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Intelligent Environments and Services

J.UCS Special Issue

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Due to the latest developments in communication, computing, and storage technologies, smart services and applications are being deployed for various applications such as entertainment, health care, smart homes, security and surveillance, and intelligent environments. This special issue aims to address the smart spaces and their services for IE. It accepted both original research papers and review articles that enhance the state-of-the-art in smart spaces and their services including topics like smart homes and offices, intelligent system architecture, human communication interaction, advanced smart services, context-awareness, data-mining, embedded systems and softwares, security issues, emerging standards and technologies and novel applications that are associated with IE utilization. The papers were reviewed by three reviewers each and selected on the basis of their quality and relevance to the theme of this special issue.

We received twenty-four manuscripts. After the pre-review process, twenty-three manuscripts were selected for the first review. Nine manuscripts were finally selected for this Special Issue after the first and second review processes. Each manuscript selected from the pre-review was blindly reviewed by three reviewers.

The first paper in this special issue is on *Causality Join Query Processing for Data Streams via a Spatiotemporal Sliding Window*, by Oje Kwon and Ki-Joune Li. They investigate temporal, spatial, and spatiotemporal aspects of causality join query processing for data streams, and propose several strategies for sliding window management. The result shows that one can improve the accuracy of causality join query processing in data streams with respect to the simple FIFO strategy.

The second paper in this special issue is on *Meeting Warming-up: Detecting Common Interests and Conflicts among Participants before a Meeting*, by Zhiyong Yu, Zhiwen Yu, Xingshe Zhou, Daqing Zhang and Yuichi Nakamura. They propose a novel Meeting Warming-up system to detect common interests and conflicts among participants before a meeting. In the proposed meeting warming-up system, each participant can intuitively understand the group's opinions as a whole and warm up for discussions around potential outcomes.

The third paper in this special issue is on *Service Conflict Management Framework for Multi-user Inhabited Smart Home*, by Choonsung Shin and Woontack Woo. They propose a service conflict management framework for detecting and resolving conflicts of multi-users who share context-aware applications within a smart home. The proposed framework dynamically detects and flexibly resolves multi-user conflicts which occurred among the services of multiple applications, as well as within a single application.

The fourth paper in this special issue is on *On the Personalization of Personal Networks - Service Provision Based on User Profiles*, by Ioannis G. Nikolakopoulos, Charalampos Z. Patrikakis, Antonio Cimmino, Martin Bauer and Henning Olesen. They present a user profile definition scheme featuring context awareness. The proposed scheme is in an integrated framework for user profile management that takes into account the existing standardization attempts.

The fifth paper in this special issue is on *Next Generation of Terrorism: Ubiquitous Cyber Terrorism with the Accumulation of all Intangible Fears*, by Hai-Cheng Chu, Der-Jiunn Deng, Han-Chieh Chao and Yueh-Min Huang. They provide the cyber terrorism, the next generation of terrorism, to be a forthcoming and unavoidable threat to the global community as well as providing a potential rational cyber terrorist scenario, which could be the global cyber terrorism phenomena. They also explicitly demonstrate the feasibility of launching cyber attacks toward critical infrastructures that might cause severe casualties.

The sixth paper in this special issue is on *A Joint Web Resource Recommendation Method based on Category Tree and Associate Graph*, by Linkai Weng, Yaoxue Zhang, Yuezhi Zhou, Laurence T. Yang, Pengwei Tian and Ming Zhong. They propose a joint recommendation method combining together two approaches, namely the domain category tree and the associate graph, to make full use of all available information. Further, an associate graph propagation method is designed to improve the traditional associate filtering method by integrating additional graphical considerations into them. Their method outperforms either the single category tree approach or the single associate graph approach, and it can provide acceptable recommendation services even in the non-register environment.

The seventh paper in this special issue is on *Mining Dynamic Databases using Probability-Based Incremental Association Rule Discovery Algorithm*, by Ratchadaporn Amornchewin and Worapoj Kreesuradej. In this work, probability-based incremental association rule discovery algorithm is proposed, which uses the principle of Bernoulli trials to find expected frequent itemsets. This can reduce a number of times to scan an original database. They also propose a new updating and pruning algorithm that guarantee to find all frequent itemsets of an updated database

efficiently. The simulation results show that the proposed algorithm has better performance than that of previous work.

The last paper in this special issue is on *Modeling of an Intelligent e-Consent System in a Healthcare Domain*, by Chun Ruan and Sang-Soo Yeo. They use UML to specify and visualize the access control policies in a health application domain. These policies are represented in logic based e-Consent rules, and the patient's consents about their information access can be derived from these rules.

Finally, we would like to thank all authors for their contributions to this special issue. We also extend our thanks to the following external reviewers for their excellent job in reviewing the manuscripts: Frode Eika Sandnes, Naixue Xiong, Sang-Soo Yeo, Wen-Shenq Juang, Dae Hyun Yum, Jeng-Shyang Pan, Jing Xu, Worapoj Kreesuradej, Mieso Denko, Zhiyong Yu, Jongsung Kim, Changhoon Lee, Kim-Kwang Raymond Choo, Huo-Chong Ling, Jaechul Sung, Wang Xiaohuan, Cai Yunpeng, Lorcan Coyle, Zhiwen Yu, Deok-Gyu Lee, Byeong-Ho Kang, Sajid Hussain, Kwangsoo Lee, Jong-Hyuk Park, Donghoon Chang, William T. Niu, Bin Guo.

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