

Introduction

Artificial Intelligence: Convergence and Application

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Overview

1. Course Logistics

2. Generative AI Application

Course information

Exploring the recent advancements in Generative AI, especially focusing on **Large Language Models**.

- Time: 9:00 - 10:15, 10:30 - 11:45 (Wed)
- Space: Engineering Building 9, 521
- E-mail: sh0416@knu.ac.kr
- Use Microsoft Teams direct message

No TA.. so sad..

Discussion

Discussions are welcome.

Feel free to ask during the class

- The last 10 minutes for questions.
- Giving bonus points if you ask questions.

Office hour

- 15:00 - 16:00 (Mon)

What I Expect from Students Taking This Class

Students are expected to **actively participate in class activities**.

Basic coding skills are required to complete the course project.

Your own expertise and confident attitude on your area are welcome.

Open mind? Never giving up?

While mathematical and machine learning knowledge can be helpful, you can succeed in this course without prior experience in these areas.

Coursework - Attendance (10%)

Students are encouraged to attend the class regularly.

- Random attendance checks will be conducted.
- A student **who misses three classes without proper documentation** will fail this course.

The use of laptops or other electronic devices

- The devices are not allowed in class.
- Prepare your notes or handouts.
 - You don't have to study the class material in advance.
- If you need them, let me know before the class starts.

Coursework - Individual Assignment (30%)

- Students will conduct proof-of-concept experiments focused on applying generative AI within their respective fields.
- Peers will review the reports to discuss approaches and identify potential improvements through the review process.
- Students will refine their methods and experiments based on peer feedback and revise their report.

Coursework - Individual Project (20%)

- Students will select an academic paper about generative AI with their area of interest and deliver a 10-minute presentation with the following 5-minute QnA.
- The 9 sessions for student presentations are reserved in this course.

Coursework - Midterm (20%)

- The midterm will cover the topic we will learn in the first half of this semester.

Coursework - Finals (20%)

- The final examination will cover all topics discussed throughout the course, including both individual and team projects.

The Use of Generative AI

- Any kind of generative AI are allowed.
 - ChatGPT, Claude, Gemini, Copilot
- But, create your final artifacts on your own.
 - Do not ask them to do whole things.
 - If you do, they will take your salary, too.

CAUTION

Generative AI could produce false information. Double check the fact.

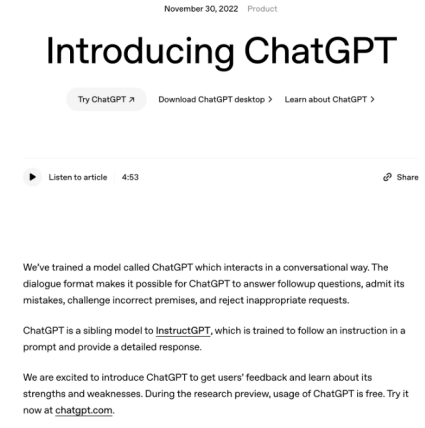
Are You Familiar with Generative AI?

Please raise your hand if you know the following concepts.

- ChatGPT
- Deepseek
- Claude
- Gemini
- Copilot
- Bard
- LLM
- PyTorch
- Huggingface
- Machine learning
- OpenAI API

The Emergence of ChatGPT

- A high intelligent chatbot.



The ChatGPT Conversation Example

- Neighborhood introduction.

User

help me write a short note to introduce myself to my neighbor

ChatGPT

Hi there,

My name is [Your Name] and I just moved in next door. I wanted to reach out and introduce myself. I'm looking forward to getting to know you and the neighborhood. If you ever need anything or just want to chat, please don't hesitate to stop by or give me a call.

Best,
[Your Name],

User

can you make it more formal?

ChatGPT

Dear Neighbor,

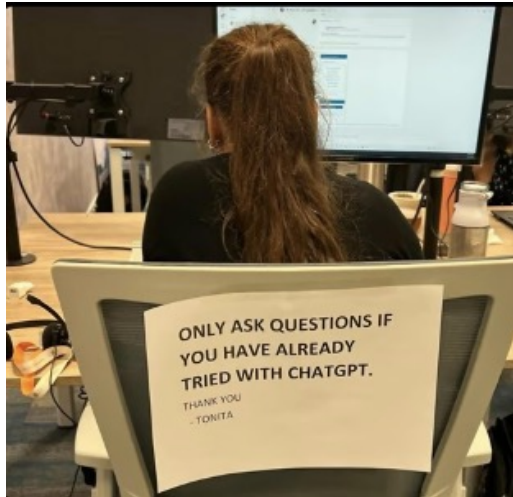
I am writing to introduce myself. My name is [Your Name] and I have recently moved in next door. I wanted to take a moment to reach out and say hello. I am looking forward to getting to know you and the neighborhood.

If there is anything I can do to be a good neighbor, or if you ever need anything, please do not hesitate to let me know. I am happy to help in any way that I can.

