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Open AI Chat GPT Technology

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ABSTRACT: OpenAI's ChatGPT technology represents a significant milestone in the field of artificial intelligence, particularly in natural language processing (NLP). Built upon the transformer architecture, ChatGPT leverages massive pre-training on diverse text corpora to acquire a nuanced understanding of human language patterns. With its generative capabilities, ChatGPT can produce contextually relevant and coherent responses to a wide range of prompts, making it suitable for tasks such as chatbot interaction, content generation, and creative writing support. Its large-scale architecture, exemplified by models like GPT-3 with 175 billion parameters, enables it to capture intricate linguistic nuances and generate human-like text. However, alongside its capabilities, ethical considerations such as bias mitigation, fairness, safety, and responsible deployment are paramount. OpenAI provides access to ChatGPT through APIs, fostering innovation and integration into various applications while promoting ethical AI development. In summary, ChatGPT signifies a breakthrough in AI-driven conversational agents, offering unprecedented potential for enhancing human-computer interaction and advancing the frontier of natural language understanding and generation

KEYWORDS: Introduction, problem identification, related works, features, current technologies, future work, conclusion

I. INTRODUCTION

In recent years, advancements in artificial intelligence (AI), particularly in the realm of natural language processing (NLP), have revolutionized human-computer interaction. Among these breakthroughs stands OpenAI'sChatGPT technology, a cutting-edge system capable of understanding and generating human-like text responses. Developed on the foundation of the transformer architecture, ChatGPT represents a significant leap forward in conversational AI, enabling seamless communication between humans and machines.

The genesis of ChatGPT lies in its extensive pre-training on vast amounts of text data, encompassing a wide array of linguistic nuances and contextual information. This pre-training phase equips ChatGPT with a comprehensive understanding of language structure, semantics, and pragmatics, allowing it to generate coherent and contextually relevant responses to user inputs.

At the heart of ChatGPT's functionality is its generative nature, enabling it to produce text that mirrors human speech patterns. Whether engaging in casual conversation, providing informational responses, or even assisting in creative endeavors, ChatGPT exhibits a remarkable ability to adapt its output to diverse scenarios.

Central to the appeal of ChatGPT is its sheer scale. Models such as GPT-3, boasting an unprecedented 175 billion parameters, exemplify the magnitude of OpenAI's computational prowess. This vast scale not only facilitates the capture of intricate linguistic nuances but also enhances the system's ability to generate responses that closely mimic human communication.

However, the deployment of ChatGPT also raises important ethical considerations. As with any AI technology, issues of bias, fairness, safety, and responsible usage come to the forefront. OpenAI acknowledges these concerns and endeavors to address them through careful model design, transparency, and ongoing research efforts.

In light of these advancements and considerations, the introduction of ChatGPT marks a significant milestone in the evolution of AI-driven conversational agents. By bridging the gap between human language and machine understanding, ChatGPT paves the way for enhanced human-computer interaction, offering unprecedented opportunities for innovation and collaboration across diverse domains.

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Figure 1 CHAT GPT technology

1. 1.1 Problem definition

2. The development of ChatGPT AI technology addresses several key challenges and problem areas in the field of natural language processing (NLP) and human-computer interaction:

3. Natural Language Understanding: Traditional approaches to NLP often struggle to accurately understand the nuances and complexities of human language. ChatGPT aims to overcome this challenge by leveraging advanced machine learning techniques to comprehend and interpret natural language inputs with a high degree of accuracy.

4. Conversational AI: Creating conversational agents capable of engaging in meaningful and contextually relevant dialogues poses a significant challenge. ChatGPT seeks to tackle this problem by generating coherent and human-like responses to user queries, thereby enhancing the quality of human-computer interaction.

5. Text Generation: Generating natural-sounding text that is grammatically correct, contextually relevant, and coherent remains a formidable task in NLP. ChatGPT addresses this challenge by employing large-scale language models trained on vast amounts of text data to generate high-quality responses across a wide range of topics and contexts.

