

WHAT IS CHATGPT AND HOW DOES IT WORK?

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Annotation. This paper considers AI not only as a rapidly developing field but also as an increasingly pervasive aspect of our daily lives, from virtual assistants to recommendation algorithms. The concept of ChatGPT and principles of its work are explained, its benefits and ways of possible application are discussed. Ethical concerns dealing with the use of ChatGPT are considered in detail. Features, limitations and risks of ChatGPT are given.

Keywords: ChatGPT, machine learning, natural language, artificial intelligence, ethical aspects.

Introduction. AI, with its rapid advancements, has become an integral part of our daily lives, revolutionizing how we interact with technology. From virtual assistants to autonomous vehicles, AI permeates various aspects of modern society, driving innovation and transforming industries. AI is essential to understand because it shapes our future. It revolutionizes industries, from healthcare to finance, impacting daily lives. Understanding AI fosters innovation and ensures ethical development. It empowers us to navigate the increasingly digital world effectively. Ultimately, AI literacy is crucial for informed decision-making and societal progress.

Main part. A transformer is a type of deep learning model used primarily in natural language processing (NLP) tasks. It was introduced in the paper «Attention is All You Need» in 2017. At the heart of the transformer model is the attention mechanism, which allows the model to focus on different parts of the input sequence when generating an output sequence. One of the key advantages of the transformer model is its parallelizability, which allows for faster training on modern hardware like GPUs and TPUs. Transformers have significantly impacted various NLP applications, including machine translation, text summarization, and sentiment analysis. Additionally, they have facilitated the development of more advanced language models, such as GPT (Generative Pre-trained Transformer) series.

Natural language, or human language, refers to the communication system used by humans for everyday communication. It is characterized by its complexity, flexibility, and adaptability, allowing individuals to express a wide range of thoughts, ideas, and emotions. Natural language encompasses spoken and written forms, as well as non-verbal elements such as gestures and facial expressions. Key features of natural language include: Ambiguity, Syntax, Semantics, Pragmatics.

Natural language processing (NLP) is a subfield of artificial intelligence (AI) focused on enabling computers to understand, interpret, and generate human language in a way that is similar to how humans do [1].

The current discussion of ChatGPT covers numerous technical aspects as well as its applications. One crucial part of the debate refers to the ethical concerns that many scientists raise about the use of ChatGPT. These ethical issues include:

- Privacy and data confidentiality

It is important to ensure the protection of user privacy and data confidentiality when interacting with the user. This includes compliance with data protection laws and principles of data security.

- Fairness and impartiality

Ensuring fair and impartial treatment of all users, regardless of gender, race, nationality, religion, age, or other characteristics is essential.

- Accountability for decisions made

It is important for developers and operators of artificial intelligence systems to be accountable for the outcomes and decisions made based on the system's outputs and predictions. This includes ensuring transparency and explainability of the algorithms used by the system.

- Combating misuse

Preventing the misuse of artificial intelligence systems for illegal or malicious purposes, such as spreading misinformation, violating privacy, or creating harmful content is crucial.

- Social and cultural implications

Considering the social and cultural implications of using artificial intelligence systems and striving to ensure that their impact is positive and aligns with the values and interests of society as a whole.

These ethical concerns are just a part of the wide range of problems associated with the development and use of artificial intelligence systems and require careful discussion and regulation by society, industry, and government [3].

1. ChatGPT can be used for different purposes:
2. ChatGPT serves as a good starting point for research, for example:
 - Research prompts on the philosophy of knowledge.
 - Peer-reviewed papers on the limitations of large language models.
3. Overcoming writer's block, ChatGPT can help kickstart a writing project by:
 - Generating ideas.
 - Creating a plan.
 - Crafting the first paragraph and finding the right word.
4. Strengthening a text: reviewing the existing text for errors or repetitions.
5. Writing and debugging code: explaining, generating, or identifying errors in code.
6. Generating keywords: creating a list of keywords for blogs or marketing [2].

Vulnerabilities and boundaries: first of all, ChatGPT does not understand what it writes, so it can have some limitations while dealing with irony and sarcasm. In some cases, it can generate an offensive or biased text. It cannot verify the veracity of the output. Servers can be overloaded which results in the impossibility of writing in chat. Information can be exposed, because ChatGPT does not have a free access to the Internet.

Conclusion. Thus, transformers represent a significant advancement in deep learning, particularly in natural language processing tasks. With the introduction of the attention mechanism in the transformer model, it has become more efficient and parallelizable, enabling faster training on modern hardware. Natural language, being the primary mode of human communication, is complex and versatile, encompassing various elements such as syntax, semantics, and pragmatics. Natural language processing (NLP) continues to evolve, aiming to enable computers to understand, interpret, and generate human language effectively. Moreover, transformers have enabled breakthroughs in tasks such as question answering, named entity recognition, and language understanding. Their architecture allows for capturing long-range dependencies and contextual information, leading to more accurate and nuanced language processing.

However, it is essential to acknowledge that the ethical implications of using AI systems like ChatGPT are paramount. Privacy, fairness, accountability, combatting misuse, and considering social and cultural implications are crucial aspects that require careful consideration and regulation. ChatGPT has some serious pitfalls: it can generate plausible-sounding but incorrect answers that can be dangerous as far as medical advice or getting the facts right on key historical events are concerned. ChatGPT's inability to comprehend context fully requires fact-checking. Additionally, server overload and restricted access to external information can pose challenges to its usability. Therefore, while ChatGPT offers significant potential, users must exercise caution and ensure responsible usage to mitigate risks and maximize its benefits.

References

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