

ABSTRACT

HYBRID MOVIE RECOMMENDATION USING NEURAL COLLABORATIVE FILTERING SYSTEM AND BERTOPIC

By

Keysha Aira Rizki Riyadi

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A movie Recommendation system is a system that gives relevant movies to users and is widely used by various platforms such as Netflix, Prime Video, and others. These systems can be employed using various Artificial Intelligence methods, such as deep learning, neural networks, and natural language processing (NLP). And it is known that these systems face three main challenges such as cold start, data sparsity, and scalability problems.

This project aims to solve those issues by utilizing a cascade hybrid recommendation system that combines Collaborative Filtering and a Content-Based Filtering system. Neural Collaborative Filtering is used to model the user-item interactions. And on the other hand, BERTopic is used to generate topics from the movie's data. Combining both models can provide accurate and relevant recommendations to users.

Through evaluation, the system was found to be able to solve the cold start problem and data sparsity problem. Though, the scalability was not able to be solved. But it was found that the system has a 68% rate on relevancy, a 78% rate on diversity, an 84% rate on novelty, and a 70% rate on serendipity. However, due to the nature of BERTopic, it is still possible to enhance the accuracy, which can be done for further work along with the scalability fix.

Keywords: Movie Recommendation System, Hybrid Recommendation System, Neural Collaborative Filtering, BERTopic