6. Scalability: As the complexity and diversity of language increase, so does the computational demand required to process and understand it effectively. ChatGPTendeavors to scale up to meet these demands by utilizing massive computational resources and large-scale transformer architectures capable of handling complex linguistic patterns and relationships.

Ethical Considerations: The deployment of AI technologies, particularly those involving language generation, raises ethical concerns related to bias, fairness, safety, and responsible usage. In essence, the problem definition for ChatGPT AI technology revolves around advancing the state-of-the-art in NLP and human-computer interaction by developing a highly capable and ethically sound conversational AI system capable of understanding, generating, and interacting with human language in a natural and meaningful manner.

II. RELATED WORK

OpenAI's GPT (Generative Pre-trained Transformer) technology has been applied to various fields and projects, spanning from natural language understanding and generation to more specialized applications. Here are some areas where OpenAI's GPT technology has been utilized:Conversational AI: GPT-based models are widely used in building chatbots and virtual assistants capable of engaging in natural conversations with users. These systems can provide customer support, answer queries, and assist with various tasks.

1. Content Generation: GPT models are employed to generate human-like text content for various purposes, such as writing articles, generating code, composing poetry, and creating stories.
2. Language Translation: GPT-based models have been adapted for language translation tasks, enabling systems to translate text between different languages accurately and fluently.

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3. Text Summarization: GPT models can generate concise summaries of longer texts, making them useful for distilling key information from articles, documents, and other sources.
4. Question Answering: GPT-powered systems can understand and answer questions posed in natural language, making them useful for applications like search engines, virtual assistants, and educational platforms.
5. Personalization: GPT technology can be utilized to personalize user experiences by analyzing user interactions and generating tailored responses or recommendations.
6. Creative Applications: GPT models have been employed in creative applications such as generating art, music, and poetry, often in collaboration with human artists.
7. Ethical and Safety Research: OpenAI conducts research into the ethical and safety implications of AI technologies, including GPT, to ensure that they are developed and deployed responsibly.
8. Scientific Research: GPT models have been used in scientific research for tasks such as analyzing research papers, generating hypotheses, and assisting with data analysis.
9. Educational Tools: GPT-based systems can be used in educational settings to provide personalized tutoring, answer student questions, and generate educational content.

These are just a few examples of the diverse range of applications for GPT technology developed by OpenAI. As the field of artificial intelligence continues to evolve, GPT-based models are likely to find even more innovative applications in the future.

III. FEATURE EXTRACTION FOR OPEN CHAT GPT AI TECHNOLOGY

Feature extraction in the context of OpenAI's GPT technology typically involves extracting meaningful representations or features from the input text to feed into the model for further processing. While GPT models themselves are designed to automatically learn representations from raw text data, feature extraction can still be useful in certain scenarios, such as:

1. Fine-tuning for specific tasks: When fine-tuning a pre-trained GPT model for a specific task (e.g., sentiment analysis, named entity recognition), feature extraction can involve selecting or engineering relevant features from the input text to enhance the model's performance on that task.
2. Reducing dimensionality: In cases where computational resources are limited or efficiency is crucial, feature extraction techniques can be employed to reduce the dimensionality of the input data, making it more manageable for the model.
3. Domain adaptation: For applications in specialized domains (e.g., legal documents, medical records), feature extraction may involve identifying domain-specific features that are relevant for the task at hand, thereby improving the model's performance on domain-specific data.
4. Input preprocessing: Feature extraction can include preprocessing steps such as tokenization, stemming, and lemmatization, which convert raw text into a format that is suitable for input into the GPT model.
5. Embedding visualization: Extracting features from the internal representations of the GPT model can enable visualization and analysis of the learned embeddings, providing insights into how the model represents and processes information.Popular techniques for feature extraction in the context of GPT technology include:

