

# LocalRec 2018 workshop report

## The Second ACM SIGSPATIAL Workshop on Recommendations for Location-based Services and Social Networks\*

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Driven by technological advances in hardware (positioning systems, environmental sensors), software (standards, tools, network services), and aided by various open movements (open, linked, government data) and the ever-growing mentality of sharing for the greater good (crowdsourcing, crowdfunding, collaborative and volunteered geographic information), the amount of available geo-referenced data has seen dramatic explosion over the past few years. Human activities generate data and traces that are now often transparently annotated with location and contextual information. At the same time, it has become easier than ever to collect and combine rich and diverse information about locations. Exploiting this torrent of geo-referenced data provides a tremendous potential to materially improve existing and offer novel types of recommendation services, with clear benefits in many domains, including social networks, marketing, and tourism.

Fully exploiting this potential requires addressing many core challenges and combining ideas and techniques from various research communities, such as recommender systems, data management, geographic information systems, social network analytics, text mining. The goal of the LocalRec 2018 workshop was to bring together researchers and practitioners from these communities providing at the same time a unique forum for discussing in depth and collecting feedback about challenges, opportunities, novel techniques and applications. The general theme in on making recommendations in which location plays a key role, either as part of the recommended object, or as part of the recommendation process.

LocalRec 2018 was held as a half-day workshop. The program committee received and evaluated 6 submissions (4 full papers and 2 short papers/demos), out of which 3 full papers and 3 short/demos were selected for publication and presented in the workshop. Among the main conference attendees, 10 registered specifically for our workshop, 19 people attended the workshop at peak time, while 15 was the average number of attendees; see Figure 1. The event was organized around two sessions. In the first session, Jose Macedo presented their study for trip and sightseeing tours planning [4]. The authors propose TrajectMe, an algorithm which extends the memetic-based state-of-the-art with hotel selection in several cities, taking advantage of the tourists' trajectories extracted from location-based services such as Foursquare and Flickr. In the same context, Madhuri Debnath presented their work on preference-aware travel recommendations with temporal influence [2]. The key idea of

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\*<http://www.ec.tuwien.ac.at/localrec2018/>



Figure 1: Group photo of LocalRec 2018 attendees.

this study is to first find interesting locations by considering user categorical preferences, temporal activities and popularity of location, and then, generate travel routes that include such locations while also specifying the visit time. Last, Vikram Patil presented their survey in the plain-text and encrypted domains for secured trajectory comparison [5]. This work also discussed potential methods for encrypted domain computing, which can be applied in the domain of trajectory similarity.

The second session opened with Keerti Banweer and their study on geotagging messages using techniques from recommender systems, more specifically, collaborative filtering [1]. Their work proposes a multi-stage iterative model based on the popular matrix factorization technique, which exploits the relationship of messages, location, and keywords to recommend locations for non-geotagged messages. Next, Suprio Ray presented their work on temporally relevant top- $k$  spatial keyword search [6]. The authors focus on the parallel processing of the queries; for this purpose, they propose a novel parallel index, called Pastri. The index is built inside a system which offers persistent document storing and multi-threading functionality to exploit parallelism at various levels. Finally, Yuhao Kang presented their novel method for image positioning that combines spatial analysis and computer vision techniques [3]. The discussion revolved around their prototype that is based on large-scale Flickr photos and demonstrated a case-study for images taken of the Eiffel Tower in Paris.

In conclusion, we would like to thank the authors for submitting, publishing and presenting their papers in LocalRec 2018, and the program committee for their professional evaluation and help in the paper review process. We hope that the proceedings of the workshop will inspire new research ideas and that you will enjoy reading them.

## References

- [1] K. Banweer, A. Graham, J. Ripberger, N. Cesare, E. Nsoesie, and C. Grant. Multi-stage collaborative filtering for tweet geolocation. In *Proceedings of the 2nd ACM SIGSPATIAL Workshop on Recommendations for Location-based Services and Social Networks*, LocalRec'18, pages 4:1–4:4. ACM, 2018.
- [2] M. Debnath, P. K. Tripathi, A. K. Biswas, and R. Elmasri. Preference aware travel route recommendation with temporal influence. In *Proceedings of the 2nd ACM SIGSPATIAL Workshop on Recommendations for Location-based Services and Social Networks*, LocalRec'18, pages 2:1–2:9. ACM, 2018.
- [3] Y. Kang, S. Gao, and Y. Liang. Utilizing reverse viewshed analysis in image geo-localization. In *Proceedings of the 2nd ACM SIGSPATIAL Workshop on Recommendations for Location-based Services and Social Networks*, LocalRec'18, pages 6:1–6:5. ACM, 2018.
- [4] E. Oliveira, I. R. Brillhante, and J. A. F. de Macedo. Trajectme: Planning sightseeing tours with hotel selection from trajectory data. In *Proceedings of the 2nd ACM SIGSPATIAL Workshop on Recommendations for Location-based Services and Social Networks*, LocalRec'18, pages 1:1–1:10. ACM, 2018.
- [5] A. C. Pesara, V. Patil, and P. K. Atrey. Secure computing of gps trajectory similarity: A review. In *Proceedings of the 2nd ACM SIGSPATIAL Workshop on Recommendations for Location-based Services and Social Networks*, LocalRec'18, pages 3:1–3:7. ACM, 2018.
- [6] S. Ray and B. G. Nickerson. Improving parallel performance of temporally relevant top-k spatial keyword search. In *Proceedings of the 2nd ACM SIGSPATIAL Workshop on Recommendations for Location-based Services and Social Networks*, LocalRec'18, pages 5:1–5:4. ACM, 2018.