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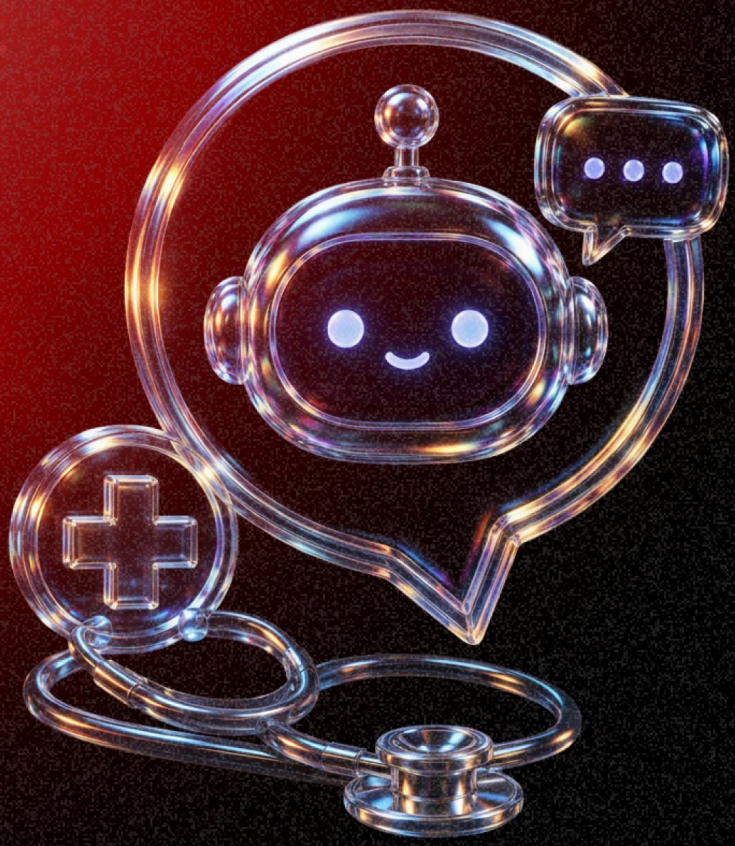

AI-Powered Healthcare Conversational Agent for Unified Clinical and Academic Knowledge Access

Creating a centralized conversational AI experience that simplifies access to healthcare, research, and academic information.

Overview

- Built a centralized conversational AI assistant that unifies access to clinical, research, and educational knowledge bases.
- Developed a scalable cloud-native architecture using generative AI and enterprise search, reducing information discovery time by over 50%.
- Enabled patients, students, and researchers to access accurate information through a single conversational interface with 24/7 availability.
- Improved user engagement while securely scaling across millions of documents and high-volume traffic environments.

Client Profile

A top-tier US-based academic medical system combining advanced patient care, biomedical research, and medical education. The organization operates a large digital ecosystem spanning hospitals, medical schools, research programs, and community healthcare initiatives, serving millions of users annually.

Fragmented Information Across Specialized Domains

- Clinical, academic, and research information existed across multiple specialized web properties.
- Users found it difficult to quickly identify relevant cross-functional information without navigating several domains.
- The growing volume of unstructured healthcare and academic content increased search complexity.

- The institution required a scalable solution that could unify knowledge access without disrupting existing digital experiences.

AI-Powered Digital Concierge for Healthcare Ecosystems

We developed a centralized conversational AI assistant that acts as a digital concierge across the institution's healthcare and academic web platforms. The assistant complements existing navigation systems by enabling users to ask natural language questions and instantly receive accurate, context-aware responses.

The solution uses automated ingestion pipelines, enterprise semantic search, and foundation models to retrieve and synthesize information from clinical, research, and educational domains in real time.

Key Features

- Parallel ingestion of healthcare, research, and medical education content
- Enterprise semantic search for unstructured medical and academic information
- AI-generated conversational responses grounded in institutional data
- Serverless orchestration for low-latency query processing
- Infrastructure as Code (IaC) for secure and repeatable deployments

Technical Highlights

- Built using AWS Bedrock, AWS Kendra, AWS Lambda, AWS Step Functions, and AWS CloudFormation
- FastAPI-based API layer for conversational query handling
- Automated state-machine workflows for parallel content ingestion
- Event-driven serverless compute architecture for scalable AI orchestration
- Cloud-native infrastructure supporting secure and maintainable deployments

Impact

- Reduced information discovery time by more than 50% through AI-powered conversational search experiences.
- Increased user engagement and self-service interactions by nearly 35% across healthcare and academic web platforms.
- Unified fragmented healthcare and academic knowledge into a single conversational experience.
- Enabled scalable processing of millions of documents with dynamic cloud-native infrastructure scaling.
- Delivered actionable search analytics to support future content and engagement strategies.