

Exploring Recommender Systems: Towards Fair and Ethical Recommendation

Media Futures

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Abstract

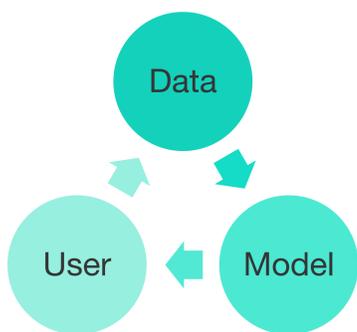
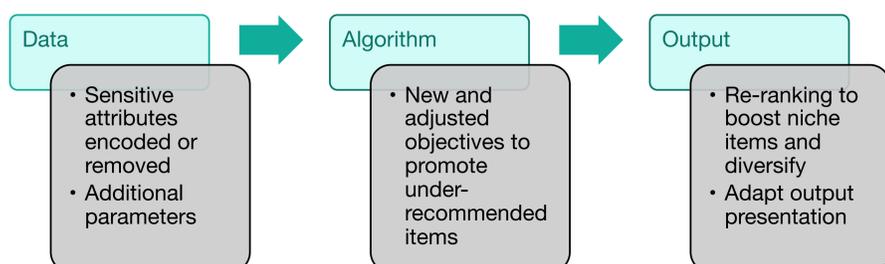
Recommender Systems has become an integral part of various aspects of our lives, with decision making and content choosing made easier. However, in the past decade it has become more apparent that recommender systems have not only positive sides. Various drawbacks and issues have been discovered in the ways such systems effect individuals and society as whole.

In my PhD thesis I will study and attempt to address some of these undesired effects and try to help mitigate them. I will begin with one of the most well-known issues – popularity bias, which has become the downside of many algorithms in various domains.

Research questions

1. What are the undesired effects of recommendation and personalization systems and the effective strategies to mitigate them?
2. What could be possible solutions to the problem of popularity bias within recommendations?
3. To what extent can we effectively, but responsibly and fairly model online user behaviour and predict this behaviour?

Popularity Bias Mitigation Strategies

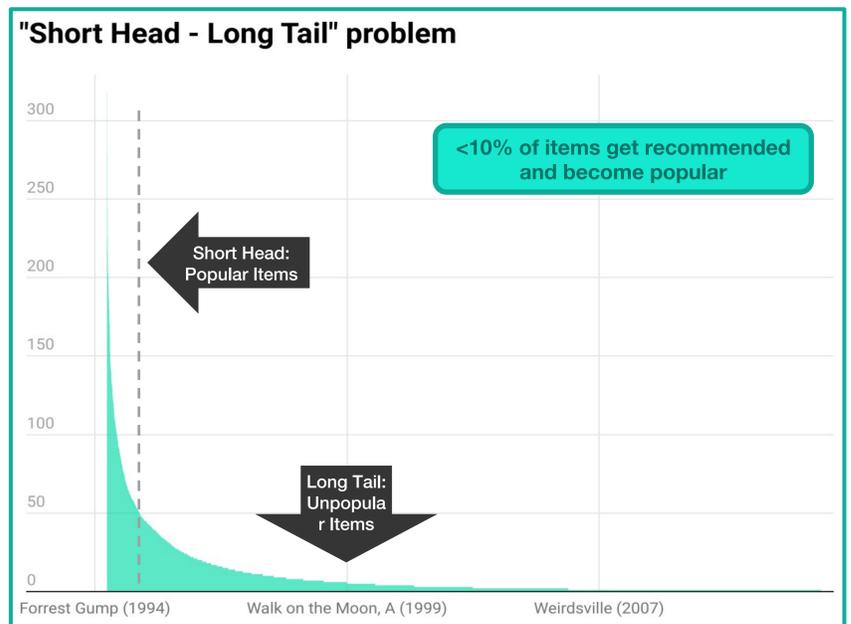


Feedback Loop: the system learns the original data provided, creating a model and making recommendations to the user. The user in return provides explicit or implicit feedback to the system that can be learned again to adjust the recommendation. Any bias introduced in the system can be amplified at any of these stages.

Numerous decisions in every day life are made today with automated recommendation: what to eat, what to watch, where to stay, who to date. Recommender systems (RSs) have become a big part of our lives and it is a good thing, because there is so much information available around us so that navigating it all on our own does not appear viable anymore in many cases.

With the first generations of recommender systems the researchers' only concern was how to make these systems more accurate, more precise. However, in the past decade certain undesired effects of RSs have been discovered: bias, filter bubble, echo chamber – all these terms are appearing more often in discussions about RSs within the scope of responsible user modeling, fairness and ethics.

Popularity bias, the problem of “rich becoming richer” is a good example of such an issue. Analyzing the current situation in different domains can help to better understand, how this drawback can be addressed and on what stages of recommendation algorithm such mitigation techniques can be the most effective.



Conclusion

Recommender systems have certain undesired effects that have to be addressed to maintain fairness towards all the stakeholders.

Popularity bias is one of these effects, and different techniques can be applied to modern RSs on certain steps to help mitigate this issue.

PARTNERS



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FUNDER

This research is funded by SFI MediaFutures partners and the Research Council of Norway (grant number 309339).

Forskningsrådet