- Word embeddings: Converting words into dense vector representations using techniques like Word2Vec, GloVe, or fastText.Subwordembeddings: Utilizing subword tokenization methods like Byte-Pair Encoding (BPE) or SentencePiece to handle out-of-vocabulary words and capture morphological information.Attention weights: Analyzing the attention mechanisms of the GPT model to extract important features and relationships between tokens in the input sequence.
- Hidden states: Extracting features from the hidden states of the model's transformer layers to capture contextual information encoded during the model's processing of the input text.
  Entity recognition: Identifying named entities (e.g., people, organizations, locations) in the input text and using them as features for downstream tasks.Overall, feature extraction for OpenAI's GPT technology involves various techniques aimed at enhancing the model's performance, adapting it to specific tasks or domains, and gaining insights into its internal representations and processing mechanisms.

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IV. RECURRENT OPEN CHAT GPT AI TECHNOLOGY

As of my last update in January 2022, OpenAI's GPT (Generative Pre-trained Transformer) models, including GPT-3, are not recurrent neural networks (RNNs) themselves. Instead, they are based on transformer architectures, which are a type of feedforward neural network. However, recurrent neural networks (RNNs) have been widely used in natural language processing (NLP) tasks, including chatbot development, and they can complement GPT-based models in various ways. Here's how:

1. Contextual Understanding: While GPT models excel at capturing contextual information within a fixed-size context window, recurrent neural networks (RNNs) are designed to handle sequential data and can maintain an internal state that evolves over time. This can be particularly useful in scenarios where maintaining long-term dependencies is crucial, such as in dialog systems where context spans multiple turns.
2. History Tracking: RNNs can efficiently keep track of the conversation history, allowing chatbots to maintain coherence and relevance in responses over multiple turns of interaction. This historical context can complement the contextual understanding provided by GPT models.
3. State Management: Recurrent architectures allow for the management of hidden states, which can encode information about the conversation history and current context. These hidden states can be used to initialize or condition the generation process of GPT-based models, providing them with additional context and improving response quality.
4. Response Ranking: In scenarios where multiple response candidates need to be ranked or selected, recurrent neural networks can be used in conjunction with GPT-based models to assign scores or probabilities to each candidate based on their relevance to the conversation context. This can help improve the overall quality of responses generated by the chatbot.
5. Efficient Training: While training large-scale transformer models like GPT can be computationally expensive, recurrent architectures may offer advantages in terms of computational efficiency and training speed, especially when dealing with sequential data.

V. OUR APPROACH

Designing a conversational AI system that combines recurrent neural networks (RNNs) with OpenAI's GPT technology involves several steps and considerations. Here's an approach to integrating recurrent components with GPT-based models in a chatbot system:

1. Data Collection and Preprocessing:
- Gather conversational data from various sources, ensuring it covers a wide range of topics and conversational styles.
- Preprocess the data to remove noise, tokenize text, handle out-of-vocabulary words, and prepare it for training.
2. Architecture Design:
- Design a hybrid architecture that combines the strengths of recurrent neural networks (RNNs) and GPT models. This architecture should facilitate seamless integration and information flow between the recurrent and transformer components.
- Consider using an encoder-decoder architecture, where the RNN component encodes the conversation history and context, and the GPT model decodes this information to generate responses.
3. Model Training:
- Train the recurrent neural network (RNN) component on the conversational data to learn to encode the conversation history and context.
- Fine-tune the pre-trained GPT model on the conversational data to adapt it to the specific domain and style of the conversations.
- Jointly train the hybrid architecture, allowing the RNN component to influence the GPT model's generation process while leveraging the transformer's language understanding capabilities.
4. Integration and Information Flow:
- Integrate the RNN and GPT components in a way that facilitates bidirectional information flow. The RNN should encode the conversation history and context and pass this information to the GPT model for response generation.
- Explore techniques for effectively combining the outputs of the RNN and GPT components, such as attention mechanisms or hierarchical modeling.
5. Response Generation:

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- During inference, feed the conversation history and context into the RNN component to obtain its hidden state representation.
- Initialize the GPT model's generation process with this representation to ensure that the generated responses are contextually relevant and coherent.

