Editorial

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Biographical notes: Jason C. Hung is an Associate Professor of the Department of Information Management at Overseas Chinese University, Taiwan, ROC. His research interests include multimedia computing and networking, distance learning, e-commerce and agent technology. He received his BS and MS in Computer Science and Information Engineering from Tamkang University, in 1996 and 1998, respectively. He also received his PhD in Computer Science and Information Engineering from Tamkang University in 2001. 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 *International Journal of Distance Education Technologies*, published by Idea Group Publishing, USA.

Timothy K. Shih is a Professor and the Dean of College of Computer Science, Asia University, Taiwan. He is a Fellow of the Institution of Engineering and Technology (IET). In addition, he is a senior member of ACM and a senior member of IEEE. He has edited many books and published over 430 papers and book chapters. He was the Founder and Co-Editor-in-Chief of *International Journal of Distance Education Technologies*, published by Idea Group Publishing, USA. He is an Associate Editor of the *ACM Transactions on Internet Technology* and an Associate Editor of the *IEEE Transactions on Learning Technologies*. He was also an Associate Editor of the *IEEE Transactions on Multimedia*. He has received many research awards, including research awards from National Science Council of Taiwan, IIAS research award from Germany, HSSS award from Greece, Brandon Hall award from USA.

Distance education has been an important research issue in information technologies, communication technologies and educational technologies since the last decade. Issues of distance learning include synchronised distance education, web-based training,

computer-based education, computer-assisted instruction and others. Distance learning programmes in traditional university and virtual universities, as well as e-learning portals are widely available. Yet, the development of application software and standards of distance learning is still an ongoing activity. This special issue of JASS brings together original research, techniques and state-of-the-art work in distance-learning-related applications. Nine papers were invited or accepted to this issue.

The first paper discusses an important standard of distance learning – Sharable Content Object Reference Model (SCORM), which is developed by the Advanced Distributed Learning Initiative. The standard is discussed in three parts: information sharing and reusing based on sharable content objects, a common learning management system for material exchange, and a specification of user interaction. The second paper presents a web-based simulator, which is a virtual laboratory for students to understand computer data transfer principles. The system is able to support different learning styles and learning speed, increase motivation for learning, and result in a better understanding of concepts. The third paper proposes a distributed video-on-demand system, which allows video to be combined with text and pictures. The result makes knowledge acquisition easier. An analysis model on student test results is discussed in the fourth paper. The outcome can be used by the instructor to refine course contents, and by students to have personalised remedial courses or appropriate advanced courses for further study. The fifth paper proposed protocol that makes it possible for a learner to pay money to a course provider efficiently. In the sixth paper, the Smart Courseware System is developed based on student-problem table. The system provides functions such as courseware editing, test generation and tutorial generation. Courseware produced by this system is compatible with the SCORM standard. A collaborative environment built on virtual reality technology is presented in the seventh paper. One example application of such a system is to teach students how to assemble computer hardware. A model based on Dynamic Fuzzy Petri Net and a system is implemented in the eighth paper to recommend alternative learning sequences for different students. The evaluation is based on grades of student exercises. In the ninth paper, authors present a case study for the formation of a Virtual Community for science teachers for the third Educational District in Athens, Greece, where learning conversations are being conducted in specially developed thematic collaboration rooms.

Distance learning systems are applications of educational and computer technologies. The promotion of distance learning requires engineers, artists, education professionals and policy-makers to work together. This special issue discussed several interesting and important topics. We hope the readers can benefit from the research results discussed in this issue, and to promote distance learning together.