

Efficient Course Recommendation using Deep Transformer based Ensembled Attention Model

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Abstract

The exponential development of online learning resources has led to an information overload problem. Therefore, recommender systems play a crucial role in E-learning to provide learners with personalised course recommendations by automatically identifying their preferences. In addition, e-Learning platforms such as MOOCs and LMS have been criticised for their low course completion rates, and one of the primary reasons is that they do not provide personalised course recommendations for users with varying interests. Rapidly locating the courses that users are interested in on enormous e-Learning platforms can have a significant impact on the quality of learning and the dissemination of knowledge to the learner. This paper examines the most prevalent recommendation techniques utilised in E-learning. We examined how to apply Deep Transformer based Ensembled Attention Model (DTEAM) on e-Learning recommendation system in order to achieve personalized course recommendations. The proposed recommendation model uses BERT as its foundation integrated with MLM and Transformers. Predicted course recommendations are more aligned with the interests of users. Our experimental results proved that traditional recommendation algorithms, such as collaborative filtering and item-based filtering are incapable of producing superior results. The consequence of the research can assist students in selecting courses according to their preferences and improve their learning calibre.

Keywords: Course Recommendation, Deep Transformer based Ensembled Attention Model (DTEAM), BERT, MLM, Transformers

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1. Introduction

Amazon, Myntra, Flipkart, and eBay are just few of the many modern e-commerce platforms from which consumers may choose from a dizzying array of products. Customers have a hard time finding what they're looking for when they have to search for it manually across multiple internet stores. Here, the Recommender System (RS) plays a key role in assisting customers and making suggestions based on their past purchases.[1][2]. E-government, e-business, e-commerce/e-shopping, e-library, e-learning, e-tourism, e-resource services, and e-group activities are just some of the areas where these RS methods have been put to use [3]. Mobile, cloud, social

media networks, and traditional PCs are the four environments where these apps are deployed [2].

RS is a filtering algorithm that determines the likelihood that a user will favour a specific item based on their previous interactions with that item [4][5]. As can be shown in Figure 1, RSs have a significant effect on any online business by recommending the most relevant and interesting items from a large database to the user based on the user's stated preferences and interests. Based on how they come up with their suggestions, recommendation methods may be broken down into four categories: Hybrid systems, which combine Collaborative Filtering (CF), Demographic Filter (DF) and Content Based Filtering (CBF) are becoming increasingly popular.

