

## Foreword

I am very pleased to write a few words for this timely, important, and thought provoking collection focusing on various dimensions related to educational recommender systems and technologies. The research on recommender systems in general has now spanned more than a decade, for example, early articles on recommender systems can be found in DBLP from late nineties. However, recommender systems in education lend themselves to some unique requirements that set them apart from any other domains. As identified by the editors of this volume, educational criteria are very significant factors that require serious consideration when looking at the use of recommender systems elsewhere where user preferences dominate the scene.

The research and use of recommender systems in education benefit from a number of intertwined areas that have been focus of research in recent years, both from pedagogy and technical perspectives. On one hand, the emergence of constructivist paradigm has brought the needs and preferences of individual learner at the center of the educational process, and on the other, recent advancements in Internet, mobile, and location-aware technologies have made it possible to relate learning not only to the learners' personal characteristics but also to the changes in their real-time contexts. Educational recommender systems therefore have to consider not just the technical aspects but also the actual implementation and management issues for successful and meaningful deployment of such systems to benefit individual learners.

It is pleasing to see this edited collection coming at the right time, with the right focus on both research and use of recommender systems in education. The four sections build on one another, starting from modeling of knowledge, to the actual development techniques, algorithms, and architectures, leading to the deployment in real world scenarios, and finally, looking at various challenges such systems face as research progresses further.

It is particularly noteworthy that the challenges address cognitive aspects and the emerging mobile learning, areas where our understanding is still evolving along with the advances in educational recommender system research. This makes it even more important to see the crossroads of the research in these areas and use that understanding in other evolving areas such as emotional intelligence, ubiquitous learning and 3-D environments. This collection nicely provides that opportunity.

The book contains the right balance between the research innovations and their practical use, and should serve as a solid stepping stone for both further technological developments and for reflection on the experiences that are obtained during actual deployment, particularly as the advances in technology make it further possible to integrate more and more contextual aspects in the design of such systems. The first step in this feedback loop is to look at the experiences of early adopters and identify best practice examples. This collection is a valuable step in that direction.

I have had pleasure of knowing the editors of this collection, Olga and Jesus, for some time, and I am particularly impressed with their personal innovative research. Their experiences reflect in the selection of chapters and their placement in the book, to cover a wide range of issues within the four sections. This wide range makes the book not only valuable to both researchers and practitioners, but also provides a snapshot in time which future researchers can refer to gauge the progress in this area and to identify future directions.

While writing this short piece of my thoughts, I am privy to Olga and Jesus' preface that precedes the chapters in this book. I wholeheartedly agree with them that while the chapters in this book individually provide their own viewpoint and unique wisdom, the book captures a holistic perspective that will be a significant contribution to the field of recommender systems in education.

*Kinshuk*

*Athabasca University, Canada*

**Kinshuk** is Associate Dean of Faculty of Science and Technology and Professor of Computing and Information Systems at Athabasca University, Canada. He also holds NSERC/iCORE/Xerox/Markin Industrial Research Chair in Adaptivity and Personalization in Informatics. Before moving to Canada in August 2006, Kinshuk worked at German National Research Centre for Information Technology as Postdoctoral Fellow, and at Massey University, New Zealand as Associate Professor of Information Systems and Director of Advanced Learning Technology Research Centre. He has been involved in large-scale research projects for adaptive and mobile learning systems and by early 2011, he has published over 300 research papers in international refereed journals, conferences, and book chapters. He is the Founding Chair of IEEE Technical Committee on Learning Technology and Co-Editor-in-Chief of the SSCI indexed Journal of Educational Technology & Society (ISSN 1436-4522).