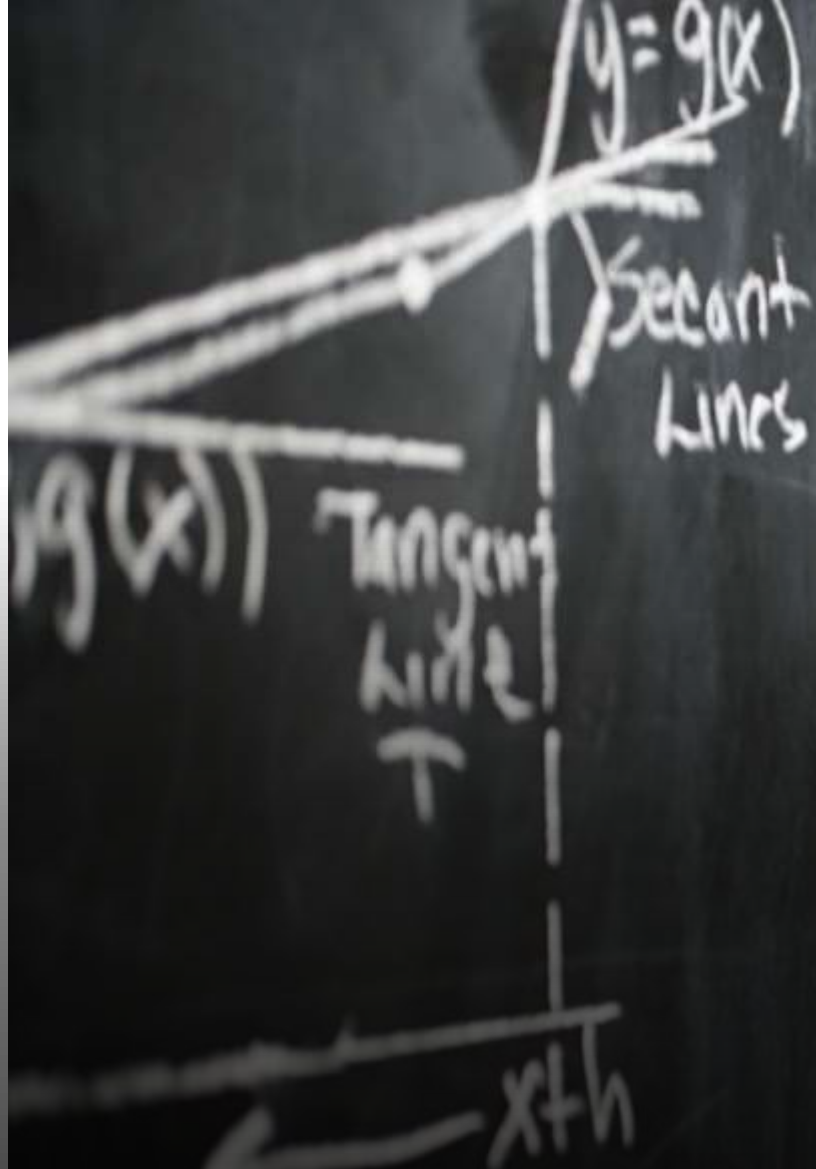
FQ J I X D Y M E B S L J B W X D U N L
G F B V W L C T F P O I Z Q A Y W X A T
M Y V L O Y F J R C V U N I J P N J K I
W Z U X Q U R A X I O M V M V O F T D C
V Y C D Y C J K M O P X E F R S P C O B
K B J I M U K I V A G V G R Q N T E Z X
Z H Y B S E C N I M D G O M F V E T O E
C I P U Y K F I X O C T F Z C H J E A R
Y K R V E G I O C R L X C L K L C T R D
Q L G Z R W F P F O E I Y F V R M Z H X
R P Z Y D U I V T E A X L J W S I R U C
J L A V M P L O T Y C K I B Q Y W Y P K
B P F R D J T V A Q I F S T Z V F M J C
S Y E C V I N G F B R N Y U C B S N T D
C F I B R M S Z J E D X R W T K A D F E

Where can I find chatGPT?

- <https://chat.openai.com/chat> <-- The official one
- <https://platform.openai.com/playground>
- <https://you.com/code>
- <https://www.bing.com>
- install these things too:
 - <https://chrome.google.com/webstore/detail/chatgpt-for-google>
 - <https://app.grammarly.com/>

Academic staff and ChatGPT: How can they use it





$$f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$$

$$f(x) = \lim_{h \rightarrow 0} \frac{(x+h)^2 - x^2}{h}$$

$$= \lim_{h \rightarrow 0} \frac{x^2 + 2xh + h^2 - x^2}{h}$$

$$= \lim_{h \rightarrow 0} \frac{2xh + h^2}{h}$$

$$= \lim_{h \rightarrow 0} (2x + h)$$

$$= 2x$$

Course Creation

Course Creation

Please write a course description for an introductory Machine Learning course



Course Title: Introduction to Machine Learning

Course Description:
Machine Learning is a rapidly evolving field at the intersection of computer science, data analysis, and artificial intelligence, enabling systems to learn and make predictions or decisions without explicit programming. This introductory course is designed to provide you with a foundational understanding of machine learning concepts, algorithms, and practical applications. Whether you're a student, a professional seeking to upskill, or someone curious about the world of AI, this course is your gateway to the exciting world of machine learning.

