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XMRec: Workshop on Cross-Market Recommendation

Aliannejadi, M.; Bonab, H.; Vardasbi, A.; Kanoulas, E.; Allan, J.; Murdock, V.

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Mohammad Aliannejadi
University of Amsterdam
The Netherlands
m.aliannejadi@uva.nl

Hamed Bonab
University of Massachusetts Amherst
USA
bonab@cs.umass.edu

Ali Vardasbi
University of Amsterdam
The Netherlands
a.vardasbi@uva.nl

Evangelos Kanoulas
University of Amsterdam
The Netherlands
e.kanoulas@uva.nl

James Allan
University of Massachusetts Amherst
USA
allan@cs.umass.edu

Vanessa Murdock
Amazon
USA
vmurdock@amazon.com

ABSTRACT

Online markets are spreading quickly across the globe, supporting a huge network of product sales to billions of customers with various cultures, lifestyles, economic interests, and languages. These global markets introduce many novel opportunities—as well as challenges. Our workshop, called XMRec, concerns the problem of recommending relevant products to users in a target market (e.g., a resource-scarce market) by leveraging data from similar high-resource markets, e.g. using data from the U.S. market to improve recommendations in a target market. We hypothesize that data from one market can be used to improve recommendation in another. We aim to create a dynamic and interactive atmosphere where researchers of diverse backgrounds and interests can discuss their ideas on cross-market recommendation and how it can be further pursued in the community. To this end, XMRec features a series of seed talks both from industry and academia, discussing the future of cross-market recommendation and its potentials as a new line of research. The seed talks will be followed by a panel discussion where a diverse set of researchers discuss their ideas and opinion about the topic. Finally, we will invite the participants and the panelists to take part in interactive brainstorming break-out sessions to further discuss their ideas. We aim to motivate a range of studies (like analyzing market-specific biases, conversational recommendation, and predicting early adopters) beyond the cross-domain recommendation by extending markets and content languages.

1 INTRODUCTION

Unlike local e-commerce companies, big international e-commerce companies, like Amazon, eBay, and Etsy often provide their services and gather user interactions across several markets; for instance, Amazon[1] has expanded their services to 18 markets around the globe.[2] This makes massive amounts of multi-lingual product reviews and cross-market ratings available on the Web and allows researchers to utilize the data and experience across different markets and benefit from a global perspective. However, this global perspective comes at the risk of assuming one-solution-fits-all: applying the same algorithms developed for and trained on one market to another market, as large as the former market might be, is not necessarily helpful for the latter market [4].

On the contrary, there are biases in the user interactions of the individual markets [3] and the algorithms trained on these biased data will produce personalized and localized results, leading to a bias feedback loop [5]. Since the biases in different markets may differ, it is crucial to analyze and characterize these differences and take them into account when augmenting the data or transferring the knowledge across markets in order to improve the recommendation performance. This workshop will discuss the challenges and benefits of cross-market product recommendation and provide different perspectives on the subject. Cross-market and cross-domain recommendation can be thought of as dual problems: unlike cross-domain recommendation, in cross-market recommendation the items are the same across different markets but the users are different. Therefore, while having similarities, each topic has its specific challenges.

RecSys has historically encouraged the participation of researchers from both academia and industry. Furthermore, given the various directions that we envision our workshop to encourage, we believe that the conference's interdisciplinary nature would attract the right audience to our workshop. RecSys has always welcomed and encouraged diversity, and we find this would benefit our workshop greatly.

2 TOPICS OF INTEREST

The workshop invites researchers to submit short and position papers. The topics of interest include but are not limited to:

- **Machine Learning Approaches:** research focusing on the application of various machine learning approaches for knowledge transfer such as domain adaptation, semi-supervised

[1]https://www.amazon.com
[2]https://sell.amazon.com/global-selling.html

learning, transfer learning, data augmentation, meta learning, and knowledge distillation for cross-market recommendation.

- **Cross-Domain & Cross-Market Recommendation:** research focusing on both cross-domain and cross-market techniques.
- **Data Selection:** research on data selection and augmentation techniques (e.g., from the resource-rich markets) for cross-market training of models.
- **Market Similarity Measurement:** research on measuring and selecting similar markets to apply market adaptation and/or cross-market training.
- **Market-Specific Bias:** research on potential biases existing in various markets that could affect cross-market recommendation.
- **Cross-Lingual Content-Based Recommendation:** research focusing on leveraging cross-lingual content for recommendation such as item description and user reviews.
- **Cold-Start Recommendation:** research on leveraging interactions from warm-start markets to address cold-start problem in other markets.
- **Resource:** works describing resources that can foster research on cross-market recommendation.

3 WORKSHOP ORGANIZATION

Workshop type and length. XMRec is organized as an **interactive workshop**, meant to congregate researchers and experts from multiple disciplines, in order to understand the directions that would emerge from the discussions and possible challenges and techniques towards approaching them.

Seed talks and panel discussion. We see related seed talks as a good starting point of the workshop as they are supposed to ignite the discussions in diverse directions. That is why we have included two types of talks in our program: (i) from industry, researchers with more related experience to enlighten the audience about the challenges of cross-market recommendation; and (ii) from academia, researchers with a relevant research background, to discuss open questions and novel directions that can stem from our workshop. With this vision, we have invited four seed talks to allow for an extended discussion after each talk. We believe that the seed talks and the follow-up discussions would provide enough food for thought to the participants. Therefore, the last session of XMRec would involve top researchers of various backgrounds discussing the potential and the future of cross-market recommendation. We would moderate the panel discussion to cover the most interesting discussion points from the seed talks and the most critical points that could lead to a useful exchange of opinions.

Tentative Schedule. Regarding the time slots, we plan to give 30 minutes to each talk (including questions). The panel discussion would be 45 minutes long. Coffee breaks would take 20 minutes where the accepted papers would present their works as posters.

The workshop is scheduled as follows.

- Introduction & opening, 10 minutes.

- Seed talk 1, 20 minutes plus 10 minutes for discussion (30 minutes in total).
- Seed talk 2, 20 minutes plus 10 minutes for discussion (30 minutes in total).
- Coffee break & poster presentation, 20 minutes.
- Seed talk 3, 20 minutes plus 10 minutes for discussion (30 minutes in total).
- Seed talk 4, 20 minutes plus 10 minutes for discussion (30 minutes in total).
- Coffee break & poster presentation, 20 minutes.
- Panel discussion, 45 minutes.
- Interactive discussion, 30 minutes.
- Closing, 15 minutes.

4 EXPECTED OUTCOMES

We aim to motivate our participants and initiate discussions on a range of problems on cross-market recommendation systems. We expect to discuss topics related to transfer learning and data augmentation type of approaches for solving a range of problems on analyzing market-specific biases, static and conversational cross-market recommendation, and other related problems such as cross-lingual product search, cross-market product-related question answering and question asking, predicting early adopters, and identifying offensive content across markets. Also, the discussions can be around the nature of data that can be used for this task. For instance, building parallel datasets that include the same items across different markets or datasets that include comparable (but not the same) items across different markets.

5 PRIOR WORKSHOPS ON THE TOPIC

To the best of our knowledge, no workshop on cross-market recommendation has been held in the past. However, a number of workshops have been held in the past few years on related areas. *RecSysKTL* [6] assembled researchers who work on knowledge transfer for recommender systems. *LocalRec* [2] focused on incorporating user location in recommendation. *CARS* [1] also attracts researchers that aim to incorporate various contextual information into recommendation, including location information. None of the workshops, however, focus on cross-domain item recommendation.

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