6. Evaluation and Iteration:
- Evaluate the performance of the hybrid architecture using metrics such as response coherence, relevance, and engagement.
- Iterate on the design, training process, and integration to improve the chatbot's performance over time.
- Collect feedback from users and incorporate it into the system to address any shortcomings or areas for improvement.

7. Scalability and Efficiency:
- Consider the computational resources required for training and inference, and optimize the architecture for scalability and efficiency.
- Explore techniques such as model distillation or pruning to reduce the computational cost of deploying the system in production environments.

By following this approach, you can develop a conversational AI system that leverages both recurrent neural networks (RNNs) and OpenAI's GPT technology to create engaging, context-aware chatbots capable of understanding and generating human-like responses

VI. CONCLUSION

In conclusion, OpenAI's GPT (Generative Pre-trained Transformer) technology represents a significant advancement in the field of natural language processing (NLP) and conversational AI. GPT models have demonstrated remarkable capabilities in understanding and generating human-like text, leading to a wide range of applications across various industries. Here are key points to consider regarding the significance and impact of OpenAI's GPT technology:

VII. FUTURE WORK

Future work for OpenAI Chat GPT technology encompasses several areas aimed at enhancing its capabilities, improving its performance, and expanding its applications. Here are some potential directions for future development:

- Improved Context Understanding:
- Domain Adaptation and Specialization:
- Multi-modal Capabilities
- Personalization and User Modeling:.
- Ethical and Safe AI:
- Interactive Learning and Reinforcement LearningEfficiency and Scalability:
- Multilingual and Cross-lingual Understanding:
- Open-domain Question Answering and Information Retrieval:
- Collaborative and Multi-agent Conversations:

Investigate techniques for enabling GPT-based models to participate in collaborative or multi-agent conversations, allowing them to engage with multiple users simultaneously or interact with other AI agents.By focusing on these areas of future work, OpenAI can continue to advance the capabilities of Chat GPT technology, making it more versatile, intelligent, and useful for a wide range of applications and domains.

REFERENCES

1. Anand, "Success story of openai-the makers of the CHATGPT", StartupTalky, 2022, [online] Available: https://startuptalky.com/openai-success-story/.
2. R. Kirmani, "Artificial intelligence-enabled science poetry", ACS Energy Letters, vol. 8, pp. 574-576, 2022.
3. "ChatGPT: A Brief Introduction and Considerations for Academic Integrity", The Innovative Instructor, 2023, [online] Available: https://ii.library.jhu.edu/2023/01/30/chatgpt-a-brief-introduction-and-considerations-for-academic-integrity/.

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4. Marr, "CHATGPT: What are hallucinations and why are they a problem for AI systems", 2023, [online] Available: https://bernardmarr.com/chatgpt-what-are-hallucinations-and-why-are-they-a-problem-for-ai-systems/.
5. K. Hao, "OpenAI has released the largest version yet of its fake-news-spewing AI", MIT Technology Review, 2020, [online] Available: https://www.technologyreview.com/2019/08/29/133218.
6. W. D. Heaven, "GPT-4 is bigger and better than chatbot-but Openai won't say why", MIT Technology Review, 2023, [online] Available: https://www.technologyreview.com/2023/03/14/1069823.
7. 7.A. Radford, K. Narasimhan, T. Salimans and I. Sutskever, Improving language understanding by generative pre-training, 2018.
8. E. Kasneci, K. Seßler, S. Küchemann, M. Bannert, D. Dementieva, F. Fischer, et al., "ChatGPT for good? On opportunities and challenges of large language models for education", Learning and Individual Differences, vol. 103, pp. 102274, 2023.
9. T. L. Scao, A. Fan, C. Akiki, E. Pavlick, S. Ilić, D. Hesslow, et al., "Bloom: A 176b-parameter open-access multilingual language model", 2022.
10. "GPT-4 Technical Report", 2023.
11. D. Michels, "Three actions that will help foster diversity equity and inclusion in any organization", Forbes, 2022, [online] Available: https://www.forbes.com/sites/davidmichels/2022/02/15/three-actions-that-will-help-foster-diversity-equity-and-inclusion-in-any-organization/.
12. "Professional & Continuing Education", 10 Ways to Teach Diversity in the Classroom, 2022, [online] Available: https://pce.sandiego.edu/10-ways-to-teach-diversity-in-the-classroom/.
13. K. Dennison, "4 strategies to become an inclusive leader and foster a diverse culture of high-achievers", Forbes, 2021, [online] Available: https://www.forbes.com/sites/karadennison/2021/01/25/4-strategies-to-become-an-inclusive-leader-and-foster-a-diverse-culture-of-high-achievers/.
14. S. Akgun and C. Greenhow, "Artificial intelligence in education: Addressing ethical challenges in K-12 settings", AI and Ethics, pp. 1-10, 2021.
15. T. Trust, C. Mouza and J. Whalen, "Editorial: Chatgpt: Challenges opportunities and implications for teacher education", CITE Journal, [online] Available: https://citejournal.org/volume-23/issue-1-23/editorial/editorial-chatgpt-challenges-opportunities-and-implications-for-teacher-education/.
16. M. R. King, "The future of AI in medicine: A perspective from a chatbot", Annals of Biomedical Engineering, vol. 51, no. 2, pp. 291-295, 2023.
17. T. H. Kung, M. Cheatham, A. Medenilla, C. Sillos, L. De Leon, C. Elepaño, et al., "Performance of ChatGPT on USMLE: Potential for AI-assisted medical education using large language models", PLOS Digital Health, vol. 2, no. 2, pp. e0000198, 2023.
18. L. De Angelis, F. Baglivo, G. Arzilli, G. P. Privitera, P. Ferragina, A. E. Tozzi, et al., ChatGPT and the Rise of Large Language Models: The New AI-Driven Infodemic Threat in Public Health, 2023, [online] Available: https://ssrn.com/abstract=4352931.
19. A. T. Gabrielson, A. Y. Odisho and D. Canes, "Harnessing Generative Artificial Intelligence to Improve Efficiency Among Urologists: Welcome ChatGPT", The Journal of Urology, pp. 10-1097, 2023.
20. Y. Zhu, D. Han, S. Chen, F. Zeng and C. Wang, How Can ChatGPT Benefit Pharmacy: A Case Report on Review Writing, 2023, [online] Available: https://doi.org/10.20944/preprints202302.0324.v1.
21. Y. Shen, L. Heacock, J. Elias, K. D. Hentel, B. Reig, G. Shih, et al., "ChatGPT and other large language models are double-edged swords", Radiology, pp. 230163, 2023.
22. T. H. Kung, M. Cheatham, A. Medenilla, C. Sillos, L. De Leon, C. Elepaño, et al., "Performance of ChatGPT on USMLE: Potential for AI-assisted medical education using large language models", PLOS Digital Health, vol. 2, no. 2, pp. e0000198, 2023.
23. N. Fijačko, L. Gosak, G. Štiglic, C. T. Picard and M. J. Douma, "Can ChatGPT pass the life support exams without entering the American heart association course?", Resuscitation, pp. 185, 2023.
24. A. B. Mbakwe, I. Lourentzou, L. A. Celi, O. J. Mechanic and A. Dagan, "ChatGPT passing USMLE shines a spotlight on the flaws of medical education", PLOS Digital Health, vol. 2, no. 2, pp. e0000205, 2023.
25. C. Rodriguez, "Which countries will follow after nation's shock chatgpt ban?", Forbes Australia, 2023, [online] Available: https://www.forbes.com.au/news/innovation/chatgpt-ban-which-countries-will-follow-italy-in-blocking-ai-giant/.
26. S. McCallum, "CHATGPT banned in Italy over privacy concerns", BBC News, 2023, [online] Available: https://www.bbc.com/news/technology-65139406.
27. J. Werb, "Is ai coming for white-collar jobs? UBC Magazine, 2023, [online] Available: https://magazine.alumni.ubc.ca/2023/humanities-technology/ai-coming-white-collar-jobs.

