A Comprehensive Review on E-Healthcare using Expandable AI

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Abstract: *This report critically explores the disruptive integration of Generative AI in enhancing diagnostic fidelity and clinical acumen within digital health ecosystems. E-health represents a paradigm shift wherein computational intelligence converges with medical infrastructure to optimize accessibility, scalability, and patient-centricity. The study evaluates state-of-the-art AI architectures capable of enabling real-time patient surveillance, high-precision diagnostics, and remote clinical interfacing, thereby attenuating systemic overheads. It interrogates algorithmic pipelines, system topologies, and data workflows fundamental to contemporary e-health deployments while concurrently addressing exigent concerns—such as data sovereignty, semantic interoperability, and algorithmic scalability. Amid increasing dependence on rapid, credible health intelligence, this project introduces a Generative AI-powered Medical Chatbot designed to deliver contextually aligned, medically substantiated responses with empathetic articulation. Functioning as a cognitive proxy, the chatbot synthesizes advanced NLP and domain-specific embeddings to simulate expert consultation. Prioritizing inclusivity and immediacy, it operates as an essential frontline digital triage—augmenting user autonomy without supplanting professional oversight.*

Keywords: *Generative Artificial Intelligence (Generative AI), Medical AI Chatbot, E-health, Virtual Health Assistant, Large Language Models (LLMs), Natural Language Processing (NLP).*