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 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: