Digital Media Laboratory

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Abstract

After completion of the first phase of the project, which was about learning embeddings of query-ad space, a review of literature about the second step was done. In this phase, the goal is to take the user's behavior into account when producing recommendations. Two articles about personalization in recommender systems were analyzed; one briefly and the other elaborately.

Description

- In the "Real-time Personalization using Embeddings for Search Ranking at Airbnb", the authors have mentioned two effective ways to address personalization. The first method consists of an offline embedding extraction. In this case, according to the dataset of the Airbnb website, the goal is to exploit the history of users' bookings to enhance the outputs of the recommender system. Users have to be divided into distinct groups (named as usertypes), and listings (products or houses as mentioned in the article) have to be classified (listinggroups) as well. These classifications are done with the help of available metadata of users and listings, e.g. location, profile picture, device type, and language for users. In addition to the aforementioned method, the authors introduced a novel real-time personalization method. This fashion is based on each user's session and boosts up the model with the similarity of each output to the clicked and skipped items. Consequently, the listings (products) which are more similar to the clicked ones and less similar to the skipped ones get more value.
- The second article, which is newer, explains about a graph based behavior simulation. The semantic relation of ads and queries are extracted out of a GNN. This theory seems to be harder to understand and less convenient.

Next Week

1. Deciding which type of personalization suits our project.

References