

ABIS 2024 - International Workshop on Personalization and Recommendation

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Abstract

ABIS is an international workshop, organized by the SIG on Adaptivity and User Modeling in Interactive Software Systems of the German Gesellschaft für Informatik. For more than 25 years, the ABIS Workshop has been a highly interactive forum for discussing the state of the art in personalization, user modeling, and related areas. ABIS 2024's focus will be on the topics of personalization and recommendation within the areas of Computer-Supported Cooperative Work (CSCW) (i.e., support of individuals who work organized in groups), Cross-Reality (XR) Interaction (e.g., transitions inside the reality-virtuality continuum), and/or making sense of sensory data for personalization purposes. To discuss such questions, our workshop aims to bring together researchers and practitioners who are interested in the general personalization domain, and/or in our SIG's current focus. Our goal is to identify current issues and future directions of research and foster future development of the discipline and collaborations.

CCS Concepts

• **Information systems** → **Personalization**; *Collaborative filtering*; • **Human-centered computing** → *Computer supported cooperative work*; *Mixed / augmented reality*; *Virtual reality*.

Keywords

Personalization, Recommendation, XR, CSCW

1 Motivation

User modeling and adaptive systems deal with creating and maintaining a user model to adapt interactive systems [1]. User models can be inferred from implicitly observed user behavior or explicitly entered information, such as the user's profile data, the user's current location, or items that the user browsed, searched, tagged,

or bought earlier [3]. Furthermore, recent advances in pattern detection make implicit, measurable data, mostly originating from diverse sensors, good candidates for intelligent mechanisms regarding personalization. Applications of personalization include recommendations of items, location-based services, updates on friend activities, interest-based portal sites, educative games, and personalized guidance or help.

With the ongoing transition from classical computing devices to ubiquitous environments [2], the need for more and better user modeling and personalization to adapt to changing contexts in various situations is even more important. Especially for Augmented (AR) and Virtual Reality (VR)-equipped devices that are currently gaining momentum in various application domains, the aspects of personalization and recommendation pose new challenges, including privacy problems and questions of user control [4]. Such XR Systems may draw wrong conclusions about a user's spatial actions, limit functionality due to badly designed personalized menus, or may inadvertently disclose sensitive information to others. Furthermore, the transition away from classical computing enables more flexible and spontaneous collaboration with others through always-on personal devices. The field of CSCW as a whole has seen rapid changes and established knowledge was challenged by modern workplaces (New Work). However, our experiences in previous years show that technologically-mediated communication and collaboration are still subpar to face-to-face encounters in most situations, which is why better technological support is needed. On many occasions, this support—which can be formative, ad-hoc, as well as summative—should be tailored to both individuals' and groups' needs.

Finally, the combination of CSCW and XR Interaction enables new forms of collaboration such as collaboration across the reality-virtuality continuum but also poses new challenges with regards to personalization and recommendation. Important questions are still up for debate and hint at a need for personalization approaches: When to do which task in which reality? How to coordinate and personalize the tasks optimally across realities and spaces?

In addition, the user experience is becoming more important in a mobile and connected world. It may not be only important to deliver the absolute best recommendations but to have fast and "good enough" recommendations. On the one hand, there is a battle for users' attention. On the other hand, the cost of wrong adaptation

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is very high, users may quickly switch to different applications and services if they are getting annoyed.

Personalization does not need to be limited to generating lists of recommendations: adaptations such as personalized maps, tailored menus, link annotation, and scripting potentially have a greater effect on the user experience. A particular design issue is the explanation of why items are recommended, or which interface elements have been adapted – and how this can be made undone if needed. And how can one encourage users to inspect and adjust their user profiles, collected information, and privacy settings?

2 Topics

As outlined in Section 1 the workshop welcomes a range of topics of interest, not necessarily concerned with this year's focus on personalization in CSCW-XR and making sense of sensor data for personalization purposes, including but not limited to:

- *Personalization for groups*: Personalized support for groups can help in our contemporary, inter-connected workplaces: Topics include adaptive ad-hoc support for meetings, suggestions of suitable collaboration partners, and similar approaches (for an overview, see [5])
- *Serendipity, Bubbles, and Long Tail*: Personalization is in latent danger of strictly limiting content to individual preferences, effectively, preventing the chance to find interesting items that are part of the long tail. What can be done to prevent resulting bubbles?
- *Moving the Needle on the Reality/Virtuality Continuum*: Individuals differ highly in their preferences regarding the usage of virtual and augmented reality interaction. Task requirements and the novelty of the technologies make a balanced and successful interaction challenging.
- *Making Sense of Sensor Data*: data is necessary for personalization but gathering explicit data, while reliable, is costly in terms of interaction time. How can we make sense of implicit (sensor) data for personalization purposes? Approaches to pattern detection, ML and the like are discussed here.
- *Obtaining user data*: logging tools, aggregation of data from social networks and other Web 2.0 services, location tracking, sensor networks
- *Modeling user data*: collaborative filtering, cross-application issues, contextualization and disambiguation, use of ontologies and folksonomies
- *Personalization and recommendation*: applications in social networks, search, online stores, mobile computing, e-learning, automotive domain, assisting elderly or handicapped persons, and other application areas
- *Privacy issues*: transparency, user control and scrutability
- *Adaptive or intelligent user interfaces*: adaptive dialogues, menus or other means of interaction, intelligent agents, feedback mechanisms, interaction with ubiquitous environments, new paradigms in human-computer interactions
- *Personalized interaction*: approaches to personalize user input or system feedback (involving novel interaction paradigms), related prototypes and studies