Course Objectives:

- Explore the fundamental principles and terminology of machine learning.
- Develop a comprehensive understanding of supervised, unsupervised, and reinforcement learning.
- Gain hands-on experience with popular machine learning libraries and tools.
- Learn how to prepare, preprocess, and clean data for machine learning.
- Understand the ethical and societal implications of machine learning applications.
- Explore real-world case studies and applications in various domains.

Course Topics:

1. Introduction to Machine Learning
 - Defining machine learning
 - History and evolution of machine learning
 - Machine learning paradigms: supervised, unsupervised, and reinforcement learning
2. Data Preprocessing and Feature Engineering
 - Data collection and preparation
 - Handling missing data and outliers
 - Feature selection and engineering
3. Supervised Learning
 - Linear regression
 - Logistic regression
 - Decision trees and random forests
 - Support vector machines
 - K-nearest neighbors
 - Evaluation metrics for classification and regression
4. Unsupervised Learning
 - Clustering algorithms: K-Means, Hierarchical clustering
 - Dimensionality reduction: Principal Component Analysis (PCA)
 - Anomaly detection



list me the course objectives



Certainly! Here are the course objectives for the "Introduction to Machine Learning" course:

1. Explore the fundamental principles and terminology of machine learning.
2. Develop a comprehensive understanding of supervised, unsupervised, and reinforcement learning.
3. Gain hands-on experience with popular machine learning libraries and tools.
4. Learn how to prepare, preprocess, and clean data for machine learning.
5. Understand the ethical and societal implications of machine learning applications
6. Explore real-world case studies and applications in various domains.



ok, thanks. I will need a weekly course outline for approx 14 weeks (once per week)



Certainly! Here's a weekly course outline for an "Introduction to Machine Learning" course with one session per week, spanning approximately 14 weeks:

Week 1: Introduction to Machine Learning

- Overview of the course and machine learning fundamentals

Week 2: Data Preprocessing and Feature Engineering

- Data collection and preparation
- Handling missing data and outliers

Week 3: Supervised Learning - Part 1

- Linear regression and logistic regression

Week 4: Supervised Learning - Part 2

- Decision trees, random forests, and support vector machines

Week 5: Unsupervised Learning

- Clustering algorithms and dimensionality reduction

Week 6: Neural Networks and Deep Learning - Part 1

- Introduction to artificial neural networks and feedforward networks



Lab Activities, discussion questions and rubrics



Lesson Plans





**Computer Science
Topics and
ChatGTP**



Generation of questions for quizzes and assignments





Help for Grading





Interview Questions





**Video
Creation**



Challenge user to predict or/and debate on ChatGPT's response



Brainstorming



Language Support



University Students cheat



ChatGPT Detection Tools

GPT-Zero

GPT2 Output Detector

Hello-SimpleAI ChatGPT Detector

Writer's AI Content Detector

ZeroGPT

10 useful apps

1- <https://app.wand.ai/>

2- <https://www.gptforslides.app/>

3- <https://www.rezi.ai>

4- <https://www.compose.ai/>

5- <https://glasp.co/>

6- <https://www.cogram.com/>

7- <https://formulabot.com/>

8- <https://www.slidesai.io/>

9- <https://quillbot.com/>

10- <https://www.akkio.com/>

ChatGPT for research purposes

1. **Assistance on writing papers:** Write the bibtex items for the following reference:

Sitokonstantinou, V.; Koukos, A.; Drivas, T.; Kontoes, C.; Papoutsis, I.; Karathanassi, V. A Scalable Machine Learning Pipeline for Paddy Rice Classification Using Multi-Temporal Sentinel Data. Remote Sens. 2021, 13, 1769. <https://doi.org/10.3390/rs13091769>

2. **Brainstorming or/and Interpretation:** Write a thoughtful review of the following paper/abstract, identifying the unclear points and criticising the procedure in a constructive manner

3. **Coding assistance:** Write Python code to perform spatial interpolation using Inverse Distance Weighting (IDW) for daily precipitation data.

4. **Generating content:** Write the basic structure in bullet points for an introduction section of a review paper about “causal inference”. Give a convincing narrative, provide the connections and the storyline.



Thanks!

"That's all, Folks!"

