

Medical Symptom Advisor

High-Risk AI System for Healthcare Decision
Support

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Introduction

Problem:

Traditional symptom checkers fail on free-form input



Importance:

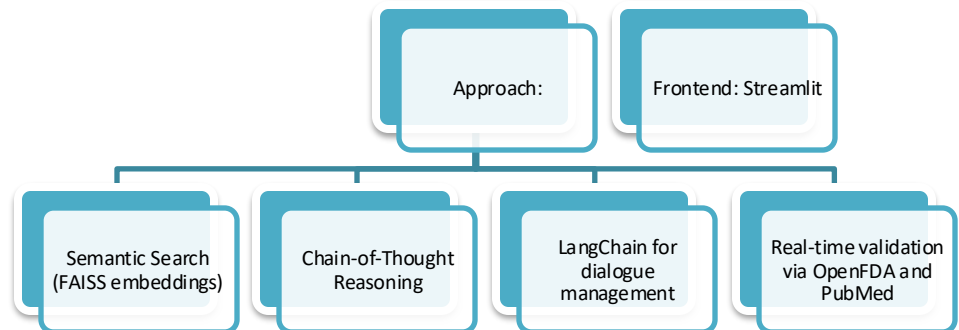
Mistrust and wrong triage decisions
Healthcare AI is high-risk but critical

Medical Symptom Advisor

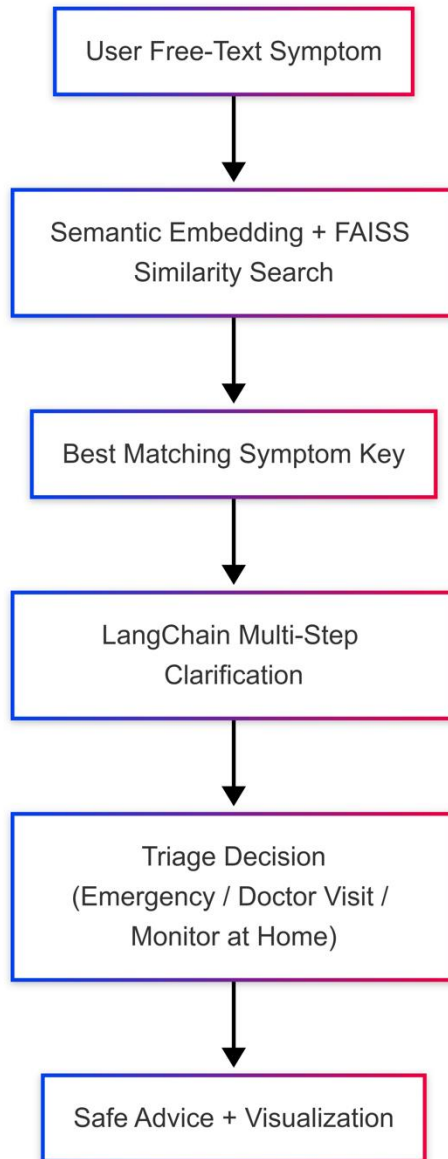
Enter a symptom, and get AI-powered recommendations and guidance.

GPT Direct Mode Simple Mode AI Chat Mode Symptom Analytics NLP Analytics

Methodology Overview



System Architecture



- Workflow:
 - Input → Semantic Matching → Clarification → Triage → Validation → Visualization

Chain-of-Thought Reasoning

- Multi-turn clarifications
- Dynamically generated questions
- Improves reasoning transparency



Semantic Symptom Matching



FAISS-based vector embeddings



Flexible matching to symptom database



Handles variability in patient language

Agentic AI with LangChain

- Conversational Retrieval Chain
- Manages multi-turn conversations
- Prevents context loss and repetition

Agentic AI-Powered Symptom Chat

This mode uses AI to conduct a brief symptom assessment:

1. Describe your main symptom or health concern
2. The AI will ask you up to 3 clarifying questions
3. After these questions, it will provide a triage recommendation and advice

Start New Conversation

Hello! I'm your medical symptom advisor. Please describe what you're experiencing, and I'll ask a few specific questions to provide appropriate advice.

My body is hot to touch

It sounds like you are experiencing a fever.
My first clarifying question is: How long have you had the fever?

