

The 1st International Workshop on Context-Aware Recommendation Systems with Big Data Analytics (CARS-BDA)

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1 WORKSHOP OVERVIEW

1. Motivation and Goals. With the explosive growth of online service platforms, increasing number of people and enterprises are doing everything online. In order for organizations, governments, and individuals to understand their users, and promote their products or services, it is necessary for them to analyse big data and recommend the media or online services in real time. Effective recommendation of items of interest to consumers has become critical for enterprises in domains such as retail, e-commerce, and online media. Driven by the business successes, academic research in this field has also been active for many years. Though many scientific breakthroughs have been achieved, there are still tremendous challenges in developing effective and scalable recommendation systems for real-world industrial applications. Existing solutions focus on recommending items based on pre-set contexts, such as time, location, weather etc. The big data sizes and complex contextual information add further challenges to the deployment of advanced recommender systems. This workshop aims to bring together researchers with wide-ranging backgrounds to identify important research questions, to exchange ideas from different research disciplines, and, more generally, to facilitate discussion and innovation in the area of context-aware recommender systems and big data analytics.

In a broad sense, the objective of such a workshop is to present results of the research undertaken in the area of data driven context-aware recommender systems, as a fish and tell occasion. To some extent, the workshop is an exercise in showcasing research activities and findings, rather than in and not of workshoping or holding group discussions on research. This orientation, and the large number of presentations which are being made, means that

tight timelines have to be followed. An intensive series of presentations is made, the downside of which is that the time available for group discussion is limited.

2. Scope. The workshop will lead to future research opportunities in context-aware recommendation and data analytics. It will align with the emphasis of WSDM on practical yet principled novel models of search and data mining, algorithm design and analysis, and relevant to the topics of WSDM, including multimodal data mining, web recommender systems and algorithms, social search, mining and other applications, social network dynamics, location-based social networks, social network analysis, theories, models and applications. The areas of interest mainly include contexts and user behaviors in recommendation, such as behavioural categories [1], article popularity [3, 12], social trust [4], user activities and interactions [2, 5–11], and the scalability of recommender systems such as the Apache Storm-based parallel processing [2, 9, 13] etc. In particular, topics of interest for this workshop include (but are not limited to):

- Context modeling techniques for recommender systems;
- Context-aware user modeling for recommender systems;
- Context selection techniques for recommender systems;
- Big data analytics techniques for recommender systems;
- Data sets for context-dependent recommendations;
- Algorithms for detecting the relevance of contextual data;
- Algorithms for incorporating contextual information into recommendation process;
- Algorithms for building explicit dependencies between contextual features and ratings;
- Interacting with context-aware recommender systems;
- Novel applications for context-aware recommender systems;
- Large-scale context-aware recommender systems;
- Evaluation of context-aware recommender systems.
- Mobile context-aware recommender systems;
- Context-aware group recommendations;
- Evaluation of context-aware recommender systems.

3. Target Audience. Workshop participants were sought, not only from academic researchers, but from other industry members as well as government agencies. We expect that around 30 participants will be involved in the workshop.

4. Duration and Schedule. This is a half day workshop. It is a good opportunity for researchers to showcase their latest research findings in recommender systems. The workshop will include two parts, keynote and talks. It was anticipated that one keynote will be included in the workshop. We have invited Prof. Rui Zhang [14],

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a world-leading researcher in the relevant area from the University of Melbourne to give the keynote presentation.

Related Workshops There were several workshops on context-aware recommender systems, including CARS-2009 workshop [17], Context-awareness in recommender systems: research workshop and movie recommendation challenge[18], CARS-2011 workshop [16], and CARS-2012 workshop [15]. Different from existing CARS workshops that focus on exploiting simple contextual information, CARS-DBA will focus on how to combine big data analytics and CARS, and exploit novel solutions on complex social context analytics in recommender systems.

2 ORGANIZERS

- Xiangmin Zhou received her PhD in Computer Science from the University of Queensland (Australia) in 2008. She is a Lecturer in Computer Science & IT with RMIT University, Australia. She worked in CSIRO Australia as a Research Scientist from 2008 to 2012. Her current research interests lie in social media/network analysis and mining, recommender systems and big data processing, multimedia database and streams, query processing and query optimization. She has been a session chair of WAIMf10 and a co-chair of RMIT ECP conference, the Beyond Research-Pathways to Impact conference, on 22 Feb, 2017.
- Ji Zhang is currently an Associate Professor in Computing at the University of Southern Queensland (USQ), Australia. A/Prof. Zhang is a senior IEEE member, Australian Endeavour Fellow, Queensland International Fellow and Izaak Walton Killam Scholar (Canada). He served as the Principal Advisor for Research in Division of ICT Services, USQ from 2010-2013. A/Prof. Zhang received his degree of Ph.D. from the Faculty of Computer Science at Dalhousie University, Canada in 2008. A/Prof. Zhang's research interests include data science, Big Data analytics, data mining, recommender systems and health informatics. A/Prof. Zhang is the recipient of Australian Endeavor Award, USQ Research Excellence Award, Head of Department Research Award, and Research Leadership Development Program (RLDP) Award.
- Yanchun Zhang is a Professor in Computer science at Victoria University, Australia. He received PhD degree of Computer Science from The University of Queensland in 1991. From 1994 to 6/2003, he had been lecturer, senior lecturer and associate professor at the University of Southern Queensland, Australia. In June 2003, he joined Victoria University as an associate professor, soon promoted to full professor in 2004. He is currently a member of Management Team of College of Engineering and Science. His research areas cover e-research, Internet and Web services, especially cooperative transactions management, distributed databases, data mining, web information systems, web services, e-health. He has been leading a team in developing e-research program and Centre for applied informatics research at VU. He is the founding director of Centre for Applied Informatics at VU, and Applied Informatics

is now recognised as one of VUf's strategic research areas or strength. He is Editor-In-Chief of both World Wide Web (WWW) and the Journal on Health Information Science & Systems (HISS), Chair of WISE conference. He also has made strong impacts through his leadership in applied research and collaborations with other universities, and industry organizations such as UQ, SEQ Healthy Waterways Partnership (HWP) and Royal Brisbane and Women's Hospital. He is Australia representative of International Federation of Information Processing (IFIP) Working Group 6.4 on Internet Applications Engineering, and has been the steering committee chair since 2002. He is Australian representative of IFIP Working Group 6.11: Communication Aspects of the E-World (since 2011). He is also the Editor of Web Information Systems Engineering and Internet Technology Book Series from Springer, the Chairman of International Web Information Systems Engineering Society (WISE Society). For several premium / top international conferences, he has served as a key organizer, especially for the top rank conferences, such as vice program chair of ICDMf10, tutorial Chair of ICDEFi06, as well as PC member of ICDEFi07, ERfi06 and ERfi07.

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