

## **MEDI CARE AI: CLINICAL TEXT-TO-VISUAL EXPLANATION SYSTEM USING GENERATIVE AI**

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### ***ABSTRACT***

*Medical report comprehension remains a significant barrier to patient engagement and health-informed decision-making, particularly in developing nations such as India, where health literacy gaps are pronounced and specialist access is geographically constrained. Existing digital health tools either lack contextual interpretation or require substantial domain expertise to utilize effectively. This paper presents Medi Care AI, a web-based clinical text-to-visual explanation system that leverages Google Gemini's large language model API to convert complex medical reports into patient-comprehensible, multimodal explanations. The system implements a four-stage AI processing pipeline comprising input processing, semantic interpretation, multimedia content generation, and structured output rendering. Built on Next.js 14, React, and Tailwind CSS, and deployed on Vercel's edge infrastructure, Medi Care AI delivers both textual and audio-based explanations through integration with the Web Speech API. Evaluation across 500 clinical text samples demonstrated an interpretation accuracy of 97%, an average system response time of 3.2 seconds, and a System Usability Scale (SUS) score of 84 out of 100, indicating high usability. Platform uptime was recorded at 99.8% over a 30-day deployment window. These results position Medi Care AI as a viable, privacy-preserving, and scalable tool for improving patient health literacy in resource-constrained environments.*

**KEYWORDS:** *Generative AI, Clinical Natural Language Processing, Medical Report Interpretation, Large Language Models, Health Informatics, Patient Health Literacy, Multimodal AI Systems, Prompt Engineering*

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### ***Article History***

***Received: 26 Apr 2026 | Revised: 27 Apr 2026 | Accepted: 30 Apr 2026***

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