Report on the 10th Joint Workshop on Interfaces and Human Decision Making for Recommender Systems (IntRS 2023) at ACM RecSys 2023

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Abstract

The 10th edition of the Joint Workshop on Interfaces and Human Decision Making for Recommender Systems was held as part of the 17th ACM Conference on Recommender Systems (RecSys), the premier international forum for the presentation of new research results, systems and techniques in the broad field of recommender systems. The workshop was organized as a hybrid event: the physical session took place on September 18th at the venue of the main conference, Singapore, with the possibility for authors to present remotely. The IntRS workshop brings together an interdisciplinary community of researchers and practitioners who share research on new recommender systems (informed by psychology), including new design technologies and evaluation methodologies, and aim to identify critical challenges and emerging topics in the field. This year we focused particularly on topics related to Human-Centered AI, Explainability of decision-making models, User-adaptive XAI systems, which are becoming more and more popular in the last years, especially in domains where recommended options might have ethical and legal impacts on users. The integration of XAI with recommender systems is crucial for enhancing their transparency, interpretability, and accountability. This topic attracted a lot of interest from the community, as demonstrated by the fact that several workshop papers proposed methods for recommendation explanations.

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1 Introduction

Recommender systems were originally developed as interactive intelligent systems that can proactively guide users to items that match their preferences. Despite its origin on the crossroads of HCI and AI, the majority of research on recommender systems gradually focused on objective accuracy and ranking criteria paying less and less attention to how users interact with the system as well as the efficacy of interface designs from users' perspectives. The current studies are moving beyond the isolated algorithm or graphical user interface to evaluate the user experience comprehensively, while attempting to enhance both the effectiveness and efficiency of the recommender systems. The series of workshops on Interfaces and Human Decision Making for Recommender Systems focuses on the "human side" of recommender systems. The goal of the research stream featured at the workshop is to improve users' overall experience with recommender systems by integrating different theories of human decision making into the construction of recommender systems and exploring better interfaces for recommender systems. The integration of human aspects into the recommendation process is a prerequisite for making such systems effective and efficient in their interaction with the end user.

2 Workshop Theme and Topics

The 10^{th} Joint Workshop on Interfaces and Human Decision Making for Recommender Systems (IntRS'23) follows successful workshops on the same topic organized at RecSys conferences in 2014 - 2022. The workshop series was created by merging two original RecSys workshops series: Human Decision Making and Recommender Systems (Decisions@RecSys – 2010–2013) and Interfaces for Recommender Systems (InterfaceRS'12). The idea of merging the two workshops was motivated by the strong inter-relationship between the user interface and human decision making topics. The combination of these two aspects seems to be highly attractive. Earlier workshops, such as the IntRS'15 workshop in Vienna, the IntRS'16 in Boston, the IntRS'17 in Como, the IntRS'18 in Vancouver, the IntRS'19 in Copenhagen were highly appreciated and widely attended. The virtual edition of IntRS'20 and hybrid sessions at IntRS'21 and IntRS'22 opened workshop participation to a broader audience and further increase the number of attendees.

The main research strands covered by the workshop are:

- User interfaces for recommender systems: visual interfaces, explanation interfaces, conversational recommender systems, mechanisms to incorporate User Experience for embedded customization in the user interface;
- Interaction, user modeling and decision making: cognitive, affective, and personality-based user models for recommender systems, decision biases, cognitive biases, persuasive recommendation and argumentation, explainable recommendation models;
- Evaluation: user-centric evaluation, beyond-accuracy objectives and metrics (novelty, diversity, serendipity, trustability, fairness, and utility), case studies, benchmarking platforms, empirical studies of new interfaces and interaction designs, evaluations in real-world contexts;
- Influence of recommender systems on user's behavior: An interesting research direction that has recently received renewed interest is to investigate how users interact with recommenders

based upon their cognitive model of the system. We believe that the paradigm that describes the relationship between humans and recommender systems is changing and evolving toward "symbiotic recommender systems", in which both parties learn by observing each other.

