A nighttime aerial view of a dense urban skyline, likely Hong Kong, with numerous illuminated skyscrapers and residential buildings. The image is overlaid with a dark purple gradient on the right side.

MEDHELP

# • MEDHELP

*BRIDGING PERSONAL CARE WITH  
PUBLIC HEALTH INTELLIGENCE*

A PROJECT BY:  
SQUAD CAL

# Introduction to MedHelp

MedHelp is a dual-purpose health platform designed to bridge the gap between personal patient care and public health intelligence.

For medical and strategic partners, the platform aggregates anonymized data into an Intelligence Dashboard, allowing institutions to track real-time disease trends and use a custom PyTorch LSTM model to forecast future outbreaks. The entire web app is built on a scalable stack of Angular, Node.js, Python (FastAPI), and MongoDB.

For patients, it provides an immediate, AI-powered Smart Triage Bot that utilizes GPT-4 and RAG (Retrieval-Augmented Generation) to offer evidence-based symptom assessments and automatically records diagnoses in a chronological Medical History Timeline.

# Project Objectives and Scope

## Project Goals

MedHelp acts as a closed-loop health ecosystem that simultaneously serves individual patients and public health institutions. The platform consists of two distinct portals: a patient-facing interface that offers immediate, AI-powered symptom triage and secure medical history tracking, and a partner-facing dashboard that provides healthcare providers with aggregated epidemiological data.

### Medical History

A chronological record of your AI triage assessments.

Dec 7, 2025

6:46 AM

#### PRIMARY DIAGNOSIS

**Tension Headache**

Alternatives: Migraine , Sleep Deprivation Headache

#### RECOMMENDATION

Given the lack of sleep, it is important to prioritize rest and establish a regular sleep schedule. Over-the-counter pain relief may help alleviate the headache. If symptoms persist, consult a healthcare provider.

## Project Scope

The technical scope encompasses a full-stack solution utilizing Angular for a responsive frontend and a hybrid Node.js and Python backend architecture. Key deliverables include a secure authentication system, a RAG-enhanced GPT-4 chatbot for evidence-based medical advice, and a flexible MongoDB database for storing diverse user profiles.

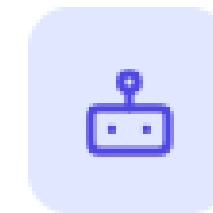
# Methodology and Approach

## Strategic Planning

Our strategy centers on a dual-interface architecture designed to simultaneously address individual patient needs and institutional data gaps. Key decision-making focused on adopting a microservices framework to isolate heavy AI processing (Python) from secure user management (Node.js), thus making the app scalable

## Project Execution

The deployment began with the Patient Triage MVP to validate the RAG-powered chat and generate initial health datasets. Subsequent phases focus on launching the Partner Intelligence Dashboard and training the custom PyTorch LSTM models.

