

MediSwift

GPT enhanced Medical Notes

Searching medical records takes too much time



Information overload in EHRs may result in **higher error rates and negatively impact patient safety**. [...] Changes focused on the usability of EHR should be considered with the end user (physician) in mind. Federal agencies have a role to play in encouraging faster adoption of improved EHR interfaces.

Nijor S, Rallis G, Lad N, Gokcen E. Patient Safety Issues From Information Overload in Electronic Medical Records. J Patient Saf. 2022;18(6):e999-e1003. doi:10.1097/PTS.0000000000001002

EHR use continues to account for a large proportion of physician time. Further attempts should be made to **redesign both EHRs and physician work processes**.

Toscano F, O'Donnell E, Broderick JE, et al. How Physicians Spend Their Work Time: an Ecological Momentary Assessment. J Gen Intern Med. 2020;35(11):3166-3172. doi:10.1007/s11606-020-06087-4

Primary care physicians spend more than **one-half of their workday, nearly 6 hours, interacting with the EHR** during and after clinic hours.

Arndt BG, Beasley JW, Watkinson MD, et al. Tethered to the EHR: Primary Care Physician Workload Assessment Using EHR Event Log Data and Time-Motion Observations. Ann Fam Med. 2017;15(5):419-426. doi:10.1370/afm.2121

Find what you are looking for

Fast and reliable in huge
amounts of clinical information

Enter your query for the medical note

When did the patient receive his last flu vaccination?

Querying medical_note ...

October 1, 2022

Medical Note

Patient Information: Name: John Doe Date of Birth: January 15, 1980 Gender: Male Address: 123 Main Street, Anytown, USA Phone: (555) 555-5555 Email: [johndoe@email.com](mailto: johndoe@email.com) Allergies: Allergy 1: Penicillin Allergy 2: Shellfish Immunizations: Flu Vaccine: **Last received on October 1, 2022** Tetap Vaccine: Last received on March 10, 2020 MMR Vaccine: Last received on June 5, 2018 Ambulatory Visits: Date: March 8, 2023

Reason for Visit: Routine check-up Findings: Blood pressure: 120/80, Weight: 180 lbs Prescribed Medication: None Date: June 15, 2022

Reason for Visit: Respiratory infection Findings: Prescribed antibiotics (Azithromycin) Follow-up: Symptoms improved after 5 days. Hospital Stays: Admission Date: November 2, 2021

Discharge Date: November 10, 2021 Reason for Stay: Appendicitis surgery Procedure: Laparoscopic appendectomy Complications: None Admission Date: September 3, 2019

Discharge Date: September 9, 2019 Reason for Stay: Pneumonia Treatment: IV antibiotics (Ceftriaxone)

Solution

Large language models can help to **improve information retrieval on unstructured data** and thus increased efficiency working on electronic health records.

Zhu, Yutao, et al. "Large Language Models for Information Retrieval: A Survey." *arXiv preprint arXiv:2308.07107* (2023).

Jiang K, Mujtaba MM, Bernard GR. Large Language Model as Unsupervised Health Information Retriever. *Stud Health Technol Inform*. 2023;302:833-834. doi:10.3233/SHTI230282

Yang X, Chen A, PourNejatian N, et al. A large language model for electronic health records. *NPJ Digit Med*. 2022;5(1):194. Published 2022 Dec 26. doi:10.1038/s41746-022-00742-2

Nashwan AJ, AbuJaber AA. Harnessing the Power of Large Language Models (LLMs) for Electronic Health Records (EHRs) Optimization. *Cureus*. 2023;15(7):e42634. Published 2023 Jul 29. doi:10.7759/cureus.42634



Unique Value Proposition

- **Efficient Medical Notes Analysis:** Provide healthcare professionals with a powerful tool that rapidly processes and comprehends vast amounts of medical notes, extracting pertinent information.
- **Time-Saving Solution:** Streamline information retrieval, allowing healthcare professionals to allocate more time to direct patient interactions and clinical decision-making.



Business Model

- **Basic Tier:** Offers essential features for individual practitioners.
- **Pro Tier:** Includes advanced functionalities and support for larger healthcare institutions.
- **Enterprise Tier:** Customized solutions for large-scale healthcare systems with additional features, support, and integration options.

Charge fees for integrating the software with existing Electronic Health Record (EHR) systems or other healthcare platforms.



Go-to-Market Strategy

- **Healthcare Systems and Providers:** Collaborate with hospitals, clinics, and medical practices for seamless integration and adoption.
- **EHR Providers:** Partner with existing Electronic Health Record system providers for interoperability and compatibility.



Milestones and Roadmap

- **Product Development:** Continuous improvement and updates to enhance functionality and usability.
- **Customer Acquisition and Retention:** Marketing, sales, and customer support efforts.
- **Compliance and Security:** Ensuring the application meets all relevant healthcare data privacy and security standards.



Financial Projections

- **Development Costs:** Expenses related to software development, including salaries, technology infrastructure, and software licenses.
- **Marketing and Sales Costs:** Advertising, promotional activities, and sales team salaries.
- **Customer Support and Training Costs:** Personnel and resources dedicated to customer onboarding, training, and ongoing support.
- **Compliance and Security Costs:** Investments in data security measures and compliance with healthcare regulations.



Team



Tayyab Zain
Python Developer



Benjamin Senst
Medical Expertise & Data Science

Ask

Team Page

[ai-challenge-with-gpt-3-5-codex-dall-e-and-whisper-api/fritzlabs](#)

Code Repository

[github.com/bsenst/llm-enhanced-ehr](#)

App Demonstration

[https://youtu.be/_y25mRdcpEM](#)