

ChatGPT: Fundamentals, Applications, and Social Impacts

Introduction

- Recent improvements to language models (summarization, question answering, etc.)
- Advantages and disadvantages of language models
- OpenAI's ChatGPT
- **Goal:** To discuss ChatGPT and its impact on society.

ChatGPT: Fundamentals

- OpenAI released ChatGPT on November 30th, 2022.
- ChatGPT is designed and optimized for natural conversational language.
- Based on the GPT series. GPT (Generative Pre-trained Transformer) is a language model developed by OpenAI.
- Currently it uses the GPT-4 model, but this research paper discusses the GPT-3.5 version.
- Also, the ChatGPT structure uses the Transformer architecture (encoder-decoder)

ChatGPT: Fundamentals cont'd

- ChatGPT was trained with a massive amount of data, including online data, but it has limited knowledge after 2021.
- For comparison, GPT-2 was trained with billions of words from webpages, while GPT-3 was trained with a dataset of 45 TB.
- As a result GPT-3 had more layers and parameters to generate more accurate and natural-sounding conversational text.

ChatGPT: Applications

- Currently, ChatGPT is able to interpret the user's prompt and generate clear human-like text.
- Its dialogue system allows for:
 - Answering questions
 - Summarizing given text
 - Having conversations while maintaining the context from previous prompts.
- It can also identify illegal activity and refuses to answer.

ChatGPT: Applications

- Some other applications for a system that generates meaningful text:
 - Programming
 - Produce music, images, and 3D models
 - Creating plans or guidelines
 - Write blogs or essays
 - For consultation or medical advice

ChatGPT: Applications cont'd

Grammar correction	Q&A	Summarize for a 2nd grader	Text to command	Natural language to Stripe API	Parse unstructured data
Python to natural language	Calculate Time Complexity	English to other languages	SQL translate	Classification	Movie to Emoji
Explain code	Airport code extractor	Keywords	Natural language to OpenAI API	Ad from product description	Python bug fixer
		Science fiction book list maker	Translate programming languages		

Fig. 3. Examples of ChatGPT applications

ChatGPT: Social Impact

- Due to the ongoing development of ChatGPT, it is debatable how it will impact human lives.
- However, there are have been some concerns over the misuse of ChatGPT.
- Here are some areas that ChatGPT could impact:
 - Education
 - Software Development
 - Literature and Art
 - Virtual Assistants
 - Health and Medical care

Conclusion

- ChatGPT is designed to enable human-like conversations with an artificial intelligence model. It can also provide relatively accurate results to a broad range of questions.
- While it may have some limitations like response inconsistency or gaps in knowledge, as the technology continues to improve, its impact and usefulness will also increase.

Reference:

ChatGPT: Fundamentals, Applications and Social Impacts. M. Abdullah, A. Madain and Y. Jararweh. 2022 Ninth International Conference on Social Networks Analysis, Management and Security (SNAMS). 2022.