

Bias in Book Recommender Systems

Statistical to social

Group: Human-Centered Data Analytics

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Background

Recommender Systems are a very popular class of algorithms within domains like e-commerce and entertainment platforms. They often process a large amount of data in order to profile users and suggest products that they are likely to consume. In the case of collaborative filtering, neither explicit demographics of the user nor information about the content are needed to encode their taste, but only consumption and browsing history. Despite the lack of explicit input of user or item characteristics in the system, collaborative filtering approaches are still known to suffer from statistical bias (e.g., popularity bias, an algorithmic effect where items that were originally popular in the training dataset tend to be recommended more often and thus have their popularity increase further).

Statistical biases can also have social implications. In this context of book recommendation, book authors are potential recipients of bias by a system, as their popularity might coincide with sensitive characteristics which are known to instigate unfair treatment of authors in the publishing world. Investigating this effect is not trivial; it requires having access to these author characteristics, often by extracting them from publicly available databases (such as WikiData) and manually or algorithmically verifying their validity.

Description

In this project, the student will concern themselves with the topic of bias in book recommender systems. Depending on their research interests, the student will have the freedom to form their own research question under this umbrella. Example research questions:

1. What is the best method for enriching datasets with book ratings with information on the author?

2. Do datasets with user-book interactions that are often used in research suffer from bias?
3. To what extent statistical bias coincides with social bias in commonly used book recommender systems?

Student profile

Background in Computer Science, Data Science and/or Artificial Intelligence, interest in Responsible AI.