Tutorial on Social Recommender Systems

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ABSTRACT

In recent years, with the proliferation of the social web, users are exposed to an intensively growing social overload. Social recommender systems aim to address this overload and are becoming integral part of virtually any leading website, playing a key factor in its success. In this tutorial, we will review the broad domain of social recommender systems, the underlying techniques and methodologies; the data in use, recommended entities, and target population; evaluation techniques; applications; and open issues and challenges.

Categories and Subject Descriptors: H.3.3 Information Search and Retrieval – *Information filtering*

Keywords: recommender systems, social media, social networks, social web, social recommender systems, web 2.0

1. INTRODUCTION

While the abundance and popularity of social media sites allow people to leave and share their own digital footprints, they overwhelm the users with mountains of information and hence pose a great challenge for users to best leverage such information. Social Recommender Systems aim to alleviate information overload over social media users by presenting the most attractive and relevant content, often using personalization techniques adapted for the specific user.

In this tutorial, we will discuss the key motivations for social media sites to apply recommendation techniques and review the fundamental recommendation approaches. We will then present the key categories of social recommender systems, both in terms of the recommended entities and target audience. Following, we will review methods for handling the cold start problem, incorporating trust and reputation, and providing useful explanations for the recommendation decision of suggested items. We will then discuss temporal aspects in social recommender systems followed by a review of evaluation techniques, with emphasis on the pros and cons of each method. We will also review emerging social recommender system domains, such as healthcare, automotive, and wearable devices. Finally, we will summarize by discussing open issues and challenges in the field.

A previous edition of the tutorial was given at WWW 2011 as a half-day tutorial (3 hours) and had over 70 attendees [1].

2. HIGH-LEVEL OUTLINE

- Background
- Basic Recommender Systems Techniques
- Introduction to Social Recommender Systems
- The Cold Start Problem
- Trust, Reputation, and Influence
- Explanations and Evidence
- Temporal Aspects
- Evaluation Methods
- Social Streams
- Emerging Domains
- Summary and Future Directions

3. PRESENTER

Ido Guy is a senior technical staff member and manager of the Social Technologies and Analytics group at the IBM Haifa Research Lab. Under his management, the group develops and studies technologies in which people play a central role. Ido's main area of research is social media, with special focus on social network mining and analysis and on recommender systems. He has published over 40 conference and journal papers, spanning the fields of Human-Computer Interaction, Information and Knowledge Management, and Data Mining. In recent years, Ido has been particularly active in the area of Social Recommender Systems, publishing key papers on people recommendation [3,4], social content recommendation [5,6], and activity stream filtering [2]. He is co-chair of the Workshop on Social Recommender Systems (held at IUI 2010, CSCW 2011, UMAP 2012, and WWW 2013-4), co-chair of the 2011 and 2013 workshop on Recommender Systems and the Social Web (held at RecSys 2011 and 2013), and a guest editor of two ACM TIST special issues on Social Recommender Systems (2011 and 2013). Ido has also served as the program co-chair of the 2012 ACM conference on Recommender Systems (RecSys 2012).

4. REFERENCES

[1] Guy, I. & Carmel, D. 2011. Social Recommender Systems. *Proc. WWW '11*, 283-284.

[2] Guy, I., Ronen, I., & Raviv, A. 2011. Personalized activity streams: sifting through the "river of news". *Proc. RecSys '11*, 181-188.

[3] Guy, I., Ronen, I., & Wilcox, E. 2009. Do you know? recommending people to invite into your social network. *Proc. IUI '09*, 77-86.

[4] Guy, I., Ur, S., Ronen, I., Perer, A., & Jacovi, M. 2011. Do you want to know? recommending strangers in the enterprise. *Proc. CSCW '11*, 285-294.

[5] Guy, I., Zwerdling, N., Carmel, D., Ronen, I., Uziel, E., Yogev, S., & Ofek-Koifman, S. 2009. Personalized recommendation of social software items based on social relations. *Proc. RecSys '09*, 53-60.

[6] Guy, I., Zwerdling, N., Ronen, I., Carmel, D., & Uziel, E. 2010. Social media recommendation based on people and tags. *Proc. SIGIR '10*, 194-201.