

## Preface

### – Advances on E-Commerce Techniques in Big Data Era

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We are in an era of “Big Data”. The rapid accumulation of data of trading transactions, user feedbacks and social media poses serious challenges and brings new opportunities to E-commerce research and applications. It is under this context that the 2nd Nanjing International Summit Forum on e-Commerce was held on 29th October, 2011. This forum attracted more than 300 attendees from government, education, industry and academia. Seven established domestic and overseas scholars from database, data mining and machine learning areas gave keynote speeches on the forum. This special issue is composed of five invited contributions based on the corresponding keynote speeches. It covers various technical aspects of E-commerce, specifically, including skyline computation, Microblog information extraction, clustering, classification and service negotiation.

Many E-commerce applications involve multiple criteria optimal decision making, and users may often want to make a personal trade-off among all optimal solutions for selecting one object that best fits their personal needs. Skyline in a multi-dimensional space provides a minimal set of candidates for such purposes by removing every object that is not preferred by any (monotonic) utility/scoring function, thus skyline computation can serve as an effective approach to multiple criteria optimal decision making. Due to its importance, the problem of skyline computation and its variants have been extensively studied in the database literature. In the paper “*Skyline: Stacking Optimal Solutions in Exact and Uncertain Worlds*”, Weijie Zhang et al. provided a comprehensive survey on skyline computation techniques.

Social media is rapidly emerging a major online communication platform, and plays a more and more important role in E-commerce. Microblogging (e.g. Twitter1), as a new form of online communication in which users talk about their daily lives, publish opinions and share information by short posts, has become one of the most popular social networking services today, which makes it potentially a large information base attracting increasing attention of researchers in the field of data mining and computational advertising. In the paper “*Information Extraction from Microblogs: A*

*Survey*”, Wen Hua et al. conducted a survey about existing research on information extraction from microblogging services and their applications, and then addressed some promising future works.

One of major technical drivers of E-commerce is Business Intelligence (BI), classification and clustering are the two most widely-used BI methods. Co-clustering treats a data matrix in a symmetric fashion that a partitioning of rows can induce a partitioning of columns, and vice versa. It has been shown advantageous over tradition clustering. In the paper “*Fast Co-Clustering by Ranking and Sampling*”, Zhao Li and Xindong Wu proposed a fast co-clustering framework by ranking and sampling, which is able to use very few samples to achieve comparable results in linear time compared to state-of-the-art co-clustering algorithms of nonlinear computational complexity. Big data features huge amount and low quality. The latter poses more tough challenge to data mining. One major quality problem is incompleteness. In the paper “*Classifying Incomplete Data Using Group Difference Detection with Parimputation Approach*”, Shichao Zhang and Jilian Zhang introduced an efficient approach for classifying insufficient datasets with missing data (incomplete data) by group difference detection. The proposed method works much better than the bootstrap resampling method on, for example, distinguishing spam from non-spam emails.

E-commerce is essential a game played between the sellers and buyers, where negotiation widely exists. For service oriented E-commerce, service negotiation is a complex activity, especially in complex domains such as healthcare. In the paper “*Cooperative-Competitive Healthcare Service Negotiation*”, Xuehong Tao et al. proposed a cooperative-competitive negotiation model which enables negotiation parties to share their knowledge and work towards optimal solutions.

The coming out of this special issue is mainly attributed to the support of Prof. Ruqian Lu, the Editor-in-Chief of this journal. I am grateful to all authors for contributing high-quality manuscripts. I hope this special issue is interesting and helpful to the researchers in E-commerce area.

Guest Editor:

Professor Shuigeng Zhou

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