Sincerely,
[Your Name]

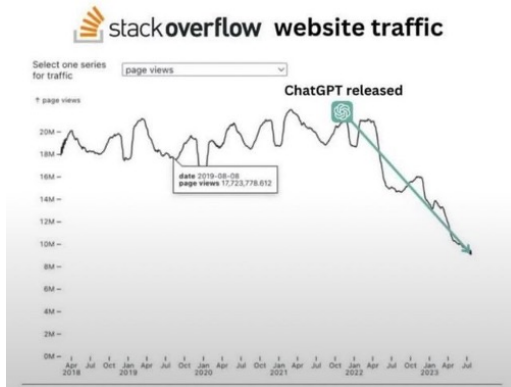
Usage: Question Answering

- Ask them what we do not know.



Stackoverflow Traffic

- ChatGPT replaces Stackoverflow.



ChatGPT Traffic

- Students love ChatGPT.

Home > Tech

ChatGPT traffic spikes as students return to school

Pencils? Check. Textbooks? Check. ChatGPT? Check.

By Cecily Mauron on September 8, 2023



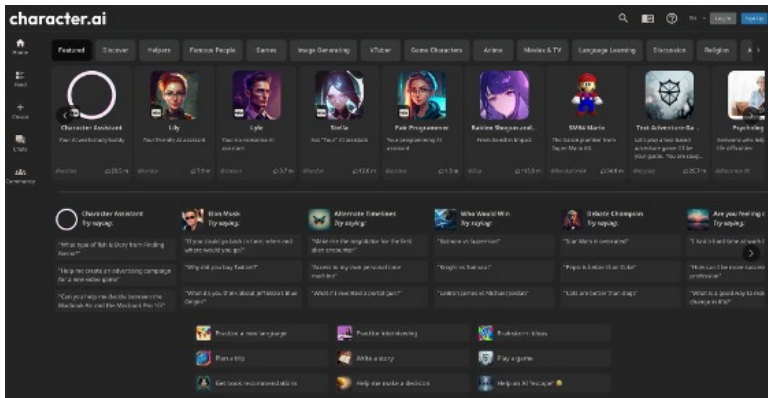
School supplies now include ChatGPT. Credit: Getty Images

Students are back to school and back to [ChatGPT](#) for homework help.

At least that's the theory for a slight boost in web traffic according to digital data and analytics company Similarweb. In its [report](#), visits to [chat.openai.com](#) increased by 0.4 percent in August — but only in the U.S. Globally, traffic dropped, but only by 3 percent. Similarweb suggests that ChatGPT traffic is finally leveling out after dropping in traffic for three months in a row (domestically and globally).

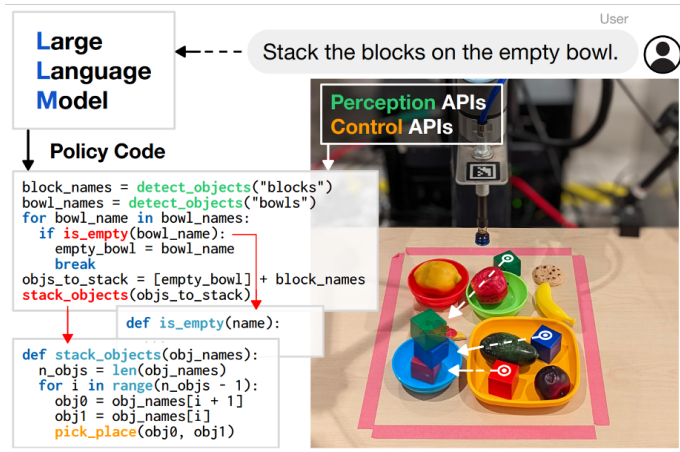
Usage: Chitchat

- Someone build emotional bondage with AI chatbot for fun.



Usage: Robot Control

- Ask generative AI to write a code for controlling the robot based on your command (Liang et al., 2023).



Usage: Legal Research

- Explore similar lawsuits and provide legal comments.

Building a RAG-Enhanced ChatGPT for Legal Research: A Case Study on the Case of Attorney-General v MCP & Others (1995)

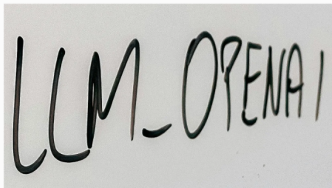


Chawer kamanga · Follow

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The world of artificial intelligence(AI) has been revolutionized by the emergence of Large Language Models (LLMs), which are taking the industry by storm. These advanced AI systems, such as ChatGPT, are designed to understand and generate text that is similar to human language. Trained on massive amounts of data, LLMs have proven to be incredibly proficient in tasks related to language comprehension and generation.

Usage: Finance

- Build a financial expert with generative AI.

Bloomberg Professional Services —

Share in  

Introducing BloombergGPT, Bloomberg's 50-billion parameter large language model, purpose-built from scratch for finance

March 30, 2023

BloombergGPT outperforms similarly-sized open models on financial NLP tasks by significant margins – without sacrificing performance on general LLM benchmarks

NEW YORK - Bloomberg today released a research paper detailing the development of BloombergGPT™, a new large-scale generative artificial intelligence (AI) model. This large language model (LLM) has been specifically trained on a wide range of financial data to support a diverse set of natural language processing (NLP) tasks within the financial industry.

References

Liang, J., Huang, W., Xia, F., Xu, P., Hausman, K., Ichter, B., Florence, P., and Zeng, A. (2023). Code as policies: Language model programs for embodied control. In *2023 IEEE International Conference on Robotics and Automation (ICRA)*, pages 9493–9500. IEEE.

Any Question?