

Special Issue on Recent Advances in System Applications and Methods of Data Management

Guest Editorial

This special issue comprises of eleven selected papers from the 3rd International Conference on Ubiquitous Information Management and Communication (ICUIMC 2009). From 358 papers submitted in the conference, 106 papers were selected for presentation. Among them, eleven qualified papers have been selected as the papers for this special issue, which deal with state-of-the-art software technology.

Explosive growth of information on the Internet has made data search algorithm a critical issue nowadays. Thus, five papers focus on data search algorithm: "Energy Valid Scope for Location-Dependent Spatial Queries in Mobile Environments," by Ken C. K. Lee, Wang-Chien Lee, Hong Va Leong, Brandon Unger, and Baihua Zheng, designed an algorithm to compute the *valid scope* where clients receive the same query result, thus eliminating the waste of sending many LDSQs to the server by nearby clients. "Small Knowledge Canvas: Software for Managing Fragmental Knowledge," by Akiko Hino and Katsumi Tanaka, introduces the concept of "Small knowledge canvas" to utilize the fragmental knowledge, and thus they design a Web browsing model and context extraction algorithm to enrich the bookmark for personal context. "Improving Search and Information Credibility Analysis from Interaction between Web1.0 and Web2.0 Contents," by Katsumi Tanaka, Satoshi Nakamura, Hiroaki Ohshima, Yusuke Yamamoto, Yusuke Yanbe, and Makoto Kato, proposes a new idea for improving the Web search performance and increasing the information credibility of search results by the usage of Web 1.0 and Web2.0 contents in a complementary manner. "Pivoted Table Index for Querying Product-Property-Value Information," by Hyunja Lee and Junho Shim, proposes two storage-schemas: a vertical schema as a primary table structure for the triple information in RDBMS and a pivoted table index created from the basic vertical table as an additional index structure for accelerating query triple (product-attribute-value) information. "Metadata Management for Integration and Analysis of Earth Observation Data," by Akira Takahashi, Masashi Tatedoko, Toshiyuki Shimizu, Hiroko Kinutani, and Masatoshi Yoshikawa, proposes a conceptual model of earth observation data store and manage earth observation. The model is a simple quintuple with information extracted from conventional data models, and it is used to uniquely determine portions of earth observation data, and thus easy to add annotations to data.

Three data analysis and mining related papers are presented: "PicAChoo: A Text Analysis Tool for Customizable Feature Selection with Dynamic Composition of Primitive Methods," by Jaeseok Myung, Jung-Yeon Yang, and Sang-goo Lee, presents a framework named 'PicAChoo', which stands for 'Pick And Choose' that enables customizable feature selection environments by composing several primitive feature selection methods without hard-coding. "An Interpretation of Biological Metabolites and their Reactions Based on Relation Degree of Compound Pairs in KEGG XML Files," by Myungha Jang, Jiyoung Whang, Coleen S. Lewis, and Hyun S. Park, provides the statistical analysis of metabolic reactions, based on the parsing result of publicly available XML files. "High-speed Detection of Ontological Knowledge and Bi-directional Lexico-Syntactic Patterns from the Web," by Hiroaki Ohshima and Katsumi Tanaka, proposes a high-speed method of detecting ontological knowledge from the Web and a method of automatically discovering superior bi-directional lexico-syntactic patterns using Web search engines.

