

The 1st Workshop on Intelligent Recommender Systems by Knowledge Transfer & Learning (RecSysKTL)

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ABSTRACT

Cross-domain recommender systems and transfer learning approaches are useful to help integrate knowledge from different places, so that we alleviate some existing problems (such as the cold-start problem), or improve the quality of recommender systems. With the advantages of these techniques, we host the first international workshop on intelligent recommender systems by knowledge transfer and learning (RecSysKTL) to provide such a forum for academia researchers and application developers from around the world to present their work and discuss exciting research ideas or outcomes. The workshop is held in conjunction with the ACM Conference on Recommender Systems 2017 on August 27th at Como, Italy.

CCS CONCEPTS

• **Information systems** → **Recommender systems**;

KEYWORDS

cross-domain, knowledge transfer, recommender system

1 BACKGROUND AND MOTIVATIONS

Recommender systems, as one of well-known Web intelligence applications, aim to alleviate the information overload problem and produce item suggestions tailored to user preferences. Typically, user preferences or tastes are collected through users' implicit or explicit feedback in various formats, such as user ratings, online behaviors, text reviews, etc. Also, user feedback on different items can be collected from several systems or domains. The diversity of feedback formats and domains provides multiple views to users' preferences, and thus, can be helpful in recommending more related items to users. Cross-domain recommender systems and transfer learning approaches propose to take advantage of such diversity of

viewpoints to provide better-quality recommendations and resolve issues such as the cold-start problem.

The emerging research on cross-domain, context-aware and multi-criteria recommender systems, has proved to be successful. Given the recent availability of cross-domain datasets and novelty of the topic, we organize the 1st workshop on intelligent recommender systems by knowledge transfer and learning (RecSysKTL) held in conjunction with the 11th ACM Conference on Recommender Systems. The definition of "domain" may vary in different applications, e.g., it could be (but not limited to):

- **From one application to another:** We may utilize user behaviors on social networks to predict their preferences on movies (e.g., Netflix, Youtube) or music (e.g., Pandora, Spotify).
- **From one category to another:** We may predict a user's taste on electronics by using his or her preference history on books based on the data collected from Amazon.com.
- **From one context to another:** We may collect a user's preferences on the items over different time segment (e.g., weekend or weekday) and predict her preferences on movie watching within another context (e.g., companion and location).
- **From one task to another:** It may be useful for us to predict how a user will select hotels for his or her vocations by learning from how he or she books the tickets for transportation.
- **From one structure to another:** It could be also possible for us to infer social connections by learning from the structure of heterogeneous information network.

2 OBJECTIVES

This workshop intends to create a medium to generate more practical and efficient predictive models or recommendation approaches by leveraging user feedbacks or preferences from multiple domains.

This workshop will be beneficial for both researchers in academia and data scientists in industry to explore and discuss different definition of domains, interesting applications, novel predictive models or recommendation approaches to serve the knowledge transfer and learning from one domain to another.

As this is the first time to host such a workshop on knowledge transfer and learning in the area of recommender systems, we also

expect to collect feedbacks from the workshop, so that we can better organize the workshop in the future.

3 TOPICS OF INTEREST

The topics of interest include (but are not limited to):

Applications of Knowledge Transfer for RecSys

- Cross-domain recommendation
- Context-aware or time-aware recommendation
- Multi-criteria recommender systems
- Novel applications

Methods for Knowledge Transfer in RecSys

- Knowledge transfer for content-based filtering
- Knowledge transfer in user- and item-based collaborative filtering
- Transfer learning of model-based approaches to collaborative filtering
- Deep Learning methods for knowledge transfer

Challenges in Knowledge Transfer for Recommendation

- Addressing user feedback heterogeneity from multiple domains (e.g. implicit vs. explicit, binary vs. ratings, etc.)
- Multi-domain and multi-task knowledge representation and learning
- Detecting and avoiding useless knowledge transfer
- Ranking and selection of auxiliary sources of knowledge to transfer from
- Performance and scalability of knowledge transfer approaches for recommendation

Evaluation of RecSys based on Knowledge Transfer

- Beyond accuracy: novelty, diversity, and serendipity of recommendations supported by the transfer of knowledge
- Performance of knowledge transfer systems in cold-start scenarios
- Impact of the size and quality of transferred data on target recommendations
- Analysis of the amount of domain overlap on recommendation performance

4 PROGRAM COMMITTEES

We thank the contributions by the following workshop program committee members:

- Alejandro Bellogín, Universidad Autónoma de Madrid
- Steve Bourke, Schibsted Media Group
- Iván Cantador, Universidad Autónoma de Madrid
- Liang Dong, Google, Inc.
- Mehdi Elahi, Free University of Bozen
- Negar Hariri, Apple, Inc.
- Mahesh Joshi, LinkedIn
- Bin Li, Data61, Australia
- Zhongqi Lu, Hong Kong University of Science and Technology, Hong Kong, China
- Cataldo Musto, University of Bari "Aldo Moro"
- Denis Parra, Pontificia Universidad Católica de Chile
- Alan Said, University of Skövde, Sweden
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- Fatemeh Vahedian, DePaul University
- Saúl Vargas, Mendeley
- Tong Yu, Carnegie Mellon University, USA
- Fuzhen Zhuang, Chinese Academy of Sciences, China
- Yong Zhuang, Carnegie Mellon University, USA

5 WORKSHOP PROGRAMS

This year, we received 11 valid submissions. We finally accepted 5 long and 2 short papers. The copyrights of the accepted papers are held by the owner/author(s). All of the accepted papers will be published by CEUR workshop proceedings¹. Hopefully, we can collaborate with some journals, and invite the extended version of the accepted papers to a special issue in the journal.

6 ACKNOWLEDGMENTS

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¹<http://ceur-ws.org/>