3 Workshop Contributions

3.1 Keynote

The workshop had Marko Tkalčič as invited keynote speaker, who shared his perspectives on how cognitive models of personality and emotions can improve recommender systems. He is associate professor at the Faculty of Mathematics, Natural Sciences and Information Technologies (FAMNIT) at the University of Primorska in Koper, Slovenia. He aims at improving personalized services (e.g. recommender systems) through the usage of psychological models in personalization algorithms. To achieve this, he uses diverse research methodologies, including data mining, machine learning, and user studies. He presented his talk on "From Amateur Musicianship to Computational Predictors of Media Consumption Experiences" to highlight the importance of cognitive and affective models when acquiring knowledge about users in recommender systems. Behaviour implicit data is only part of the user modeling process. To overcome this limitation, in his talk Professor Tkalčič showed how the usage of psychology-inspired models can lead to a better acquisition of user preferences.

3.2 Paper Sessions

All paper submissions were reviewed by at least three members of the program committee. In the reviewing process, we ensured that authors received appropriate and constructive feedback. The reviews were examined by the workshop chairs, who accepted three contributions as regular papers, and three contributions as short papers. Authors presented and discussed their work at the workshop. We provide a brief description for each contribution below.

Regular Papers

In [Majjodi et al., 2023], the authors presented a study that investigated how the user's level of domain knowledge may affect user evaluation of recommendations, as well as the effectiveness of interfaces and interaction methods. The study was performed in the context of food recommendation and showed that a knowledge-based preference elicitation method led to healthier recipe choices. Another contribution of this paper concerned the interplay between the user's nutritional knowledge and the preference elicitation method. The sudy revealed that users with higher levels of food knowledge experience additional benefits when using a knowledge-based recommender. The work [Manzoor et al., 2023] investigated the impact of three types of factors (user-related, system-related, and context-related) on users' perceived meaningfulness of a conversational recommender system performance. The main lesson learnt from this work is that it is vital to consider the target user base and its familiarity with technology and provide more advanced features like access to item metadata, reviews proliferation, or explanations for item recommendations, to meet their expectations. Other interesting findings are that different age groups prefer varying

lengths of dialogs, and that female users tend to have a higher need for informative responses. In [Szymanski et al., 2023], the authors investigated the problem of designing explanations for non-expert users in critical contexts such as health. The work presented the results of a user study performed through a mobile app that provides knowledge-based recommendations to users experiencing chronic musculoskeletal pain, regarding how to effectively manage pain flare-ups. The study showed that hybrid explanations were largely preferred compared to unimodal explanations (textual and visual) because they were perceived as more useful.

Short Papers

The first short paper [Starke et al., 2023] studied the problem of how to design communication strategies that encourage consumers to engage in sustainable behavior. The authors explored the impact of linguistic (i.e., message) and visual framing of product information on sustainable fashion decision-making. Linguistic framing can take multiple forms: the proposed approach investigate the effectiveness of abstract versus concrete messages, e.g. "Eco-friendly T-shirt" versus "T-shirt with recycled cotton". The visual strategy used eco-labels, graphic representations intended to designate items that have a favorable environmental and social impact. The study highlighted the importance of using visuals to make easier cognitive processing. The only effect found for the linguistic framing was that a concrete description are preferred among sustainable options. The other two short papers focused on recommendation explanations. In [Lubos et al., 2023], an online user study was performed to assess the effectiveness of consequence-based explanations, a novel type of explanation that the authors introduced to emphasize the individual impact of consuming a recommended item on the user, which makes the effect of following recommendations clearer. The outcomes of the study highlight the importance of this kind of explanations, which were well-received by users and effectively improved user satisfaction in recommender systems. The method proposed in [Silva et al., 2023] exploited Large Language Models (LLMs) to generate movie recommendation explanations. The authors presented an interesting demo at the workshop, which encouraged participants to experiment with a web app to evaluate the effectiveness of explanations customized according to user-defined criteria, such as novelty or popularity.

4 Conclusion and Future Directions

During the ten years of IntRS workshops, a range of topics related to interfaces and decision-making in recommender systems were presented and discussed. The popularity of topics changed year to year following the development of the field [Brusilovsky et al., 2020]. In particular, the papers at 2023 workshop reflected the increasing interest to explainability, which was re-invigorated by LLMs. However, year by year, the workshop kept true to its focus on the "human side" of recommender systems, providing a platform for a community of researchers interested in human-centered recommender systems to meet and discuss their work. We hope to continue this trend in 2024. As 10 years is an important milestone, we also plan to organize a special issue on human-centered recommender systems in one of the major journals focusing on personalization and recommender systems. If this field is of interest to you, we hope to see you among the authors of the next workshop or the special issue!

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