

Electronic Health Record Agent Swarm

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BRIEF DESCRIPTION

Researchers at UC Irvine has developed an AI-powered hospital analytics platform that helps healthcare leaders quickly find answers hidden within large collections of patient records. Instead of relying on traditional reports or manual chart reviews, users simply ask questions in everyday language. The platform automatically analyzes thousands of electronic health records, including clinical notes and reports that conventional analytics systems cannot easily interpret. By combining advanced artificial intelligence with hospital data, the system provides fast, data-driven insights that improve operational decision making, reduce administrative burden, and help hospitals identify opportunities to improve patient flow, resource utilization, safety monitoring, and overall efficiency.

FULL DESCRIPTION

Hospitals collect massive amounts of information in electronic health records (EHRs), but much of that information is difficult to access because it is buried in physician notes, nursing notes, radiology reports, discharge summaries, and other free-text documents. This software platform developed at UCI uses multiple coordinated AI agents to read and analyze both structured hospital data (lab values, diagnoses, medications, timestamps) and unstructured data (clinical notes and reports) simultaneously. Hospital leaders can ask questions in plain English and receive actionable answers in seconds instead of spending hours or days gathering information manually. The system automatically breaks the question into smaller tasks and distributes them across a "swarm" of AI agents. These agents simultaneously review thousands of patient records, identify relevant information, and provide a summarized answer in seconds. It converts administrators' plain-language questions into parallel data-retrieval and analysis tasks across thousands of patient charts, then synthesizes the results into concise, timely answers. The web-based platform is built with Python, Chainlit, large language models, and GPU computing infrastructure. This technology is a secure, HIPAA-compliant platform.

SUGGESTED USES

- » Hospital Administration: Supports executive leadership in monitoring hospital operations, capacity management, and performance improvement initiatives.
- » Patient Flow Optimization: Identifies discharge barriers, delays in care transitions, and opportunities to reduce unnecessary hospital stays.
- » Bed Management: Provides real-time visibility into factors affecting admissions, transfers, and discharges.
- » Infection Prevention and Surveillance: Assists infection prevention teams by identifying potential hospital-acquired infections and other reportable quality events from clinical documentation.
- » Care Coordination: Helps healthcare teams understand operational challenges affecting patient movement throughout the health system.
- » Healthcare Analytics Platforms: Can be integrated into existing healthcare software products and enterprise analytics solutions.
- » Electronic Health Record Vendors: Potential licensing opportunities exist with major EHR providers seeking advanced AI-based analytics capabilities.

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OTHER INFORMATION

CATEGORIZED AS

- » Medical
- » Software

RELATED CASES

2026-711-0

» Healthcare Software-as-a-Service (SaaS): Can be deployed as a standalone enterprise platform serving hospitals, health systems, academic medical centers, and integrated delivery networks.

ADVANTAGES

- » Conversational Access to Hospital Data: Users do not need technical expertise, database skills, or custom reports. Questions can be asked using plain English.
- » Understands Clinical Notes and other free-text documents: Unlike many hospital analytics tools, the platform can interpret information contained in physician, nursing, therapy, and other clinical documentation.
- » Dramatically Faster Insights: Tasks that may require hundreds of hours of manual chart review can be completed in seconds.
- » Analyzes Entire Patient Populations: The system can review thousands of records simultaneously to identify trends, bottlenecks, and opportunities for improvement. Real-time operational insights for healthcare leadership
- » Improves Operational Decision-Making: Provides healthcare leaders with timely information to support resource allocation, discharge planning, infection surveillance, and patient flow initiatives.
- » Scalable and Adaptable: Designed to integrate with major healthcare data systems and standards, supporting deployment across a wide range of hospitals and health systems.
- » Significant reduction in manual chart review and staff effort ·HIPAA-compliant deployment within healthcare environments

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