# Editorial

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**Biographical notes:** Wai Chi Fang is an IEEE Fellow and serves as the Vice President of IEEE Systems Council. He serves on the Advisory Board of *IEEE Systems Journal* and the Advisory Board of *International Journal of Innovative Computing, Information & Control*. He was an elected Governor of the IEEE Circuits and Systems Society (2003–2008) and an AdCom member of the IEEE Nanotechnology Council. He was the Chairman of IEEE CASS Technical Committee on Nanoelectronics and Gigascale Systems.

Tai-hoon Kim received his PhD in School of Information and Computer Science from University of Tasmania, Australia. After working with Technical Institute of Shindoricoh as a researcher and working at the Korea Information Security Agency as a senior researcher, he worked at the DSC (Defense Security Command). After working with Hannam University four and a half year as an Associate Professor, now he is currently working at University of Tasmania. He published about 200 papers till now.

Carlos Ramos got his graduation from the University of Porto, Portugal, in 1986 and the PhD from the same university in 1993. He was Director of GECAD (Knowledge Engineering and Decision Support Research Centre), being currently responsible for the Intelligent Systems area of GECAD. He has about 60 publications in scientific journals and magazines and more than 250 publications in Scientific Conferences Proceedings. Currently he is Vice-President of the Polytechnic of Porto, the largest Polytechnic institution in Portugal, being responsible for the R&D, Innovation and Enterpreneurship, and Internationalisation areas.

Sabah Mohammed started his career during 1977 as a Multimedia Maintenance Engineer working for Canon and Sony following his hobby in Electronics, although he completed his bachelor degree in Mathematics (HBSc 1977). From July 1979, he started his graduate studies where he received his degrees in Computer Science from Glasgow University, UK (PgD 1980, MPhil 1981) and from Brunel University, UK (PhD 1986). Since late 2001, he is a full Professor of Computer Science at Lakehead University.

Osvaldo Gervasi's research interests are focused on computational science, grid computing, cloud computing, virtual reality and web programming. He participated to two UE COST Actions, leading for each a Working Group. In 2007–2010, he was the Italian representative inside the Management Committee of the GridChem Action. He has been visiting researcher at SLAC (USA), at the University of Oklahoma (USA), at the University of the Basque Country (Spain) and the University of Barcelona (Spain) At the University of Crete and FORTH, Crete (Greece). He has been the co-Chair of ICCSA conference series from 2004.

Adrian Stoica has over 20 years of experience in embedding adaptive, learning and evolvable techniques into electronics and information systems, for applications ranging from measurement equipment and space avionics to robots. His 1995 PhD thesis Motion Learning by Robot Apprentices was one of the first works on anthropomorphic robots learning by imitation of human instructors. He has over 100 papers, five awarded patents, has been the general chair of four conferences, and since 1999 has been plenary speaker at several international conferences. He is the recipient of the 1999 Lew Allen Award, which is the NASA-JPL highest award for excellence in research.

We are very happy to publish this special issue of the *International Journal of Advanced Media and Communication* published by Inderscience Publishers Corporation.

This issue contains 12 papers come from various countries, among which we mention Tunisia, Algeria, India, France, UK and South Korea. Achieving such a high-quality of papers would have been impossible without the huge work that was undertaken by the Editorial Board members and External Reviewers. We take this opportunity to thank them for their great support and cooperation.

In 'Efficient implementation of Sobel edge detection algorithm on CPU, GPU and FPGA', authors analysed the distinct features of CUDA GPU, summarises the general program mode of CUDA. Furthermore, authors presented three different implementations of Sobel edge detection on CPU, FPGA and GPU. Tested image data are also used in these hardware platforms to compare computational efficiency of CPU, GPU and FPGA.

In the paper 'Virtual reality contents based on X3D and HTML5 Canvas', authors introduced how to achieve virtual reality contents on the web by using X3D files created with Blender and HTML5 canvas. Virtual reality 3D web uses Blender software to create 3D models, and export X3D files in Blender software, and X3D code file is converted to HTML5 code.

In the paper 'Enhancing emotion using an emotion model', authors enhanced the emotion of visual contents based on a scheme established using Russell's emotion model and Kansei engineering. Authors presented a mapping between the emotions defined in Russell's emotion space and the colour, tone and contrast. For an efficient mapping, Authors presented a scheme that enables users to conveniently segment the contents into foreground and background and to apply our emotion motion selectively.

In the paper 'Increasing learning effect by tag cloud interface with annotation similarity', authors developed annotation interface with tagging functionality, which is one of most powerful feature in digital textbooks, and authors conducted an evaluation for annotation user interface usability and whether its functionalities are effective and efficient for educational use. To do this, authors applied combined and comparative metrics approaches to measure task performance of our system.

In the paper 'Temporal pattern recognition based interactive video-on-demand streaming technique', authors proposed an interactive video-on-demand streaming technique using the temporal pattern recognition for an efficient utilisation of video proxy server. The storage management method of video proxy server based on probabilistic parameters of a hidden Markov model for selective saving of important video data or often used video data and deletion of unnecessary video data.

In the paper 'Development of smart user interface platform of industrial equipment using Shader effects and filters', authors built the user interface transformation system for efficient HMI by applying the existing image transformation technology, the Shader to the effective user interface transformation algorithm which was applicable to the industrial equipment.

The paper 'A review on variability mechanisms for product lines' analysed the existing literature on potential variability mechanisms, and thereafter tries to determine the state of the practice and possible weaknesses in the practice. As for the results, there were few mechanisms that can be used in the early lifecycle phases, and most of those mechanisms support late-binding.

Authors proposed an approach that combines the surrounding text with the information extracted from the visual content of multimedia and represented in the same repository to allow querying multimedia content based on keywords or concepts in the paper 'Semantic indexing of multimedia content using textual and visual information'.

The proposed system in the paper 'Video transcoding technique using tree-based multi-level block partitioning in OFDM network' introduced a transcoding technique that considers performing large size video file in OFDM. The accomplishment of this technique was done using multi-level frame block partitioning, a tree-based approach that assist to have better formulation of non-rigid and complex mobility for evaluating non-translational mobility between blocks.

The proposed method in the paper 'A novel technique for JPEG image steganography and its performance evaluation' was an image steganography application that operates on JPEG (Joint Photographic Experts Group) images. It combined the advantages of both cryptography and steganography in a single application. To save more data into an image, the proposed application performed data compression/decompression before actually performing the steganography.

In the paper 'Secure data management scheme in the cloud data center', authors proposed a secure data management scheme in the cloud data center by categorisation of the data. It was possible to control data effectively and securely in cloud data center (e.g., importance, types, file size and so on). Therefore, it was possible to control data effectively and securely in cloud data center because the scheme was able not only to prevent a storage access of unauthenticated user but also to protect malicious data store.

In the paper 'Robust background modelling using region-based codebooks', authors presented a novel approach to background subtraction that addresses both of these challenges. Authors developed an improved codebook background modelling and subtraction technique. Authors utilised image segmentation on the background image and model the background with a codebook for each pixel along with a pseudo background layer.