

Medicine Recommender System

Liam Attard

Abstract—hello World

Index Terms—Recommender Systems, Health Care AI, Collaborative Filtering.

I. INTRODUCTION

With over 20,000 prescription-only FDA approved medications, doctors may face a challenge when prescribing medicine to a specific patient. Unfortunately, the FDA receives more than 100,000 declarations of medication errors each year in the United States alone [1]. Modern hospitals use Electronic Health Records (EHR) to keep track of everything and deal with this complexity [2].

EHRs are a collection of clinical information gathered from health care patients. The mass adoption of such systems deliver a large amount of data compiled on a patient's demographics, diagnosed conditions, medical prescriptions, procedures and any health-related history [2].

This data provides opportunities for machine learning systems to improve and automate clinical care practices, for example, early disease detection and identifying patients at high risk of severe conditions [3], [4].

This data provides opportunities for machine learning systems, such as Recommender Systems (RS) to automate a particular hospital procedures. For example, A system that suggests a list of medicine based on a patient's current state, will serve as an important decision-support tool for medical experts to assist with patient prescriptions [5].

A. Research Question

II. AIM AND OBJECTIVES

A. Aim

The main of this proposed project is to ...

B. Objectives

To achieve the above mentioned aim a number of objectives have been set and that will later be tested in an exercise to evaluate the success of reaching the same aim.

- The first objective ...
- The second objective ...
- The third objective ...

III. BACKGROUND

A. Techniques

laksjdlkasjd

B. Similar Systems

laksjdlkasjd

IV. PROPOSED IDEA

A. Testing and Evaluation

laksjdlkasjd

B. Challenges and Limitations

laksjdlkasjd

REFERENCES

- [1] U. F. . D. A. FDA, "Fact Sheet: FDA at a Glance," nov 2021. [Online]. Available: <https://www.fda.gov/about-fda/fda-basics/fact-sheet-fda-glance>
- [2] E. Kim, S. M. Rubinstein, K. T. Nead, A. P. Wojcieszynski, P. E. Gabriel, and J. L. Warner, "The Evolving Use of Electronic Health Records (EHR) for Research," *Seminars in Radiation Oncology*, vol. 29, no. 4, pp. 354–361, oct 2019.
- [3] J. Wu, J. Roy, and W. F. Stewart, "Prediction Modeling Using EHR Data: Challenges, Strategies, and a Comparison of Machine Learning Approaches," *Medical Care*, vol. 48, no. 6, pp. S106—S113, 2010. [Online]. Available: <http://www.jstor.org/stable/20720782>
- [4] Y. Juhn and H. Liu, "Artificial intelligence approaches using natural language processing to advance EHR-based clinical research," 2019. [Online]. Available: <https://doi.org/10.1016/j.jaci.2019.12.897>
- [5] S. Bhoi, M. L. Lee, W. Hsu, H. Sen Andrew Fang, N. Chuan Tan, M. Li Lee, and N. Chuan, "Personalizing Medication Recommendation with a Graph-Based Approach," *ACM Transactions on Information Systems (TOIS)*, vol. 40, no. 3, pp. 1–23, nov 2021. [Online]. Available: <https://dl.acm.org/doi/abs/10.1145/3488668>