


Chapter 3

Artificial Intelligence and ChatGPT Models in Healthcare

William J. Triplett

 <https://orcid.org/0000-0003-1325-9508>

Capitol Technology University, USA

ABSTRACT

The aim of this research is twofold: 1) to explore the potential applications of artificial intelligence (AI) and generative pre-trained transformer (GPT) models in healthcare and, 2) to identify the challenges associated with integrating these technologies into clinical practice. AI and GPT models have attracted significant attention within the healthcare industry due to their potential to revolutionize medical practices. Potential applications of AI and GPT models in healthcare include early disease detection through the analysis of medical images or electronic health records, personalized treatment recommendations based on patient data analysis, and improved efficiency through automating routine administrative tasks. These models employ advanced deep-learning algorithms to analyze extensive volumes of patient data, interpret medical images, and provide diagnostic suggestions. As a result, healthcare professionals can make well-informed decisions and enhance patient outcomes. In addition, AI and GPT models support remote monitoring, personalized care, and patient triaging, thereby improving the accessibility and efficiency of healthcare services. Nevertheless, the widespread adoption of AI and GPT models into healthcare faces several challenges and limitations. These models require high-quality data and must address issues related to data privacy, biased algorithms, and regulatory frameworks. Moreover, ethical considerations, including safeguarding patient privacy, ensuring algorithmic accountability, and avoiding biases, must be diligently addressed when implementing AI and GPT models within

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healthcare settings. This study is of AI and GPT models as they relate to healthcare, with the goal of encouraging future developments in this field.

ARTIFICIAL INTELLIGENCE AND CHATGPT MODELS IN HEALTHCARE

In recent years, there has been a significant rise in the use of Artificial Intelligence (AI) and ChatGPT models in the healthcare industry. A ChatGPT model is a generative pre-trained transformer (GPT) model developed by OpenAI and introduced in 2022. It is based on large language models (LLMs) and enables users to refine and guide a conversation towards a desired length, format, style, level of detail, and language. AI and ChatGPT technologies have the potential to revolutionize patient care by improving diagnostic accuracy, providing personalized treatment plans, and enhancing overall efficiency in healthcare processes. AI refers to the development of computer systems that can perform tasks that traditionally require human intelligence. Specifically, generative pre-trained transformer (GPT) models represent a category of AI models that employ text-based generative methods to facilitate conversational interactions with users (Moons & Van Bulck, 2023). These models employ deep learning algorithms that facilitate an advanced level of interaction by understanding and responding to natural language inputs. This capability presents a more sophisticated and effective level of communication.

The adoption of AI and GPT models within the healthcare sector has attracted considerable attention due to their potential to bring about transformative shifts in medical practices (Eysenbach, 2023). By analyzing substantial volumes of patient data, interpreting medical images, and providing diagnostic suggestions, these models enable healthcare professionals to make more informed decisions, ultimately leading to improved patient outcomes (Temsah et al., 2023). GPT technology can also be used in chatbots and virtual assistants to interact with patients, provide information, answer questions, and offer support. Therefore, the integration of AI and GPT models in healthcare can improve patient engagement, access to healthcare services, and patient triage. They can also assist healthcare professionals in delivering personalized care (Javaid et al., 2023), thereby rendering healthcare services more accessible and efficient.

However, along with these benefits come potential risks that must be carefully considered and managed to ensure the safe and effective use of AI and ChatGPT models in healthcare (Kim, 2022). One major concern is the risk of misdiagnosis or incorrect medical decisions due to errors in AI algorithms or misconfiguration of ChatGPT models. A study by Evans and Snead (2024) found that around 12 million adults are misdiagnosed annually in outpatient settings in the United States.

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