IFUP: Workshop on Multi-dimensional Information Fusion for User Modeling and Personalization

Zhu, Feida; Zhang, Yongfeng; Yorke-Smith, Neil; Guo, Guibing; Chen, Xu

DOI
10.1145/3159652.3160592

Publication date
2018

Document Version
Final published version

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Feida Zhu
School of Information Systems
Singapore Management University
fdzhu@smu.edu.sg

Yongfeng Zhang
Department of Computer Science
Rutgers University
zhangyf07@gmail.com

Neil Yorke-Smith
Delft University of Technology
American University of Beirut
nysmith@aub.edu.lb

Guibing Guo
Software College
Northeatern University
guogb@swc.neu.edu.cn

Xu Chen
School of Software
Tsinghua University
xu-ch14@mails.tsinghua.edu.cn

ABSTRACT

Recommendation system has became an important component in many real applications, ranging from e-commerce, music app to video-sharing site and on-line book store. The key of a successful recommendation system lies in the accurate user/item profiling. With the advent of web 2.0, quite a lot of multimodal information has been accumulated, which provides us with the opportunity to profile users in a more comprehensive manner. However, directly integrating multimodal information into recommendation system is not a trivial task, because they may be either homogenous or heterogeneous, which requires more advanced method for both fusion and alignment. This workshop aims to provide a platform for discussing the challenges and corresponding innovative approaches in fusing multi-dimensional information for user modeling and recommender systems. We hope more advanced technologies can be proposed or inspired, and also we hope that the direction of integrating different types of information can catch much more attention in both academic and industry.

KEYWORDS

Information Fusion; User Modeling; Multi-dimensional

ACM Reference Format:
Feida Zhu, Yongfeng Zhang, Neil Yorke-Smith, Guibing Guo, and Xu Chen. 2018. IFUP: Workshop on Multi-dimensional Information Fusion for User Modeling and Personalization. In *Proceedings of WSDM 2018: The Eleventh ACM International Conference on Web Search and Data Mining (WSDM 2018).* ACM, New York, NY, USA, 2 pages. https://doi.org/10.1145/3159652.3160592

1 INTRODUCTION

Real-world systems accumulate large-scale and various kinds of multimodal information rapidly, including but not limited to text, image, video, audio, social relations, meta data, etc. Such information has been incorporated in many recommendation models and systems to promote the performance and user experience, giving rise to some of the recent and/or classical topics in recommender system, such as review-based recommendation, image-based recommendation, explainable recommendation, deep learning for recommendation, POI recommendation, video/music recommendation, and many others.

Integrating multimodal side information is not a trivial task, because information may be either homogeneous or heterogeneous, which requires more advanced method for information fusion and alignment. Besides, different information may play distinct roles for different domains, users, and tasks, and the availability of new information source may even lead to completely new recommendation research tasks. As a result, it needs significant efforts from both the research community and industry to promote the recommendation system research and application in face of the various information sources.

Based on this motivation, this workshop aims to provide a dedicated forum for discussing open problems, challenges and innovative research approaches in fusing multi-dimensional information for user modeling and recommender systems. The major goal of this workshop is to promote advanced recommendation solutions that can be easily and readily deployed to meet industrial demands for personalized recommendations. By this workshop, we hope more advanced technologies for user modeling can be proposed or inspired, and we also hope that the direction of integrating different types of information can catch much more attention both in academic and industry.

2 WORKSHOP RELEVANCE

The timing of WSDM 2018 is perfect for hosting the workshop with a concentration on recommendation system, with no potential conflict from other major conferences in this community. The location is also a good match for its convenience to attract researchers from over the world. This recommender system related workshop is also very much a good fit for the WSDM community, for its broad interest to researchers both from the IR community and the web mining community. Besides, multi-modal data analysis has recently been a very hot and important research topic for not only the recommender system researchers, but also researchers from other communities regarding intelligent information processing. As a result, we can well expect that a large amount of the WSDM participants will be interested in attending the workshop this year.