- *Adaptive support for learning and teaching*: methods and tools for individual support in the knowledge acquisition process, adaptive support for collaborative learning
- *Evaluation and user studies*: laboratory studies, empirical studies in the field and analysis of existing corpora of usage data

3 Workshop Mode and Activities

This year's edition of the ABIS workshop is planned as a half-day on-site event in conjunction with the MuC 2024 conference in Karlsruhe, Germany. The workshop will be split into two parts: The first part of the workshop will be devoted to the presentation of scientific work addressing concepts, ongoing developments, and empirical evaluations within the thematic scope. To engage participants with the broader scope of ABIS research, we plan to have a keynote speech and possibly a panel discussion. The second part of the workshop will focus on networking and, in particular, the discussion of a research agenda. We plan to take and classify notes for this interactive part of the workshop. Next, single topics will be discussed in smaller groups in order to characterize important elements, find main opportunities, and identify pain points for the agenda for future research, which we will put together afterward and make accessible via the workshop website¹.

We welcome participants both from academia and industry. The target audience of the workshop are, for instance, HCI practitioners and developers, as well as researchers including (PhD) students.

4 Call for Participation

We invite participation in the ABIS 2024 half-day workshop on adaptivity and user modeling which is held on-site in conjunction with the MuC 2024 conference in Karlsruhe, Germany. The goals of this workshop are 1) strengthening the community of researchers (also within the German Gesellschaft für Informatik) and the HCI section for this important and emerging area of research by fostering knowledge exchange and facilitating networking, 2) providing a platform to present and discuss scientific work on recent developments relevant with respect to the topics of the workshop, and 3) discussing a research agenda for future work on personalization and adaptation approaches in these diverse fields. The workshop will be open but we invite submissions in the form of demo papers of 1-2 pages, late-breaking results papers of 2-4 pages, and full papers of 4-6 pages in length (excluding references), submitted via ConfTool until June 9th, 2024. Papers will be peer-reviewed by at least two reviewers. In accordance with the timeline published for MuC 2024, acceptance notifications will be sent out in early July, 2024. Camera-ready versions will be due July 30th, 2024, at the latest. Accepted workshop papers will be published in the GI Digital Library. Authors of accepted full papers will be invited to orally present their work at the workshop, including discussion with the audience. In a poster and demo session (and during coffee), authors of accepted demo and late-breaking results papers will be asked to present their work. At least one author of each accepted submission must attend the workshop and must register for at least one day of the conference. More information (e.g., topics) is available at <https://fg-abis.gi.de/veranstaltung/abis-2024/>.

¹<https://fg-abis.gi.de/veranstaltung/abis-2024/>

5 Organizers

The 2024 edition of the workshop will be organized by the following members of the SIG Adaptivität und Benutzermodellierung in interaktiven Softwaresystemen (ABIS):

- **Thomas Neumayr** recently finished his PhD (topic: hybrid collaboration) and since 2012 is a researcher and lecturer with the University of Applied Sciences Upper Austria. One of his main research interests is the intersection between personalization, HCI, and CSCW.
- **Enes Yigitbas** is currently interim professor for HCI at Paderborn University, Germany. His main research interests are at the intersection of HCI, Software Engineering, and Machine Learning, focusing on the design, development, and evaluation of XR-based assistance systems.
- **Mirjam Augstein** is a professor for Personalized and Collaborative Systems at the University of Applied Sciences Upper Austria. Her main research interests are related to personalized and collaborative interaction, including adaptive support for individuals and teams in interactive environments.
- **Eelco Herder** is an associate professor in the Interaction Group at Utrecht University, the Netherlands. His research focuses on how users and current (commercial) recommender systems respond to one another, and which mechanisms

help to encourage users to actively choose what they want instead of passively following suggestions.

- **Laura Stojko** is a PhD student and lecturer in HCI at the University of the Bundeswehr Munich in Germany. Her research focuses on personalization and CSCW within the context of large interactive semi-public displays.
- **Jannis Strecker** is a PhD student in Computer Science at the University of St. Gallen in Switzerland. His research combines XR systems, ubiquitous computing, eye tracking, privacy, and personalization.

References

- [1] Peter Brusilovsky. 1998. *Methods and Techniques of Adaptive Hypermedia*. Springer Netherlands, Dordrecht, 1–43. https://doi.org/10.1007/978-94-017-0617-9_1
- [2] Richard Harper, Tom Rodden, Yvonne Rogers, and Abigail Sellen. 2008. *Being Human: Human-Computer Interaction in the Year 2020*. Microsoft Research Ltd, 7 J J Thomson Avenue, Cambridge, CB3 0FB, England. <https://www.microsoft.com/en-us/research/publication/being-human-human-computer-interaction-in-the-year-2020/>
- [3] Folasade Olubusola Isinkaye, Yetunde O Folajimi, and Bolande Adefowoke Ojokoh. 2015. Recommendation systems: Principles, methods and evaluation. *Egyptian informatics journal* 16, 3 (2015), 261–273.
- [4] Shyong K “Tony” Lam, Dan Frankowski, and John Riedl. 2006. Do you trust your recommendations? An exploration of security and privacy issues in recommender systems. In *Emerging Trends in Information and Communication Security: International Conference, ETRICS 2006, Freiburg, Germany, June 6-9, 2006. Proceedings*. Springer, Springer, Berlin, Heidelberg, Heidelberg, Germany, 14–29.
- [5] Thomas Neumayr and Mirjam Augstein. 2020. A Systematic Review of Personalized Collaborative Systems. *Frontiers in Computer Science* 2 (2020), 1–23. <https://doi.org/10.3389/fcomp.2020.562679> Publisher: Frontiers.