

# Guest editorial: WWWJ special issue of the 16th International Conference on Web Information Systems Engineering (WISE 2015)

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## 1 WISE2015

The 16th International Conference on Web Information Systems Engineering (WISE 2015) was held in Miami, Florida, USA, November 1–3, 2015. Building on the success of its predecessors, WISE 2015 continues to be a major international forum for researchers, professionals, and industrial practitioners to share their knowledge in the rapidly growing area of Web technologies, methodologies, and applications. The first WISE event took place in Hong Kong, China (2000). Then the trip continued to Kyoto, Japan (2001); Singapore (2002); Rome, Italy (2003); Brisbane, Australia (2004); New York, USA (2005); Wuhan, China (2006); Nancy, France (2007); Auckland, New Zealand (2008); Poznan, Poland (2009); Hong Kong, China (2010); Sydney, Australia (2011); Paphos, Cyprus (2012); Nanjing, China (2013); and Thessaloniki, Greece (2014). This year, for a second time, WISE was held in North America, in Miami, supported by Florida International University (FIU), Nanjing University of Science and Technology (NJUST), and Nanjing University of Posts and Telecommunications (NUPT).

A total of 171 research papers were submitted to the conference for consideration, and each paper was reviewed by at least two reviewers. Finally, 53 submissions were selected as full papers (with an acceptance rate of 31 % approximately), plus 17 as short papers. The research papers cover the areas of Big Data Techniques and Applications, Deep/Hidden Web,

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Integration of Web and Internet, Linked Open Data, Semantic Web, Social Network Computing, Social Web and Applications, Social Web Models, Analysis and Mining, Web-based Applications, Web-based Business Processes and Web Services, Web Data Integration and Mashups, Web Data Models, Web Information Retrieval, Web Privacy and Security, Web-based Recommendations, and Web Search. In addition to regular and short papers, WISE-2015 program also features three special sessions, including a special session on Data Quality and Trust in Big Data (QUAT-15), a special session on Decentralized Social Networks (DeSN-2015), and an invited session. We are honored to have several of the world's leading experts in the field join us as distinguished keynote speakers and invited speakers. Moreover, two tutorials were accepted on the topics of building secure Web systems and accessing the Princeton Wordnet.

## 2 The special issue

6 top ranked papers out of 53 full papers at WISE 2015 have been selected for the special issue of World Wide Web Journal (WWWJ). The selected papers underwent a rigorous extra refereeing and revision process. In particular, the four special issues papers have been extended with at least 30 % new and unpublished material. Note that, adding more related work or extending the introduction was not considered in the 30 %; rather the new content often includes more technical and implementation details, improved algorithms, more experiment results, etc.

The paper by Jiang et al. proposes a feature based method for solving the sub-trajectory dataset profiling problem, which extracts the representative sub-trajectories as profiles to best describe the whole dataset. The proposed method first models the trajectory dataset features from the aspects of density, speed, and the direction flow. Based on the proposed feature model, a two-step method (trajectory segmentation and sub-trajectory profiling) is then presented to select the representative trajectories. Experimental results on two real trajectory datasets validate the efficiency and effectiveness of the proposed method.

Aspect identification and aspect rating inference are two key tasks in aspect-based opinion summarization, which aims to extract aspect-specific opinions hidden in online reviews. The paper by Xue, Li & Rishe proposes two topic models for simultaneous aspect identification and sentiment inference. The two proposed models explicitly consider the dependency between the aspect ratings, the aspect terms, and sentiment terms by incorporating the aspect ratings as observed variables to improve the prediction performance of aspect ratings. The experiments on large hotel review data sets show that the proposed models achieve better performance in terms of RMSE and Pearson correlation.

The paper by Zhao et al. studies the problem of Ranked Reverse Boolean Spatial Keyword Nearest Neighbors query (i.e., Ranked-RBSKNN query), which takes both spatial similarity and textual relevance into consideration and returns  $t$  answers with most degree of influence. A separate index and a hybrid index are proposed to efficiently process such queries. Experimental results on real-world datasets demonstrate the effectiveness of the proposed approaches.

Twitter has increasingly become one of the most popular social media platforms and a critical source of information and discussion. Topic derivation from Twitter is challenging since the Twitter messages (a.k.a., tweets) are very short, noisy, dynamic, and containing nonstandard terms. Nugroho et al. proposes to incorporate the temporal aspect on time-

sensitive interactions to improve the quality of topic derivation. In particular, their proposed method simultaneously clusters the tweets based on topics and identifies the representative terms for each topic.

The paper by Wang et al. tackles the problem of exhaustively crawling textual data from a ranked deep Web data source with the minimal cost. The authors first decompose the problem into two sub-problems: query bias (i.e., a text-rich document may have a higher probability of being matched) and ranking bias (i.e., documents ranked higher have higher probabilities of being returned) problems, and then propose a document frequency based crawling method to address the ranking bias problem. Empirical studies validate the effectiveness of the proposed method.

Trajectory outlier detection has attracted a lot of research attention due to the rapid proliferation of GPS-equipped devices and also has a wide range of applications. The paper by Zhu et al. develops TPRRO, a time-dependent popular routes based real-time trajectory outlier detection algorithm. The proposed TPRRO algorithm considers both spatial and temporal abnormality and contains an off-line preprocess step and an online detection step. Experimental results show that TPRRO can outperform other alternative algorithms in detecting outliers.



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