WSDM 2018, February 5–9, 2018, Marina Del Rey, CA, USA

ACM ISBN 978-1-4503-5581-0/18/02.
https://doi.org/10.1145/3159652.3160592

3 TARGET AUDIENCE

The target audience of this workshop includes but not limited to: Academic researchers (or people from industrial) who are interested in the fields related to recommendation system, information fusion or user behavior analysis. We plan this workshop as a half-day event, and it will consist of an invited talk and a series of presentations. The number of attendees is expected to be around 30.

4 THEME AND TOPICS

Papers should elaborate on theories and methods of information fusion for user modeling and personalization. The interesting topics include: (1) user modeling and user preference inference; (2) general recommender systems; (3) recommendation methods to fuse multi-dimensional information and (4) recommendation issues to be addressed. Topics of interest include but are not limited to:

- Text-based Recommendation: Sentiment Analysis for Recommendation, Topic Modeling Approaches to Recommendation, Deep Text Modeling for Recommendation, Natural Language Processing for Recommendation, Question Answering for Recommendation.

- Image-based Recommendation: Deep/Shallow Image Modeling for Recommendation, Image Recommendation in Social Media, Image-based Point of Interest Recommendation, Image Generation and Recommendation.

- Video/Audio-based Recommendation: Video Recommendation, Music Recommendation, Speech Proceeding for Recommendation.

- Social Recommendation: Heterogeneous Network Analysis for Recommendation, Friend Recommendation, Personalized News Feeding, Multimedia Recommendation in Social Networks.

- Multiple Information Fusion for Recommendation: Heterogeneous Information Analysis for Recommendation, Structured and Unstructured Data Analysis for Recommendation.

- Explainable Recommendation: Text-based Explainable Recommendation, Image-based Explainable Recommendation, Knowledge-base for Explainable Recommendation, Social Explainable Recommendation, Explainable Recommendation in Novel Applications.

- User Modeling with Multimodal Information: User modeling with heterogeneous data, User modeling based on social media, User modeling based on big data analytics, Preference inference based on explicit/implicit feedback.

- Exploiting Homogeneous/Heterogeneous Information: Multi-Criteria Ratings based Recommender Systems, Hierarchical Data Modeling for Item Recommendation, Integrating both Explicit and Implicit Feedback for Recommendations, Cross-domain Feedback Exploitation for recommendations, Multi-view Machine Learning for Recommendation.

- Addressing Special Issues in Recommender Systems: Resolving Cold-start and Data Sparsity with Auxiliary Information, Enhancing Recommendation Novelty and Explainability, Scalability when Integrating Multiple kinds of Auxiliary Information, Toolkits to Improve the Reproducibility of Recommendation Models.

- New Dataset and Applications: New Dataset Papers for Recommender Systems, New Recommendation Applications in Practice.

5 PARTICIPATION AND SELECTION PROCESS

For the authors of accepted papers, at least one of the paper authors must attend and present their paper at the workshop to ensure the paper appearance in the proceedings of the workshop. Papers will be subject to double blind peer review in which the reviewers do not know the author's identity. In order to make blind reviewing possible, authors must omit their names and affiliations from the paper. Selection criteria include originality of ideas, correctness, clarity, significance of results and quality of presentation. The workshop will have a two-tier program committee, with the program chairs and program committee members. The decision of the Program Committee will be final and cannot be appealed. All workshop submissions must be formatted according to ACM SIG Proceedings template, and the submissions can be made in either long (max 8 pages) or short (max 4 pages) format. Authors should submit original papers in PDF format through the Easychair system

6 ORGANISING/PROGRAM COMMITTEE

The organizers have a very broad background in the field of recommendation system and data mining, which will help to attract top researchers in this area and expand the influence of this workshop.

The following members form the program committee of the workshop:

- Paolo Cremonesi, Politecnico di Milano
- Xiangnan He, National University of Singapore
- Bin Li, NICTA, Australia
- Xin Liu, Institute for Infocomm Research, Singapore
- Weike Pan, Shenzhen University, China
- Alan Said, CWI
- Yue Shi, Yahoo
- Yao Wu, Twitter
- Fuzheng Zhang, Microsoft Research Asia
- Yong Zheng, DePaul University, USA

ACKNOWLEDGMENT

This work is supported by the National Natural Science Foundation for Young Scientists of China under Grant No. 61702084.