

Computational Intelligence: An International Journal

Special Issue on Explainable AI for Recommender Systems

Guest Editors:

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Introduction:

With the rise of various e-commerce, online video sharing & social media platforms, and many other web services, recommender systems have attracted more and more attention in the past few decades. Recommender systems aim to suggest relevant items to users by studying past behaviors, preferences, ratings, and other relevant data. Despite the rapid advances of recommender systems recently, the application of “black-box” decision mechanisms to recommender systems has become one of the key challenges, lacking explainability and interpretability. This is especially problematic for downstream tasks in industries such as healthcare, manufacturing, insurance, and autonomous vehicles. Explainable artificial intelligence (XAI), which refers to a set of methods that empower the decision-making process with accuracy, transparency, and fairness while allowing users/ system designers to understand and trust the results generated by machine learning algorithms, is a possible solution to tackle the problems stated above.

By bringing these two concepts together, the aim of this special issue is to engage top-tier researchers from recommender systems and explainable AI communities, to combine perspectives across different domains, to deliver the state-of-the-art research insights, and to tackle the existing and foreseeable challenges together. It will focus on various applications of explainable AI techniques to recommender systems and different use cases. For example, we can target the human-computer interaction perspective of explainable recommendations with explainable information sources and display explanation format. We can also target different machine learning models, including but not limited to topic modeling, graph-based models, deep learning-based models, and knowledge graph-based approaches, that generate explainability for recommender systems. We can also extend explainable AI to different downstream recommendation tasks, such as e-commerce, social media, financial product recommendations, and medical recommendations. This special issue will present a stage for researchers to showcase their research on the advancement and the next generation of explainable recommender systems, thus promoting human-in-the-loop AI applications and bringing high-quality research results to the common public.

Topics of interest:

We solicit original contributions to developing explainable AI for recommender systems, including but not limited to the following topics:

- Explainable models that deliver persuasive explanations on model outputs, and/or generate faithful interpretations to reflect and justify the decision-making process
- Using Explainable AI to identify bias in recommender system

- Explainable recommender systems with low-quality data and/or uncertainties
- Explainability and Human-in-the-Loop development of AI in recommender systems
- Explainable AI to support interactive recommender systems
- Presentation and personalization of AI explanations to the recommendation results for different target groups
- Privacy-aware recommender systems, including but not limited to federated learning, and privacy protection mechanisms for ranking.
- Explainable AI for transparency, fairness, and unbiased decision-making in recommender systems
- The recommender system developers' perspective on explainable AI
- The recommender system users' perspective on explainable AI
- Surveys, evaluations, or benchmarking on the state-of-the-art research in the area of explainable recommender systems

Important Dates:

- Submission deadline: Dec 31st, 2022
- Author notification: Mar 15th, 2023
- Revised paper submission: April 30th, 2023
- Final acceptance: June 15th, 2023

Submission Information:

The guest editors are organizing the International Workshop on Explainable AI for Recommender Systems associated with the 21st IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT22) to be held on November 17-20, 2022. We will invite the authors of high-quality papers accepted by the workshop to submit an extended version of their paper for consideration to be published in this special issue. Besides, we will also invite high-quality individual submissions to submit directly to this special issue.

Short Bios

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Xiangmin Zhang is an Associate Professor in the School of Information Sciences at Wayne State University, where he teaches human-computer interaction and information technology courses. Dr. Zhang received his B.A. and M.S. in Information Management from Peking University, and his Ph.D. in Information Studies from the University of Toronto. His research interests and areas of expertise include information interactions, personalization of information systems, information retrieval, data analytics, learning-analytics, experimental design, and user experience with information systems.

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Dr. Sun Aixin is an Associate Professor and Assistant Chair (Academic) at the School of Computer Science and Engineering (SCSE), Nanyang Technological University (NTU), Singapore. His current research interests include information retrieval, recommender systems, text mining, social computing, and digital libraries. Dr. Sun received B.A.Sc (1st class honors) and Ph.D. both in Computer Engineering from NTU in 2001 and 2004 respectively. He has published about 200 papers in major international journals and conferences. According to Google Scholar, his papers have received more than 13,000 citations, with an h-index 55. Dr.

Sun is an associate editor of Neurocomputing, an editorial board member of the Journal of the Association for Information Science and Technology (JASIST), and an editorial board member of the Information Retrieval Journal. He has served as the demonstration track co-chair for SIGIR2020, ICDM2018, CIKM2017, PC co-chair for AIRS2019, and general chair for ADMA2017. He was a member of the best paper committee for SIGIR2020 and SIGIR2022. He has also served as Area Chair, Senior PC member, or PC member for many conferences including SIGIR, WWW, WSDM, EMNLP, AAAI, and IJCAI.

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Jiashu (Jessie) Zhao is an assistant professor at the Department of Physics and Computer Science, Wilfrid Laurier University. Her research focuses on the area of Information Retrieval, Machine Learning and Big Data Applications. From June 2017 to June 2019, she was a scientist at the data science lab of JD.COM, researching on personalized search and recommendation problems in E-commerce. Prior to that, she has worked as a Post Doc and lecturer at York University (Canada, 2015–2017), data scientist at TD Canada Trust (Canada, 2016–2017), and an intern scientist at Yahoo Labs (U.S., 2013). Jiashu (Jessie) Zhao received her PhD from York University in Canada, Master's and Bachelor from Xi'an Jiaotong University in China.

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Dr. Sherry Zhu is currently an AI Engineer specializing in commercialized recommender systems and natural language processing at AI Singapore as well as in the Office of the Deputy President (Research & Technology), National University of Singapore. Dr. Zhu received her bachelor's degree from University of Toronto in 2014, her Master's degree in Information Systems and Technology in 2016, and her Ph.D. degree in Computer Science from York University in 2021. She has published in several top conferences and journals such as SIGIR, Information Sciences, TOIS, TASLP and COLING. Her current research interests include information retrieval, data mining, and natural language processing, particularly in machine learning techniques and applications such as graph neural networks, text mining, and explainable and trustworthy AI.

Should you have any questions or concerns, please do not hesitate to email to sherryzhu0309@gmail.com. Thanks!