RecTour 2023

Workshop on Recommenders in Tourism

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Proceedings

Edited by

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Preface

This volume contains the contributions of the Workshop on Recommenders in Tourism (RecTour), organized in conjunction with the 17th ACM Conference on Recommender System (RecSys 2023) in Singapore.

RecTour 2023 focuses on various challenges specific to recommender systems in the tourism domain. This domain offers considerably more complicated scenarios than matching travelers with the presumably best items. Planning a vacation usually involves searching for interconnected and dependent product bundles, such as means of transportation, accommodations, attractions, and activities, all with limited availability and contextual aspects (e.g., spatiotemporal context, social context, activity sequence, and environment) with a major impact. In addition, travel-related products can be considered emotionally loaded and are thus largely experiential in nature; therefore, decision-making is often not solely based on rational or objective criteria. Therefore, information provisioning at the right time about destinations, accommodations, and various further services and possible activities is challenging. Additionally, and in contrast to many other recommendation domains, information providers are usually small and medium sized enterprises (SMEs) that often do not possess the capacity to implement basic recommender systems. Moreover, there is no single, standard format to house information that might be included in these systems. Last, much of the tourism experience is co-produced, i.e., it occurs during the consumption of the product and interaction with the provider. Therefore, the context of the recommendation is extremely important. Thus given this diversity, building effective recommender systems within the tourism domain is extremely challenging. The rapid development of information and communication technologies (ICT) in general and the web in particular has transformed the tourism domain whereby most travelers rely little on travel agents or agencies. Indeed, recent studies indicate that travelers now actively search for information using ICT in order to compose their vacation packages according to their specific emotionally driven preferences. Additionally, when on-site, they search for freely available information about the site itself rather than renting a visitor guide that may be available but considered to be expensive and sometimes outdated. However, like in many other cases, the blessing of the web comes with a curse of information overload. As such, recommender systems have been suggested as a practical tool for overcoming this information overload. Still, those designing tourism-focused recommender systems face huge challenges as the tourism domain is extremely complex.

This workshop brings together researchers and practitioners from different fields (e.g., tourism, recommender systems, user modeling, human-computer interaction, mobile, ubiquitous, and ambient technologies, artificial intelligence, and web information systems) working in the tourism recommendation domain. The workshop aims to provide a forum for these people to discuss novel ideas for addressing the specific challenges for recommender systems in tourism with the goal of advancing the current state-of-the-art in this field. Another goal of the workshop is to identify practical applications of these technologies within tourism settings from the point of view of individual users and user groups, service providers, as well as from additional stakeholders (e.g., destination management organizations and governmental agencies). Finally, RecTour 2023 aims to continue the community building processes and discussions started at previous RecTour Workshops.

September 2023　　　　　　Julia Neidhardt, Wolfgang Wörndl, Tsvi Kuflik Dmitri Goldenberg & Markus Zanker

Workshop Committees

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- Gabriele Sottocornola, Koa Health, Spain

Workshop Program

14:00 – 15:25 (SGT) On-site/Hybrid Session 1
- 14:00 – 14:05 Welcome
- 14:05 – 14:45 Keynote (hybrid): Fast, Flexible and Personalized: Leveraging Bandits for Travel Recommendations by Andrea Marchini (Expedia Group)
- 14:45 – 15:05 Emanuele Cavenaghi, Alessio Zanga, Alessandro Rimoldi, Paolo Minasi, Markus Zanker and Fabio Stella: Analysis of Relevant Factors in Online Hotel Recommendation Through Causal Models
- 15:05 – 15:25 Hidetsugu Nanba and Satoshi Fukuda: Automatic Detection of Geotagged Food-Related Videos Using Aspect-Based Sentiment Analysis

16:05 – 17:25 (SGT) On-site/Hybrid Session 2
- 16:05 – 16:45 Keynote (hybrid): Scaling and Standardising ML experimentation for Ranking by Kostia Kofman (Booking.com)
- 16:45 – 17:05 Keisuke Otaki and Yukino Baba: Extended Travel Itinerary Datasets Towards Reproducibility
- 17:05 – 17:25 Ngai Lam Ho, Roy Ka-Wei Lee and Kwan Hui Lim: BTRec: BERT-based Trajectory Recommendation for Personalized Tours

17:30 – 18:30 (SGT) Virtual Session
- 17:30 – 17:50 Haya Halimeh, Florian Freese and Oliver Müller: Event Recommendations through the Lens of Vision and Language Foundation Models
- 17:50 – 18:10 Justin Tolle, Alexander Piazza, Carolin Kaiser and Rene Schallner: Decision Support in Tourism through Social Robots: Design and Evaluation of a Conversation-Based Recommendation Approach Based on Tourist Segments
- 18:10 – 18:30 Closing

Fast, Flexible and Personalized: Leveraging Bandits for Travel Recommendations
Keynote by Andrea Marchini (Expedia Group)

Abstract

Personalised travel suggestions lead to better engagement but require sufficient user history. Multi-armed bandits overcome this through on-the-fly learning. This presentation will demonstrate how online multi-armed bandit algorithms can optimise suggestions by efficiently learning from user responses. We will explain key online bandit concepts and algorithms like Thompson sampling. Real-world examples will showcase bandit applications for travel including dynamic image optimization contextual content ranking and banner text optimization.
Attendees will discover how online bandits enable rapid personalisation without historical data by dynamically adapting recommendations based on user feedback. The talk will provide strategies for implementing bandits to tailor travel recommendations amidst limited user data. Rapid adaptation to feedback enables bandits to balance exploration of new options and exploitation of the best ones.

About the speaker

Andrea Marchini is a Senior Machine Learning Scientist specializing in reinforcement learning and contextual bandits. As the Science Lead of the Reinforcement Learning team at Expedia Group, he plays a central role in developing AI services to optimize real-time customer experiences using contextual bandits. With over 9 years of experience, Andrea has successfully applied machine learning techniques to drive impact across various industries including online travel, food delivery and automotive. His expertise encompasses both theoretical foundations in machine learning and implementing scalable production ML systems. He holds a Ph.D. in Physics, where he developed expertise in areas like Bayesian inference. Passionate about continuing to unlock the potential of artificial intelligence, Andrea is always eager to exchange ideas and discuss emerging innovations in the field.

Scaling and Standardising ML Experimentation for Ranking
Keynote by Kostia Kofman (Booking.com)

Abstract

During his time at Booking.com, Kostia Kofman worked on various aspects of recommendation systems, from the algorithmic to the applicative aspects. For the last two years, he led the search results ranking ML group, focusing on the largest scale ML system within Booking.com.

About the speaker

In this talk, Kostia will share their journey towards a modernized ML solution for search results ranking. He will unveil some of the technical building blocks essential for supporting progress and evolution in large-scale problems. Additionally, he will discuss the modeling approaches that were developed based on the infrastructure and tools they enabled—modeling approaches that led to a significant increase in business metrics.

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Accepted Papers