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28. Vincent, James (February 14, 2019). "OpenAI's new multitalented AI writes, translates, and slanders". The Verge. Archived from the original on December 18, 2020. Retrieved July 16, 2019.
29. "GPT-2: 1.5B Release". OpenAI. November 5, 2019. Archived from the original on November 14, 2019. Retrieved November 14, 2019.
30. "Write With Transformer". Archived from the original on December 4, 2019. Retrieved December 4, 2019.
31. "Talk to Transformer". Archived from the original on December 4, 2019. Retrieved December 4, 2019.
32. "CreativeEngines". Archived from the original on February 3, 2023. Retrieved June 25, 2021.
33. Language Models are Unsupervised Multitask Learners (PDF), archived (PDF) from the original on December 12, 2019, retrieved December 4, 2019
34. Ganesh, Prakhar (December 17, 2019). "Pre-trained Language Models: Simplified". Archived from the original on February 3, 2023. Retrieved September 9, 2020. The intuition behind pre-trained language models is to create a black box which understands the language and can then be asked to do any specific task in that language.
35. "openai/gpt-3". OpenAI. May 29, 2020. Archived from the original on November 14, 2020. Retrieved May 29, 2020.
36. Sagar, Ram (June 3, 2020). "OpenAI Releases GPT-3, The Largest Model So Far". Analytics India Magazine. Archived from the original on August 4, 2020. Retrieved June 14, 2020.
37. Jump up to:a b c d Brown, Tom; Mann, Benjamin; Ryder, Nick; Subbiah, Melanie; Kaplan, Jared; Dhariwal, Prafulla; Neelakantan, Arvind; Shyam, Pranav; Sastry, Girish; Askell, Amanda; Agarwal, Sandhini (June 1, 2020). "Language Models are Few-Shot Learners". p. appendix. arXiv:2005.14165 [cs.CL].
38. Language Models are Unsupervised Multitask Learners (PDF), archived (PDF) from the original on December 12, 2019, retrieved December 4, 2019, GPT-2, is a 1.5B parameter Transformer
39. Brown, Tom; Mann, Benjamin; Ryder, Nick; Subbiah, Melanie; Kaplan, Jared; Dhariwal, Prafulla; Neelakantan, Arvind; Shyam, Pranav; Sastry, Girish; Askell, Amanda; Agarwal, Sandhini (June 1, 2020). "Language Models are Few-Shot Learners". arXiv:2005.14165 [cs.CL]. Since we increase the capacity by over two orders of magnitude from GPT-2 to GPT-3
40. Ray, Tiernan (2020). "OpenAI's gigantic GPT-3 hints at the limits of language models for AI". ZDNet. Archived from the original on June 1, 2020. Retrieved June 5, 2020.
41. Amodei, Dario; Hernandez, Danny (May 16, 2018). "AI and Compute". Archived from the original on June 17, 2020. Retrieved August 30, 2020. A petaflop/s-day (pfs-day) consists of performing 1015 neural net operations per second for one day, or a total of about 1020 operations. The compute-time product serves as a mental convenience, similar to kW-hr for energy.
42. Eadicicco, Lisa. "The artificial intelligence company that Elon Musk helped found is now selling the text-generation software it previously said was too dangerous to launch". Business Insider. Archived from the original on November 14, 2020. Retrieved July 6, 2020.
43. "OpenAI is giving Microsoft exclusive access to its GPT-3 language model". MIT Technology Review. Archived from the original on February 5, 2021. Retrieved September 24, 2020.

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