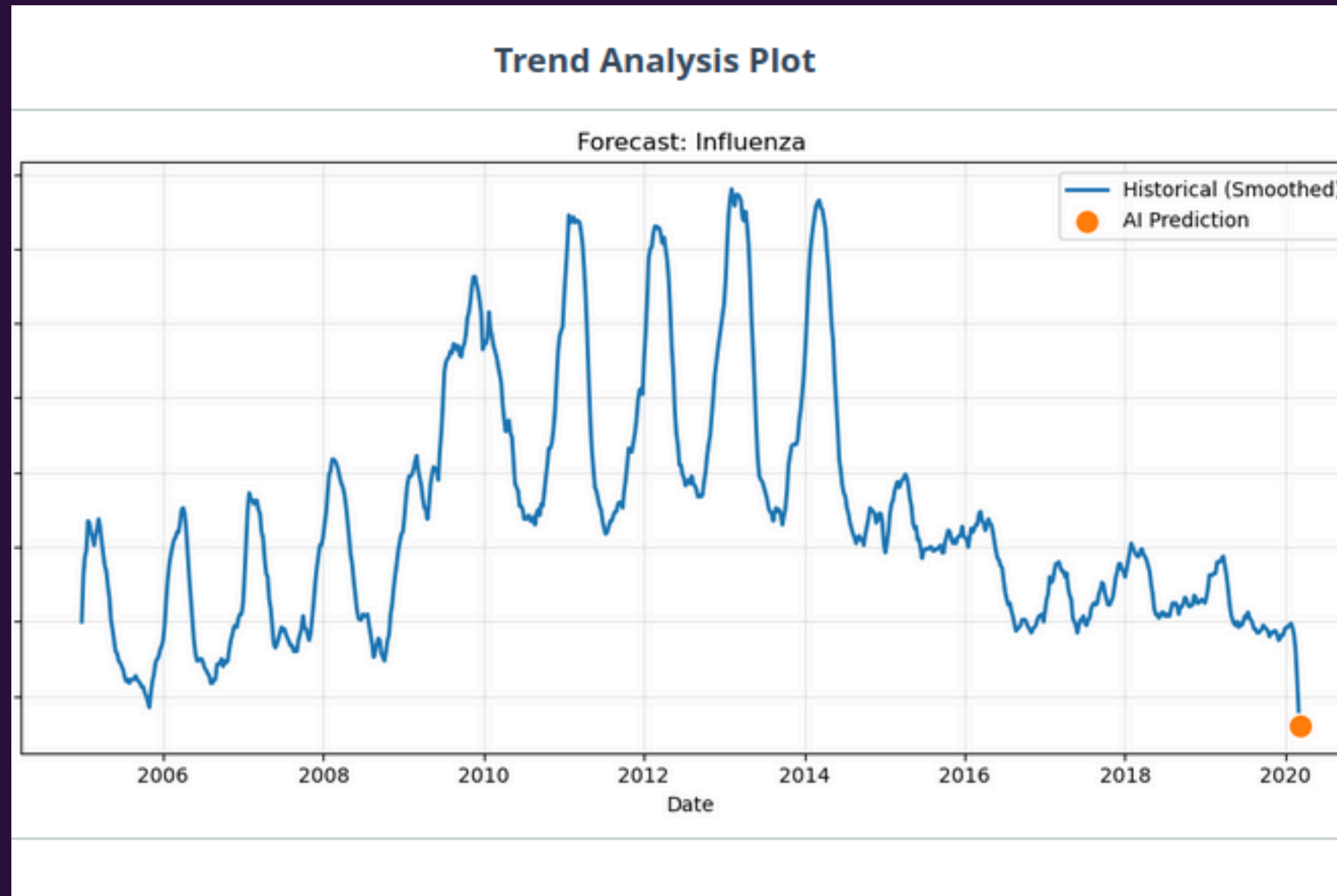


### Start Triage

Chat with our AI assistant to analyze symptoms and get immediate advice.

[Start Chat →](#)

# Challenges and Risks



## Technical Complexity

We knew from the beginning that this would not be an easy challenge, considering all the layers of the app that needed to be implemented.

## Resource Constraints

We adopted a Hybrid AI Approach: Leveraged GPT-4 for natural language understanding to ensure high-quality user interaction, while developing proprietary PyTorch LSTM models for specialized epidemiological forecasting.

# Projected Outcomes and Benefits

## Users' benefit

Gain immediate, 24/7 access to personalized AI symptom checking and a secure, chronological record of their medical history.

## Our Benefit

Establishing a scalable, high-value proprietary platform that demonstrates advanced technical expertise in full-stack AI integration while building a unique, commercially valuable dataset for public health intelligence.

## Partners' benefit

Access real-time epidemiological data and AI-driven forecasts to proactively manage resources and anticipate disease outbreaks.

# Projected Costs and how to cover them

## Aproximate cost calculation

For 10,000 active users performing one full triage session each, the total estimated operating cost is approximately \$510 per month, which breaks down to roughly \$0.05 per user interaction covering both OpenAI API fees and server infrastructure.

## B2B Solution - Data Monetizing

Medical institutions and public health organizations pay a monthly SaaS fee to access the "Partner Intelligence Dashboard," granting them real-time epidemiological heatmaps and AI-driven outbreak forecasts derived from aggregated patient data.

## Enterprise Licensing

Private clinics and insurance providers pay to embed our "Smart Triage Bot" directly into their own websites as a branded for their patients, make their waiting rooms less crowded and overall patient satisfaction rates higher

# Conclusion and Next Steps

Current Status & Roadmap: The MVP successfully demonstrates the closed-loop data pipeline. Future phases focus on transitioning to proprietary local LLMs to reduce operational costs and achieve full HIPAA compliance.

