Introduction

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Ching-Ting Tu received her BS and PhD degrees in Computer Science and Information Engineering from National Cheng Kung University, Tainan, Taiwan, in 2004 and 2010. In 2011, she joined the Department of Computer Science and Information Engineering at Tamkang University, Taiwan, as an assistant professor. Her research interests include computer vision and pattern recognition, human-computer interaction, and multimedia information analysis and retrieval.

The study on techniques of mining web data and pervasive computing encompasses a large number of the most important as well as promising directions for scientific research and development in the era of advanced novel cloud applications. These possible applications explore the fundamental roles and interactions as well as practical impacts of web mining and pervasive computing on the next generation of cloud-based environment. Web mining and pervasive computing in cloud-based environment includes Internet of Things, pervasive computing, collaborative work, social networks, content mining and knowledge grids.

This special issue aims at attracting original and significant research on advanced cloud computing including emerging trends and applications, theoretical studies, and experimental prototypes. This special issue invited papers from the 2015 International TKU-UoA Bilateral Workshop, held on 5–6 March 2015 in New Taipei, Taiwan. Moreover, papers not in the international TKU-UoA Bilateral Workshop 2015 are also included, as long as they fit the scope and of good quality. The primary objective of the 2015 International TKU-UoA Bilateral Workshop is to facilitate a collaborative platform between Department of Computer Science and Information Engineering, Tamkang University, Taiwan, and School of Computer Science and Engineering, University of

Aizu, Japan, to achieve innovation, integration, and partnership for science and technology research through conducting collaborative researches, exchanging scientific and technological dialogues and researcher visits. All the submitted papers were reviewed by two experts in the field. Totally six papers were accepted. Among these papers, the first four papers are selected from the 2015 International TKU-UoA Bilateral Workshop.

In the first paper, Chen et al. proposed a GA-based approach for finding appropriate granularity levels of patterns from time series. Especially, both segments and patterns of time series are considered in the proposed approach, which is combining the concepts of GA, clustering techniques, and granular computing. The extracted patterns expose user behaviors, and thus the performance of downstream applications, such as web data, is improved. In the second paper, Chang et al. designed a patient-centric cloud based diabetes lifestyle management system. The goal of this cloud based diabetes lifestyle management system is to provide Type-2 diabetes mellitus patients useful information to remind user's blood sugar level. Different from traditional m-health system, the presented approach provides a rule algorithm which enables the rescue decision in the cloud server and transmits through the communication level, and finally provide an integrated user interface for diabetes users. In the third paper, Chen et al. indicates that prior studies on usage pattern discovery are mainly focused on discovering patterns while ignoring the dynamic maintenance of mined results. In this paper, a cloud-based system, Dynamic Correlation Mining System (DCMS), is developed to incrementally capture the usage correlations among appliances in a smart home environment. Furthermore, several pruning strategies are proposed to effectively reduce the search space. Experimental results indicate that the developed system is efficient in execution time and possesses great scalability. In the fourth paper, Wu et al. indicates that mobile cloud-based collaborative workflow suffers from collaborative workflow barriers, such as workflow complexity, poor communication, and teamwork disruption. To ease collaborative workflow barriers, they propose and develop a seamless repository by integrating multiple support systems into a three-layered framework. Under the premises of availability, connectivity, and transparency, the three-layered seamless repository strengthens the collaborative workflow in pervasive teamwork. In the fifth paper, Al-Isma'ili et al. proposed a cloud computing adoption decision modeling for SMEs. The aim of proposed approach is to evaluate and select various cloud services and deployment models. Especially, the economic values, advantages, compatibility with in-house systems, integrability & manageability, security & privacy concerns, reliability, availability, features & management are considered in their proposed decision model, and thus can be used to solve real-world problems. In the last paper, Xu et al. proposed a conceptual semantic space model for building search pattern of web users. Such search pattern can be used to describe the most important features of search engines. Particularly, the user intent is divided into three states in order to extract meaningful user intent, and can be incorporated into search engines to support more efficient search with better results.

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