

RecTour 2024

Workshop on Recommenders in Tourism

Bari, Italy, October 18th, 2024

Proceedings

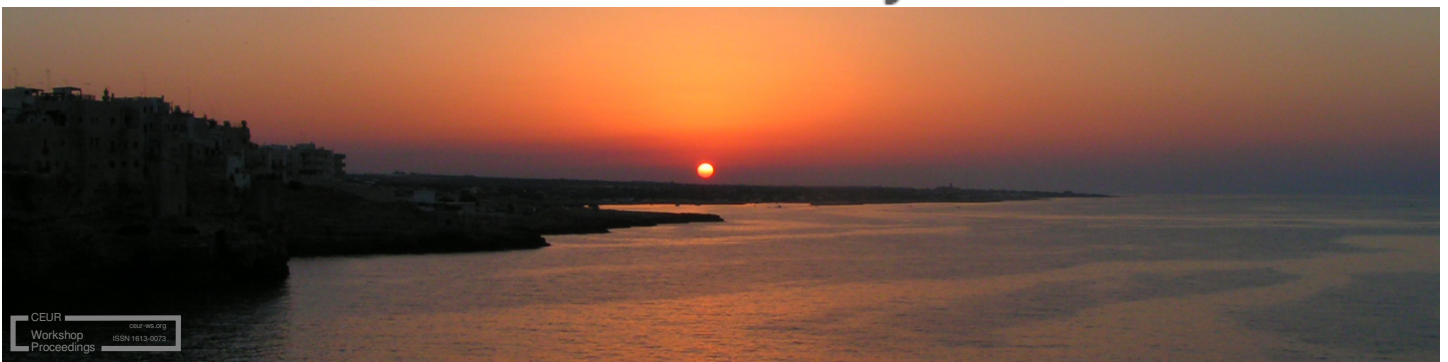
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**Co-located with the 18th ACM
Conference on Recommender Systems
(RecSys 2024)**



The ACM Conference Series on
Recommender Systems



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Julia Neidhardt, Tsvi Kuflik, Amit Livne & Markus Zanker (editors).

Further information about the workshop can be found at: <https://workshops.ds-ifs.tuwien.ac.at/rectour24/>

Preface

This volume contains the contributions of the Workshop on Recommenders in Tourism (RecTour), organized in conjunction with the 18th ACM Conference on Recommender System (RecSys 2024) in Bari, Italy.

RecTour 2024 highlights the unique challenges associated with developing recommender systems for the tourism industry. Unlike simple item-matching systems, tourism presents complex scenarios where travelers plan vacations involving interdependent product bundles - such as transportation, accommodations, attractions, and activities - each with limited availability and influenced by various contextual factors (e.g., spatiotemporal, social, and environmental contexts, as well as the sequence of activities). These factors significantly affect decision-making, which is often emotionally driven and experiential rather than purely rational or objective.

Providing timely and relevant information about destinations, accommodations, and services is particularly challenging in this context. Moreover, many tourism information providers are small or medium-sized enterprises (SMEs) that lack the resources to implement even basic recommendation systems. The absence of standardized data formats further complicates system development. Additionally, tourism products are often co-produced during the interaction between the consumer and provider, making the context of recommendations critically important.

The rapid advancement of information and communication technologies (ICT), especially the web, has revolutionized tourism, reducing travelers' reliance on traditional travel agents. Studies show that travelers now actively use ICT to craft personalized vacation packages, often seeking free, real-time information on-site instead of relying on potentially outdated and costly visitor guides. However, the abundance of online information can lead to information overload, making recommender systems a valuable tool for streamlining the decision-making process. Despite their potential, designing effective recommender systems for the tourism sector remains a formidable task due to its complexity.

This workshop brings together researchers and practitioners from diverse fields - such as tourism, recommender systems, user modeling, human-computer interaction, mobile and ubiquitous technologies, artificial intelligence, and web information systems - who are engaged in the tourism recommendation domain. The event aims to foster discussion on innovative solutions to the specific challenges faced in this area and to advance the state-of-the-art in tourism recommender systems. Additionally, it seeks to explore practical applications of these technologies from the perspectives of individual users, user groups, service providers, and other stakeholders, including destination management organizations and government agencies.

Finally, RecTour 2024 aims to build on the community engagement and dialogues initiated in previous workshops, continuing to strengthen collaboration and innovation within this dynamic field.