The special issue also includes security issue and papers related to intelligent systems and applications are presented: "A High-Performance Inter-Domain Data Transferring System for Virtual Machines," by Dingding Li, Hai Jin, Yingzhe Shao, Xiaofei Liao, Zongfen Han, and Kai Chen, proposes a system called IDTS (Inter-Domain Transferring System) which uses the shared memory between different domains (also called hosted or guest OSes) to expand the communication bandwidth and shorten the latency for network applications running in the co-resident VMs. "DCT-based Reversible Data Hiding Scheme," by Chia-Chen Lin and Pei-Feng Shiu, proposes a method called a layer-1 data embedding strategy to enhance the hiding capacity of Chang et al.'s reversible DCT-based data hiding scheme. Their proposed layer-1 strategy considers some areas not used by Chang et al.'s scheme, which they call layer-2 data embedding. "Merging Textual Knowledge Represented by Element Fuzzy Cognitive Maps," by Xiangfeng Luo, Jun Zhang, Fangfang Liu, Yi Du, Zhian Yu and Weimin Xu, introduces a logic "and" operation to roughly evaluate the similarities between the mass E-FCMs in order to form the similar sets of textual knowledge and propose an E-FCMs-based knowledge merging algorithm to inspect the noisy and the redundancy information hidden in the original E-FCMs.

We wish to thank Sungkyunkwan University, Korea for providing the venue to host the conference. In particular, we would like to acknowledge School of Information and Communication Engineering, Sungkyunkwan University, Korea, who has worked throughout the year in preparation for this conference. We would like to take this opportunity to thank the authors for the efforts they put in the preparation of the manuscripts and for their valuable contributions. We wish to express our deepest gratitude to the program committee members for their help in selecting papers for this issue and especially the referees of the extended versions of the selected papers for their thorough reviews under a tight time schedule. Last, but not least, our thanks go to the Editorial Board of the Journal of Software for the exceptional effort they did throughout this process.

In closing, we sincerely hope that you will enjoy reading this special issue.

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Sang-goo Lee is a professor of Computer Science at Seoul National University, Seoul, Korea. He is the Director of Center for E-Business Technology which specializes in R&D in the fields of e-catalogs, ontology, and Semantic Web services. He also heads the GLOBE R&D Group which specializes on RFID-based methods for logistics applications. His research interests are in semantic technology, context-aware personalization, e-catalogs, and database design. He headed the product ontology development efforts for Korea's Public Procurement Services which is regarded as one of the most successful ontology implementations in the country. He serves as technical advisor to a number of leading enterprises in software and telecommunications. He is one of the premier speakers on practical approaches to semantic technology. He serves as General Chair for International Workshop on Data Engineering Issues in E-Commerce and Services (DEECS) 2005-2009, PC Chair for DASFAA 2012, and Workshop Chair for VLDB 2006.



Katsumi Tanaka received the BS, MS and PhD degrees in Information Science from Kyoto University, in 1974, 1976 and 1981, respectively. In 1986, he joined Dept. of Instrumentation Engineering, Faculty of Engineering at Kobe University, as an associate professor. In 1994, he became a professor at Dept. of Computer and Systems Engineering, Faculty of Engineering, Kobe University. Since 2001, he has been a professor of Dept. of Social Informatics, Graduate School of Informatics, Kyoto University. His research interests include Web search and mining, multimedia retrieval, database theory and systems. Dr. Tanaka is a member of the ACM, IEEE, Database Society of Japan (DBSJ) and Information Processing Society of Japan

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Chin-Chen Chang received his BS degree in applied mathematics in 1977 and the MS degree in computer and decision sciences in 1979, both from the National Tsing Hua University, Hsinchu, Taiwan. He received his Ph.D in computer engineering in 1982 from the National Chiao Tung University, Hsinchu, Taiwan. During the academic years of 1980-1983, he was on the faculty of the Department of Computer Engineering at the National Chiao Tung University. From 1983-1989, he was on the faculty of the Institute of Applied Mathematics, National Chung Hsing University, Taichung, Taiwan. From August 1989 to July 1992, he was the head of, and a professor in, the Institute of Computer Science and Information Engineering at the National Chung Cheng University, Chiayi, Taiwan. From August 1992 to July 1995, he was the dean of the college of Engineering at the same university. From August 1995 to October 1997, he was the provost at the National Chung Cheng University. From September 1996 to October 1997, Dr. Chang was the Acting President at the

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