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AI-Image Based Multimodel Machine Learning And Clinical Biomedicine

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Abstract: *The growing complexity of clinical data in modern healthcare systems often leads to fragmented and hard-to- interpret patient information. This paper presents "A Multimodal Medical AI Model for Clinical Imaging and QA," an integrated artificial intelligence framework designed to simplify, summarize, and visualize medical reports for both patients and healthcare professionals. The proposed system brings together textual, visual, and structured data using natural language processing (NLP) and multimodal AI techniques. It consists of four main modules: a Health Chatbot, Combined Report Generator, Report Summarizer, and Visualization & Precautions Module. The chatbot allows conversational interaction through the Google Gemini API, providing patient-friendly answers to medical questions. The summarization module explains complex medical terms, while the visualization module creates dynamic charts to highlight health trends and offer AI-based precautionary advice. Developed with Python and Streamlit, the system provides scalability, efficiency, and accessibility through a web-based interface. Experimental results show that the proposed model improves healthcare understanding, supports clinical decision-making, and connects complex medical data with patient comprehension..*

Keywords: Artificial Intelligence (AI), healthcare informatics, natural language processing (NLP), medical report summarization, health chatbot, multimodal AI, clinical data visualization, Google Gemini API, Streamlit, machine learning, clinical decision support, patient engagement, data analytics, medical imaging

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