October 2024

Julia Neidhardt, Tsvi Kuflik, Amit Livne & Markus Zanker

Workshop Committees

Organizers

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- **Tsvi Kuflik**, Information Systems Department, The University of Haifa, Israel
- **Amit Livne**, Booking.com, Tel Aviv, Israel
- **Markus Zanker**, Free University of Bozen/Bolzano, Italy and University of Klagenfurt, Austria

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- **Wolfgang Würndl**, TU Munich, Germany

Acknowledgement



RecTour 2024 Keynote

Keynote Presentation: “*Expanding the Boundaries: Recommender Systems and the Multifaceted World of Tourism*” by Alejandro Bellogín, Universidad Autónoma de Madrid (UAM)

Abstract

This keynote presentation explores the transformative potential of recommender systems within the tourism industry, while also examining the broader technological and sustainable trends emerging in adjacent fields. Moving beyond the traditional tasks and vocabulary known in the RecSys community, this presentation will showcase techniques and methods in use in other research areas (such as IoT, Operational Research, or Data Mining) that could be useful for the attendees of this workshop. Through case studies and real-world examples, we illustrate the synergies, challenges, and potential impact such technologies may bring to the community.

About the Speaker

Alejandro Bellogín is Associate Professor at Universidad Autónoma de Madrid (UAM), Spain. Previously, he was associated to the Centrum Wiskunde & Informatica under a postdoctoral Marie Curie research grant. Dr. Bellogín has worked in several areas of user modeling and personalization, including recommender systems, evaluation, and reproducibility, where he has published over 80 conference and journal papers, while being involved as program or organization committees in venues related to these areas, such as RecSys, WWW, and UMAP, among others. In the last years, his focus was around the topics of fairness and tourism, where he leads national and industry projects aiming at transferring these research problems and solutions to the society.



RecTour 2024 Challenge

The RecTour 2024 Challenge, organized by **Booking.com** as part of RecTour 2024, focused on improving the ranking of user reviews for accommodations, a crucial factor in user decision-making. While traditional methods rank reviews based on scores, recency, or helpfulness votes, the challenge addressed the limitations of these approaches, including presentation bias.

The task required participants to match users and accommodations to relevant review IDs to enable personalized review rankings based on user preferences and accommodation features. A unique training dataset of 1.6 million reviews from real anonymized bookings was provided. Participants leveraged this data to develop models that ranked reviews considering user-accommodation characteristics.

The competition included training, validation, and test datasets. The performance was evaluated using the $MRR@10$ metric, with submissions including predictions of the top 10 reviews for each user-accommodation pair. Participants created negative labels from the Matches file and ensured compliance with dataset requirements, such as informative reviews and unique matches.

The challenge began on June 20, 2024, with the validation and test datasets released in August. Final leaderboard submissions were due at the beginning of September 2024. Top teams were invited to submit papers on their solutions for the workshop.

Workshop Program

09:00 - 09:30: Opening and Welcome

09:30 - 10:30: Keynote Presentation by Alejandro Bellogín

10:30 - 11:15: Coffee Break

11:15 - 12:45: Paper Session 1

- **TRACE: Transformer-based User Representations from Attributed Clickstream Event Sequences** by William Black, Alex Manlove, Jack Pennington, Andrea Marchini, Ercument Ilhan, and Vilda Markeviciute
- **Multi-funnel Recommender System for Cold Item Boosting** by Ahmed Khaili, Kostia Kofman, Edgar Cano, Adva Hadrian, and Andrew Mende
- **Structured Entity Extraction from Travel Videos Using Vision-Language Models** by Kevin Dela Rosa
- **Lifecycle of Promotional Campaigns in the Online Travel Industry** by Carlos Herrero, Amit Livne, Itsik Adiv, Hugo Manuel Proença, Felipe Moraes, Javier Albert, and Dima Goldenberg

12:45 - 14:30: Lunch Break

14:30 - 16:00: Paper Session 2

- **SMARTIE: Smart Museum for All Using a Range of Technology for Inclusive Experience** by Alexandra Danial-Saad, Yael Avni, Julia Sheidin, and Tsvi Kuflik
- **A Multimodal Dataset and Benchmark for Tourism Review Generation** by Hiromasa Yamanishi, Ling Xiao, and Toshihiko Yamasaki
- **A Roadmap for Privacy Preserving Tourist Recommendation Systems** by Alan Wecker, Noa Tuval, Alain Hertz, Mohammad Mahamid, and Tsvi Kuflik
- **Journey to Centralizing Destination Recommendations** by Maria Prosviryakova, Gaurav Misra, Sebastien Le Digabel, and Rodrigo Villatoro

16:00 - 16:45: Coffee Break

16:45 - 18:15: Challenge Presentations and Closing

- **Booking.com RecSys RecTour 2024 Challenge** by Amit Livne and Eran Fainman
- **Solution to the Personalized Accommodation Review Ranking Task via Tabular Data Approach** by Yu Tokutake
- **Accommodation Review Ranking for Tourism Recommendation** by Emrul Hasan, Chen Ding, Sajib Saha, Neelima Preeti, and Abdul Halim
- **ProfileRec: Efficient Accommodation Review Ranking using Sentence Embeddings and Nearest-Neighbor Search** by Rajorshi Chaudhuri, Pranav Bhatki, and Yash Dubal
- **Workshop Closing**

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