2nd ACM SIGSPATIAL Workshop on Analytics for Local Events and News (LENS 2018) Seattle, Washington, USA - November 6, 2018

Amr Magdy
University of California, Riverside
amr@cs.ucr.edu

Xun Zhou
University of Iowa
xun-zhou@uiowa.edu

Liang Zhao
George Mason University
lzhao9@gmu.edu

Yan Huang
University of North Texas
yan.huang@unt.edu

The 2nd ACM SIGSPATIAL Workshop on Analytics for Local Events and News (LENS 2018) was held in conjunction with the 26th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL 2018). The workshop is intended to bring together experts in the workshop scope to exchange ideas on opportunities, challenges and cutting-edge techniques for local events and news analytics. The workshop has attracted 8 submissions, including 7 regular full-length research papers and one short paper, accepted 5 submissions for publications; with 62.5% acceptance rate. The papers are reviewed by 13 program committee members, where each paper is assigned to three reviewers. Total 7 attendants registered for the workshop. The actual number of attendants along the day fluctuated from 8 to 12, with an average of 9 attendants maintained almost all the time. The workshop has achieved its goal with bringing up together experts and conducted a set of productive discussions and talks.

The workshop has featured an excellent keynote speech by Prof. Feng Chen from the Computer Science Department at the University at Albany - State University of New York, where he directs the Event and Pattern Detection Laboratory. His talk discussed his work on "*A Unified Optimization Framework for Event and Pattern Detection in Attributed Networks*" where the main goal is providing an optimization framework for applications that exploits different types of networks such as transportation networks, social networks, diseases, and so on. The talks focuses on challenges that are imposed by big data that is often created by aggregating multiple data sources and modeled as large-scale networks. Many applications of big data analytics are concerned of discovering complex patterns (subnetworks) that are interesting or unexpected, such as the detection and forecasting of societal events (disasters, civil unrest), anomalous patterns (disease outbreaks, cyber-attacks), discriminative subnetworks (cancer diagnosis), knowledge patterns (new knowledge building), and storylines (intelligence analysis), among others. The talk presents a unified graph-structured optimization framework for solving a broad class of such problems that runs in nearly-linear time and at the same time provides rigorous guarantees on quality. This framework models the problems as non-convex optimization problems subject to combinatorial constraints, in which the objective function is defined based on attribute data and the constraints are defined based on network topology (e.g., connected or dense subnetworks). The key idea is to iteratively search for a close-to-optimal solution by solving easier sub-problems in each iteration: (1) identification of the subnetwork(s) that maximizes the objective function in a sub-space determined by the gradient of the current solution and the topological constraints; and (2) approximate projection of the identified subnetwork(s) onto the feasible space that satisfies the topological constraints. The talk has demonstrated the effectiveness and ef-

ficiency of the proposed approach using several real-world datasets. The talk has triggered a very interactive discussion with several workshop attendants.