For 15 days

It seems you are experiencing a fever.
My first clarifying question is: What is the highest temperature you've recorded?

about 105 degrees F

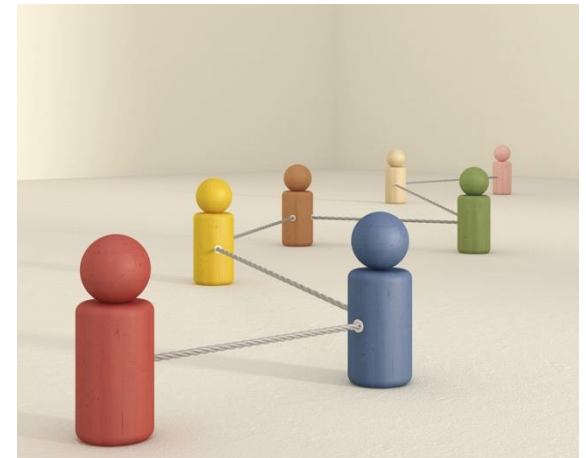
Assistant: What is the highest temperature you've recorded?

105 degrees F

Based on your responses, here is my assessment:
You may be experiencing fever.

Recommendation: Consult a doctor if the fever lasts more than 3 days, or is accompanied by a rash, sore throat, headache, or signs of dehydration.

Safe advice: Take acetaminophen or ibuprofen to reduce the fever. Stay hydrated, get plenty of rest, and dress in lightweight clothing. Avoid over-bundling. Seek medical attention if symptoms worsen or persist.



External Medical Data Integration

- OpenFDA for adverse event reports
- PubMed for medical literature
- Strengthens evidence grounding



Advisor Enrichment: External Medical Data

Detected Medications: acetaminophen, ibuprofen

Detected Symptoms: fever, chills

OpenFDA Drug Event Findings

Acetaminophen Adverse Reactions:

- Adenoviral haemorrhagic cystitis
- Disease progression
- Disease progression

Ibuprofen Adverse Reactions:

- Dyspepsia
- Cholecystectomy
- Cerebral venous thrombosis

PubMed Research Articles

Research on Fever:

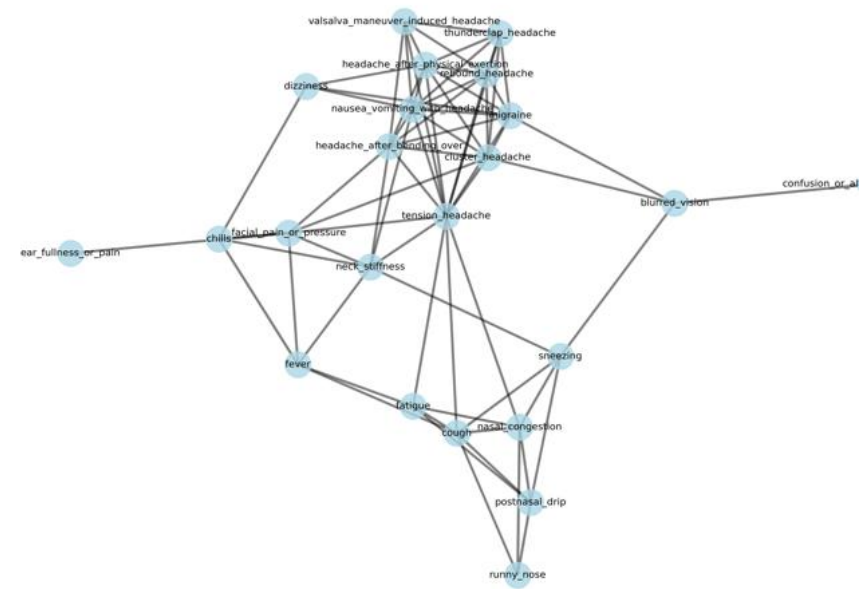
- [Correlation between Escherichia coli infection during pregnancy and maternal-fetal outcomes: a retrospective analysis.](#)
- [Dengue fever with bilateral thalamic diffusion restriction lesions: a case report.](#)
- [\[Clinical analysis of 10 cases of pregnancy complicated with Behçet's disease\].](#)

Research on Chills:

- [Integrated transcriptomics and metabolomics analyses reveal jasmonic acid metabolic pathways for improving the chilling tolerance in cotton seedlings.](#)
- [Potential Use of Selected Natural Anti-Microbials to Control](#)
- [The Effect of the Level of Goat Liver Addition to Goat Minced Meat on the Near-Infrared Spectra, Colour, and Shelf Life of Samples.](#)

Visualization Capabilities

- Cosine Similarity Heatmaps
- t-SNE Projections
- Symptom Network Graphs
- PCA Dimension Analysis



Results



92% Semantic
Matching Accuracy



Successful External
Data Enrichment



Robust Symptom
Clustering

Future Directions



Expand symptom and
rare disease coverage



Integrate WHO, CDC
real-time feeds



Mobile-first and
multilingual expansion



Clinical validation
studies

Thank You



Questions?



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Live
Demo

