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Guest editorial: special issue on mobile crowdsourcing

Preface to the special issue on mobile crowdsourcing

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We are delighted to present this special issue of World Wide Web on Mobile Crowdsourcing. Recently, with the rapid development of mobile Internet and mobile social networking techniques, the scope of crowd problem-solving systems using mobile devices has been broadened and the traditional Internet Crowdsourcing is evolving into a new paradigm, i.e., Mobile Crowdsourcing (MCS), which facilitates the increasing number of mobile device users to participate crowdsourcing tasks. As a result, quite a number of crowdsourcing tasks that are difficult to complete based on Internet crowdsourcing has now become feasible, e.g., monitoring pollution level or noise level at the city-scale, predicting the arrival time of buses, collecting the truth happenings after a disaster, etc.

The aim of this special issue is to investigate the recent development of new frameworks, mechanisms, and algorithms that are able to support efficient MCS systems. Following an open call for papers, we received a total number of 13 submissions. All the submissions have

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undergone rigorous peer-review according to the journal's high standards. Based on recommendations from the reviewers, the guest editors selected 5 contributions (with a accept rate of 38%) covers varying topics within this theme, ranging from participant selection to data collection, from data broadcasting to anomaly data detection in MCS.

The first article, by Yu et al. on "Participant selection for *t*-sweep *k*-coverage crowd sensing tasks" investigates the participant selection problem in MCS. Based on the proposed "*t*-sweep *k*-coverage" data quality model, the authors designed two participant selection algorithms to solve problems with different scales, one of them is based on linear programming using a special technique of stacking matrix, and the other adopts a greedy strategy.

In "GP-selector: a generic participant selection framework for mobile crowdsourcing systems", the authors develop a generic framework to handle participant selection from the perspective of both task creators and participants. It first selects participants who meet the predefined constraints by task creators, and then filters the participants based on their predicted willingness.

Li et al. in "Multi-layer-based opportunistic data collection in mobile crowdsourcing networks" proposes to exploit opportunistic transmission to collect data in crowdsourced networks by using multiple layers of social graphs, and designs two types of multi-layer-based opportunistic data collection methods by exploring different dimensions of data.

In "Channel dynamic adjustment in data broadcast", the authors propose a channel dynamic adjustment method, which consists of a data item priority evaluation and selection algorithm for evaluating the priority of data items and selecting the high priority data items to be considered in a broadcast cycle, a weight and size average cluster algorithm for mining data item characteristics and clustering them, and a channel splitting and data allocation algorithm for dynamically splitting the channel and allocating data items to the corresponding sub-channel.

Kong et al. in "LoTAD: long-term traffic anomaly detection based on crowdsourced bus trajectory data" investigates the anomaly detection problem of crowdsourced data. By partitioning the crowdsourced data into temporal and spatial segments, anomalous segments are obtained by calculating their anomaly index and further combined to mine anomalous regions.

The guest editors believe the papers appearing in this issue form an accurate representation of current research topics in mobile crowdsourcing, and hope these articles will stimulate further development in this area. The guest editors express their appreciation to the authors and reviewers for contributing to this special issue. We also would like to express our appreciation to the editor in chief and the staff of the World Wide Web Journal for their kind help in accomplishing this special issue.

We hope you enjoy this special issue and take some inspiration from it for your own future research.