

# Foreword of Special Issue on “Information Education and Technological Application”

Jason C. Hung

Department of Information Management, Overseas Chinese University, Taichung, Taiwan

E-mail: [jhung@ocu.edu.tw](mailto:jhung@ocu.edu.tw)

In the information-oriented society, training nationals with IT knowledge and application ability has been the focus of education development in countries. They have been promoting the program relevant to information education and laying the foundation stone of the twenty-first century. Information education aims to help students develop the ability of information retrieval, application and analysis and make them have the correct information learning attitude including the ability of creational thinking, problem solving, active learning, communication cooperating and learning how to use information technology well. Furthermore, it trains the sophisticated IT R&D talents with both theory and practice and helps promoting the domestic industries. On the other hand, the application of information technology is focused on exploring the industries' development trend and then mastering it requirement. Also, it accelerates the originality and application technology towards to higher value. Finally, it creates the new value to national information industries. Research in these fields is emergent and crucial, not only in academic and research community, but also in industrial field. In this decade, technological application researches are very popular. This special issue focuses on the state-of-the-art software technology related to these issues, including distance education, networking, agent technology, web services, Ontology research, and social network. Eleven papers are included in this special issue.

In the first paper entitled “Constructivism in Mexican Elementary School Education: Designing a Platform for Cooperative Learning”, Dr. Ivan A. Garcia and Carla L. Pacheco discussed a pedagogical/technological platform, based on constructivism ideas, as a means of making the learning process in elementary school more efficient and interesting. The constructivist platform presented uses graphical simulators developed for Web 2.0 as a support tool, creating a teaching and learning environment in which practical experiments can be undertaken as each topic is introduced and explained.

Computation aware scheme for video signal processing is proposed in the second paper entitled “Computation Aware Scheme for Visual Signal Processing” by Anand Paul, Yung-Chuan Jiang, and Jhing-Fa Wang. This paper

points out how to reduce the computation power and time according to dynamical scheduling usage of multi-core processing environment for video sequence depending up complexity of the video.

Rafael Martínez-Peláez, Francisco Rico-Novella, and Cristina Satizábal proposed an efficient mobile cash scheme in which the customer attaches the expiration date and deposit date. The property reduces the size of the bank's database and the customer must spend the mobile cash before expiry. In the third paper entitled “TOMIN: Trustworthy Mobile Cash with Expiration-Date Attached”, authors have proposed TOMIN, an efficient, practical, and trustworthy m-cash with expiration-date attached.

“Service-Oriented Authoring System to Achieve Interoperability among E-Learning Environment” written by Neil Y. Yen, Jason C. Hung, Hui-Huang Hsu, Timothy K. Shih, Louis R. Chao proposed a transformation mechanism to achieve the interoperability between various e-learning standards. Furthermore, they utilize the IMS LIP specification to maintain the authoring history of individual author, and use these profiles for authors to achieve the personalization authoring process.

In “A Historical Review of Computer User's Illegal Behavior Based on Containment Theory”, Prof. Chi-Chao Lu and Wen-Yuan Jen present their research is to explore research trends in computer crime and cybercrime from 1968 to 2009. The findings of the current study will provide some insight into scholarly activity related to computer crime and cybercrime and will be useful in tracking computer user's illegal behavior research trends.

Prof. Jui-Chi Chang, Hsuan-Fu Wang and Fang-Biau Ueng point out the orthogonal frequency division multiplexing-code division multiple access (OFDM-CDMA) research issue. In the sixth paper entitled “Iterative Equalizer for OFDM-CDMA Multiple Access Communication Systems”, three iterative de-spreading equalizer schemes with turbo decoding algorithm for OFDM-CDMA system have been presented and verified with computer simulations.

“The Use of Terminological Theory Approach in the Development of Ontology Based Bilingual Terminology System on College Campus of Taiwan” written by Prof. Hsing-I Wang. The lack of a well designed bilingual terminology system would hinder the efficiency and the advance of learning of college students. She proposed to adopt the terminological theory and proposes a framework of an ontology-based bilingual terminologies system on campus in Taiwan. This is an interesting and contributed research in Ontology field.

In “Interleaving Max-Min Difference Histogram Shifting Data Hiding Method”, Prof. Hsien-Wei Yang, Kuo-Feng Hwang, and Shou-Shiung Chou proposed a block difference histogram method and an offset distortion method to embed data with reversible. In the experiment, when the PSNR approached 30dB, the optimal payloads of the interleaving max-min difference histogram method were 1.120bpp. Experimental results reveal that the proposed method outperforms many other reversible data hiding methods.

In the ninth paper entitled “A P2P-based Three-Dimensional Virtual Environment Management and Collaborative Streaming System”, Chuan-Feng Chiu, Steen J. Hsu, and Sen-Ren Jan proposed a collaborative 3D scene management and streaming system to reduce the load of server-based architecture, and we use peer-to-peer technology to realize distributed virtual environment. This research includes the following contributions. First, object importance determination is proposed based on multi layer segmentation on 3D scenes. Second authors use collaborative approach to steaming 3D data from multiple peers to have better performance and quality. Third, 3D scene management mechanism based on CAN-based peer-to-peer network was proposed. Finally, they use JXTA to realize peer-to-peer network architecture and RTP/RTCP real-time transmission protocol to implement real-time streaming service.

“Integrating Encrypted Mobile Agents with Smart Spaces in a Multi-agent Simulator for Resource

Management” proposed by Prof. Sherin Moussa and Gul Agha is trying to present the design of “Bosthan”, a multi-agent-based simulation tool that manages resources consumption in multi-inhabitants smart spaces. Bosthan is built on the top of ActorNet mobile agent platform to simulate different smart space topologies with varying numbers of residents.

In the last paper entitled “Towards the Context-oriented Model of Project Management for Virtual Enterprises”, Prof. Chouyin Hsu and Minfeng Lee proposed the context-oriented approach to facilitate project management in virtual enterprises. This research emphasizes the relationships among resources is such critical in the work to identify the connection within the distributed resources. The advantage is valuable for a project manager to find the right person and the right resources conveniently even in the communication-deficient virtual environment.



**Jason C. Hung** is an Associate Professor of Dept. of Information Management, Overseas Chinese University, Taiwan. His research interests include Multimedia Computing and Networking, Distance Learning, E-Commerce, and Agent Technology. From 1999 to date, he was a part time faculty of the Computer Science and Information Engineering Department at Tamkang University. Dr. Hung received his BS and MS degrees in Computer Science and Information Engineering from Tamkang University, in 1996 and 1998, respectively. He also received his Ph.D. in Computer Science and Information Engineering from Tamkang University in 2001. Dr. Hung participated in many international academic activities, including the organization of many international conferences. He is the founder and Workshop chair of International Workshop on Mobile Systems, E-commerce, and Agent Technology. He is also the Associate Editor of the International Journal of Distance Education Technologies, published by Idea Group Publishing, USA. The contact email is [jhung@ocu.edu.tw](mailto:jhung@ocu.edu.tw)