

LocalRec 2017 workshop report

The First 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 2017 workshop (<http://www.ec.tuwien.ac.at/localrec2017/>) 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. Essentially, LocalRec was about making recommendations in which location plays a key role, either as part of the recommended object, or as part of the recommendation process.

LocalRec 2017 was held as a full-day workshop. The program committee received and evaluated 10 submissions (6 full papers and 4 short papers/demos), out of which 6 papers (3 full and 3 short/demos) were selected for publication and presented in the workshop. Among the main conference attendees, 11 registered specifically for our workshop and around 12 people attended the workshop at peak time. The event was organized around three sessions. In the first session, Prof. Chen Li from the University of California, Irvine delivered his keynote titled “Using Cloudberry to Support Interactive Exploration and Visualization on One Billion Tweets for Recommendations” which was one of the highlights of the workshop. In his talk, Prof. Li introduced his system called Cloudberry, a system for analytics and visualization on large data sets with spatial, temporal, and textual attributes, such as social media data and query logs. It supports aggregation queries on various types of attributes, and allows efficient data exploration at different granularities (e.g., state, county, and city). It also

supports real-time analytics, which can allow applications to monitor what's happening now.. In this talk, he gave an overview of the system, presented initial results, and open challenges. Furthermore, Prof. Chen Li gave a live demonstration showing the capabilities of the system using tweets from Twitter.

The second session opened with Liyue Fan whose paper investigates whether the visit time of a location can reflect the nature of the place and can be used to measure similarity between locations. The author presented a novel location feature termed the temporal signature, to capture the temporal visit patterns of the location by aggregating user data. Next, Park et al. presented two methods to protect user privacy on location-based social networks by obfuscating discriminative location data in user profiles. The first method uses an Entropy-Maximizing Observation Function based on the number of posts by a user and the number of other users posted at the same location, while the second method uses an identification algorithm to determine which users can be potentially identified and then alters their posts. Last, Wajid et al. presented a demo how to identify short-names for organizations from social networks. When a user enters a short-name as a location-aware search query, the challenge to infer the relationship between the short-name and the ostensibly represented organization, arises.

In the third session, Kamada et al. presented a novel monitoring scheme for patients suffering from dementia. The novelty of this monitoring scheme is that the extent of the monitoring area changes for different stages of the disease. Also, this area is automatically generated using location-based data collected from the patient. Tomaras et al. investigated the problem of detecting the location and the extent of large events in urban environments. The authors presented fEEL, a scheme that enables the identification of the boundaries of large social events occurring in smart cities by exploiting multiple sources of data. Last, Silbernagl et al. presented an application that allows the identification of appropriate OpenStreetMap tags by querying co-occurring keys and tags, as well as similar sets of tags in a database. The proposed approach helps discovering combinations of tags and their usage frequency in contrast to common recommender systems that focus on classifying/clustering elements and finding the most accurate (single) class/cluster rather than sets of tags.

In conclusion, we would like to thank the authors for submitting, publishing and presenting their papers in LocalRec 2017, and the program committee for their professional evaluation and help in the paper review process. We would like to specially thank Prof. Chen Li for his exciting keynote. We hope that the proceedings of the workshop will inspire new research ideas and that you will enjoy reading them.