

## Foreword

New and complex modes of interaction in today's Web-based applications have resulted in ever increasing amounts of online information that is rich, dynamic, and interconnected. Although the proliferation of the new media and a variety of collaborative frameworks is continuing to impact the way we communicate, shop, entertain ourselves, conduct business, or develop relationships; it also exacerbates the age-old problem of information overload. More than ever, intelligent Web applications must be able to decipher the true intent of a user, to adapt to the user's changing preferences, to compare or connect that user to other users within a community or with similar interests, and to, finally, provide that user with pertinent and useful information.

Adaptive and personalized systems, such as recommender systems, have emerged as an important part of the solution to the information overload problem facing today's Web users. Combining ideas and techniques from information retrieval and filtering, user modeling, artificial intelligence, user interface design, and human-computer interaction, these systems provide users with proactive suggestions that are tailored to meet their particular information needs and preferences. Such systems typically accomplish tasks such as individualized information filtering, personalized search result re-ranking, or intelligent navigation support by relying on different sources of knowledge from implicit or explicit user feedback to encoded domain knowledge. As a result, personalized adaptive applications have enjoyed considerable commercial success and continue to play an increasingly important role in many online services, from Amazon and Yahoo!, to iTunes and Last.fm.

The ability of a personalization system to tailor content and recommend items implies that it must be able to infer what a user requires based on previous or current interactions with that user, and possibly other users. This, in turn, requires the collection and modeling of the data that accurately reflect the interests of a user or a community of users, as well as their interactions with other users and with available resources. The problem of user modeling, therefore, is the fundamental problem of the adaptive Web.

With the emergence of the "social Web" applications, in which users can collaboratively create, annotate, and share resources, the problem of user modeling has become even more challenging. Users connected (implicitly or explicitly) with their peers within online communities which are, themselves, interconnected. Furthermore, users' interests and preferences can be manifested in a variety of ways including free text annotation given to resources, the properties of communities to which they belong, the usage of available online resources, and the content of the accessed information.

User modeling for the adaptive social information access will require building on traditional techniques in order to harness the rich and complex underlying user data in order to create models of users' information needs, relationships, behavior or context, and use these models to improve the relevance of information offered to users. This edited volume, *Collaborative and Social Information Retrieval and Access: Techniques for Improved User Modeling*, is precisely intended to explore state-of-the-art and recent developments in this area, including foundational issues and advances in user modeling, as well as new applications in collaborative and social information retrieval and access.

The book begins with two survey-oriented chapters of recommender systems in general and collaborative filtering recommenders in particular, setting the stage for the exploration of more advanced and emerging concepts in user modeling. The second part of the book, focusing on advances in user modeling, provides a comprehensive view of the important problems and techniques in user modeling, as well as emerging challenges. The fundamental and emerging topics covered in this part include the use of social annotations (such as that used in collaborative tagging environments) to support navigation; the use of cognitive models to decipher users' information search intent; and the use of ontology-based domain knowledge in learning richer user models and using them for more effective recommendations.

An important aspect of the book is the collection of chapters in the third part, providing as a whole, a survey of the state-of-the-art in emerging trends, techniques, and applications in collaborative and social information retrieval and access. These chapters cover novel approaches to recommendation and adaptation from cooperative case-based reasoning to reinforcement learning to collaborative agents. The application covered in these chapters span a variety of typical domains involving new media or emerging collaborative frameworks, including collaborative information retrieval environments, music recommendation systems, content-based Web recommender systems, peer-to-peer bibliographic recommendation system, and mobile information management systems.

Overall, this volume represents a laudable effort by Max Chevalier, Christine Julien, and Chantal Soulé-Dupuy, to deal with some of the most challenging problems in adaptive and social Web domain the resolution of which will pave the way for a new generation of more useful and intelligent online information systems and services. The comprehensive set of topics, techniques and applications covered in the volume should provide an excellent guide for Web technology developers and an indispensable resource for researches interested in user modeling, personalization, and recommender systems.

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**Bamshad Mobasher** is a professor of Computer Science and the director of the Center for Web Intelligence at the School of Computing of DePaul University in Chicago. His research areas include Web mining, Web personalization, predictive user modeling, agent-based systems, and information retrieval. He has published more than 100 scientific articles, numerous book chapters, and several edited books in these areas. Dr. Mobasher received his PhD at Iowa State University in 1994. Prior to DePaul he was an assistant professor of Computer Science at the University of Minnesota, Twin Cities, where he did some seminal work on Web mining and started some of the first research groups focusing on Web Usage Mining. Dr. Mobasher is considered one of the leading authorities in the areas of Web mining, Web personalization, and recommender systems, and has served as an organizer and on the program committees of numerous related conferences. Some of his original articles on Web usage mining have citations indexes of 1000 or more. His work in these areas has been used by a variety of companies, including Amazon.com, as part of their analytics and personalization systems. As the director of the Center for Web Intelligence, Dr. Mobasher is directing research in Web mining, Web analytics, and personalization, as well as overseeing several related joint projects with the industry. His most recent activities include an edited volume, "Intelligent Techniques for Web Personalization", published by Springer, culminating from a series of successful workshops at IJCAI and AAAI on the same topic; and a special issue of ACM Transactions on Internet Technologies on Web personalization. He has also been one of the founding organizers of the highly successful WebKDD workshops on Knowledge discovery on the Web which have been held at ACM SIGKDD conference for the past 10 years. He is currently editing a special issue of User Modeling and User Adapted Interaction on Data Mining for Personalization, and he is the program co-chair of the 2008 ACM International Conference on Recommender Systems. He serves on the editorial boards of several prominent computing journals, including User Modeling and User-Adapted Interaction, and the Journal of Web Semantics.