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ACM Transactions on Information Systems

Special Section on Trustworthy Recommendation and Search

Guest Editors:

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Recommendation and search systems have already become an indispensable means for helping web users identify the most relevant information/services in the era of information overload. The applications of such systems are multi-faceted, including targeted advertising, intelligent medical assistant, and e-commerce, and are bringing immense convenience to people's daily lives. However, despite rapid advances in recommendation and search, the increasing public awareness of the trustworthiness of relevant web applications has now introduced higher expectations on relevant research.

The aim of this TOIS special section is to engage with active researchers from recommendation and search communities and deliver the state-of-the-art research insights into the core challenges in the algorithmic trustworthiness. Firstly, the unprecedentedly growing heterogeneity of use cases has been challenging the adaptivity of contemporary algorithms to various settings, e.g., dynamic interest drift of users, cold-start users/items, and highly sparse interaction records in large-scale datasets. Secondly, in a broader sense, a trustworthy recommendation/search approach should also be robust, interpretable, secure, privacy-preserving, and fair across different use cases. Specifically, robustness evaluates a model's performance consistency under various operating conditions; interpretability and fairness respectively evaluate if a model can make its decision processes transparent and the decision outcomes unbiased; while security and privacy respectively emphasize a model's ability to handle cyber-attacks and to prevent personal information breaches. Consequently, trustworthiness is becoming a key performance indicator for state-of-the-art approaches in addition to accuracy. In light of these emerging challenges that co-exist with existing techniques and applications for recommendation and search, this special session focuses on novel research in this field with the notion of trustworthiness. The special section will provide an opportunity to advance the development of trustworthy recommendation and search systems, thus promoting human-in-the-loop AI applications and better universalizing the advanced techniques to a wider range of the common public.

Topics

We welcome submissions that focus on the trustworthiness of the following inclusive list of areas:

- Recommendation and search with low-quality data, including highly sparse data, noisy or corrupted data, heavily duplicated data, and biased data;
- The capability of handling uncertainty, where user interests frequently drift over time and/or results need to be presented in a highly dynamic environment (e.g., streaming ranking and cold-start recommendation);
- Interpretable models that provide persuasive explanations on the retrieval results to justify the model output, and/or generate faithful interpretations to precisely reflect the decision process of a recommendation/search algorithm;
- Fairness and debiasing, where a fair system is designed to balance its accuracy with potential biases caused by factors like user demographics, item exposure/popularity, missing not at random (MNAR) data, etc.;
- Privacy-aware recommendation and search, where areas include but are not limited to: federated learning,

on-device training/inference, new privacy protection mechanisms for ranking, and differentially private applications;
- Attacks and counter approaches in relevant applications, such as instance membership inference attacks, data/model poisoning attacks, and attribute inference attacks;
- Human-in-the-loop computing for improving accuracy, explainability, or adaptivity;
- Surveys, evaluations, or benchmarking on state-of-the-art research in the area of trustworthy recommendation and search.

Important Dates

- Open for Submissions: 31st January, 2022
- Submissions deadline: 15th June, 2022
- First-round review decisions: 31st July, 2022
- Deadline for revision submissions: 15th September, 2022
- Notification of final decisions: 31st October, 2022
- Final manuscripts due: 30th November, 2022
- Tentative publication: Early 2023

Submission Information

Authors can submit their manuscripts via https://dl.acm.org/journal/tois. Submissions to this special issue will follow the regular TOIS submission guidelines (https://dl.acm.org/journal/tois/author-guidelines). Submissions must accompanied by a cover letter containing all of the following: (1) Confirm that the paper is not currently under submission at another journal or conference. (2) Confirm that the paper is substantially different from any previously published work. (3) Confirm that none of the co-authors is a Guest Editor for this special session. (4) Disclose possible conflicts of interest with Guests Editors. The review process will be single-blind. Strict policies will be followed for plagiarism, submission confidentiality, reviewer anonymity, prior and concurrent paper submission based on the guidelines.

Papers with a “Major Revision” or “Minor Revision” decision should be resubmitted within 2 months. Revised submissions must be accompanied with a detailed response to reviewers explaining what revisions were implemented. The editors will conduct second-round review process and give the decision (accept or reject or need further revision) in one month.

For questions and further information, please contact **Prof. Hongzhi Yin (db.hongzhi@gmail.com).**