

## GUEST EDITORIAL

### Special Section on Web Intelligence, Mining and Semantics

We have the pleasure to introduce the special section of the Computer Science and Information Systems journal focused on Web Intelligence, Mining and Semantics.

This special section brings to the reader new research results in the areas of Web Intelligence, Mining and Semantics, with special focus on the synergies between intelligent methods on one side and applications on the other side. We hope that the papers selected for inclusion in this special section will be a valuable resource for researchers and practitioners working in these contemporary research areas.

This special section includes extended versions of selected papers from the 8th International Conference on Web Intelligence, Mining and Semantics (WIMS) held on June 25–27, 2018 in Novi Sad, Serbia. There were 51 submissions to the conference from 30 countries. From the list of accepted papers, 5 papers with high review scores were selected and invited to be extended and submitted to this special section. Finally, after two peer-review rounds, all of them were carefully revised, extended, and improved, and judged acceptable for publication in this special section.

Starting this section is the article “On Approximate k-Nearest Neighbor Searches Based on the Earth Mover’s Distance for Efficient Content-Based Multimedia Information Retrieval” by Min-Hee Jang et al., which tackles the problem of too high computational complexity of Earth Mover’s Distance (EMD) for multimedia applications by proposing an approximate k-nearest neighbor (k-NN) search method based on EMD. The method relies on the M-tree index structure and post-processing, achieving significant improvement in computational performance with small errors.

The question “How Much Topological Structure Is Preserved by Graph Embeddings?” posed in their article by

Xin Liu et al. is investigated from four aspects: (1) How well the graph can be reconstructed based on the embeddings, (2) The divergence of the original link distribution and the embedding-derived distribution, (3) The consistency of communities discovered from the graph and embeddings, and (4) To what extent can embeddings be employed to facilitate link prediction. It is shown that it is insufficient to rely on the embeddings to reconstruct the original graph, to discover communities, and to predict links at a high precision, meaning that embeddings created by the state-of-the-art approaches can only preserve part of the topological structure.

“Outlier Detection in Graphs: A Study on the Impact of Multiple Graph Models” by Guilherme Oliveira Campos et al. studies the impact of the graph model on outlier detection performance and the gains that may be achieved by using multiple graph models and combining the results. It is shown that assessing the similarity between graphs may be a guidance to determine effective combinations, as less similar graphs are complementary with respect to outlier information they provide and lead to better outlier detection.

Drazen Brdjanin et al., in “Automated Two-phase Business Model-driven Synthesis of Conceptual Database Models” present an approach to automated two-phase business process model-driven synthesis of conceptual database models, based on the introduction of a domain specific language (DSL) as an intermediate layer between different source notations and the target notation, which splits the synthesis into two phases: (1) automatic extraction of specific concepts from the source model and their DSL-based representation, and (2) automated generation of the target model based on the DSL-based representation of the extracted concepts.

Finally, in “Lexicon Based Chinese Language Sentiment Analysis Method,” Jinyan Chen et al. propose a method to identify sentiment in Chinese social media posts, tested on posts sent by visitors of the Great Barrier Reef on the most popular Chinese social media platform Sina Weibo. The article elaborates on the process of capturing weibo posts, describes lexicon construction, and develops and explains the algorithm for sentiment calculation.

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