
Editorial

Wai Chi Fang*

National Chiao Tung University,
1001 Ta Hsueh Road,
Hsinchu, Taiwan 300, Taiwan
E-mail: Dr.WFang@gmail.com
*Corresponding author

Tai-hoon Kim

Department of Convergence Security,
Sungshin W. University,
Dongseon-dong-3-ga, Seongbuk-gu, Seoul, South Korea
E-mail: taihoonn@daum.net

Carlos Ramos

ISEP/IPP,
Rua Dr. António Bernardino de Almeida,
431, 4200-072 Porto, Portugal
E-mail: csr@dei.isep.ipp.pt

Sabah Mohammed

Lakehead University,
955 Oliver Road,
Thunder Bay, Ontario P7B 5E1, Canada
E-mail: mohammed@lakeheadu.ca

Osvaldo Gervasi

University of Perugia,
106123 Perugia, Italy
E-mail: osvaldo@unipg.it

Adrian Stoica

NASA JPL,
M/S 303-300, 4800 Oak Grove Drive,
Pasadena, CA 91109, USA
E-mail: adrian.stoica@jpl.nasa.gov

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 degree in the School of Information and Computer Science from the University of Tasmania, Australia. After working with the Technical Institute of Shindorichoh as a researcher and working at the Korea Information Security Agency as a Senior Researcher, he worked at the Defense Security Command (DSC). After working with Hannam University for four and a half years as an Associate Professor, he is currently working at Sungshin W. University. He has published about 200 papers to date.

Carlos Ramos graduated from the University of Porto, Portugal, in 1986 and his PhD degree from the same university in 1993. He was the 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 the Vice-President of the Polytechnic of Porto, the largest polytechnic institution in Portugal, being responsible for the R&D, innovation and entrepreneurship, and internacionalisation 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 in Mathematics (HBSce 1977). From 1979, he started his graduate studies where he received his degrees in Computer Science from Glasgow University-UK (PhD 1980, MPhil 1981) and from Brunel University-UK (PhD 1986). Since late 2001, he is a Full Professor of Computer Science at Lakehead University.

Oswaldo Gervasi's research interests are focused on computational science, grid computing, cloud computing, virtual reality and web programming. He participated in two UE COST actions, leading a working group for both. In 2007–2010, he was the Italian representative inside the Management Committee of the GridChem Action. He has been a Visiting Researcher at SLAC (USA), at the University of Oklahoma (USA), at the University of the Basque Country (Spain), the University of Barcelona (Spain) and at the University of Crete and FORTH, Crete (Greece). He has been the co-Chair of ICCSA conference series since 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 a 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.

1 Introduction

We are very happy to publish this special issue of the *International Journal of Engineering Systems Modelling and Simulation* published by Inderscience Publishers.

This issue contains 13 articles come from various countries, among which we mention China, South Korea, Iran, and India. 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 the paper 'Weighted finite-state transducer-based dysarthric speech recognition error correction using context-dependent pronunciation variation modelling', an error correction method was proposed to improve the performance of dysarthric automatic speech recognition (ASR). To this end, context-dependent pronunciation variations were modelled by using a weighted Kullback-Leibler (KL) distance between acoustic models of ASR.

In the paper 'Adaptive PID controller design guidelines for a class of non-linear systems', the systematic model reference adaptive PID (APID) controller design for a class of uncertain non-linear systems was discussed. The exact linear system based upon feedback linearisation approach was employed to establish the equivalent linear model of the process, which was then employed to develop the controller. In order to demonstrate the performance of the proposed technique, the trajectory tracking of the single arm robot manipulator subjected to process uncertainties and input disturbance was conducted.

In 'Calculate the air-gap magnetic field of tubular permanent magnet linear motor base on equivalent surface current model', authors proposed motor air-gap magnetic field method. And in order to verify the validity and accuracy of the proposed method, authors took approximately a TPMSLM to analyse it. The results showed that the analytical method and finite element method to calculate the air-gap magnetic field were both in good agreement.

In the paper 'Speaking rate control based on time-scale modification and its effects on the performance of speech recognition', authors described the influence of speaking rate on speech recognition. Speaking rate of input speech was controlled by applying a time-scale modification (TSM) algorithm and speaking rate normalisation was achieved by selecting a scale factor of TSM. The scale factor selection for training and testing of a speech recognition system was performed based on a maximum likelihood criterion during HMM decoding.

In the paper 'Case study of software product line construction in e-insuBanking and customisation mechanism', authors suggested software product line architecture and customising mechanism in e-insuBanking domain. With suggested architecture and customisation environment, it is possible to configure the new software product from the product line.

The paper 'Essential contents for software development process and software quality education' introduced the software engineering standard curriculum to suggest manpower practical-use guide and to establish continuous growth to strengthen manpower ability and expertise. And

this paper provided educational guideline of for software process and software quality.

The paper ‘An approach to building domain architectures using domain component model and architectural tactics’ presented an approach to building domain architecture by using domain requirements and architectural tactics. At first, application requirements were classified into domain FRs and NFRs, application specific FRs and NFRs. Then, domain components were derived from domain FRs, and architectural tactics were selected by using a quantitative approach to handle domain NFRs. Finally, domain architecture was produced after composing domain components and architectural tactic semantics.

In the paper ‘Structural safety assessment for 100-seater totally enclosed lifeboat’, the structural strength analysis was performed for a variety of conditions when the 100-seater totally enclosed lifeboat was installed on the hook of davits. The 100-seater totally enclosed lifeboat study has been performed using the software ANSYS ver. 13.0, FE analysis programme.

The work of the paper ‘A self-compensation procedure for the IEEE 1588 PTP local clock’ addressed the modelling and simulation of the IEEE 1588 PTP clock implementation, aiming to provide insight on the process of the PTP clock synchronisation, the factors that affect the synchronisation performance as well as the interactions of these factors.

In the paper ‘Optimised model reference adaptive control for an interacting two tank system’, a method for controlling multivariable process was presented. The system under investigation was a two tank interacting process. A decoupler was designed in order to minimise the interaction effects. The model reference adaptive controller was then designed for the process with decoupler block.

When users access their data in cloud storage, they directly access the server on which the data are physically stored. Thus, there are potential threats of data loss due to a malicious attacker accessing the data. In order to solve these threats, in ‘Dual server-based secure data-storage system for cloud storage’, authors proposed a data storage system that uses link and data servers.

The paper ‘Analysis of electromagnetic characteristics of the main transformer caused by pantograph-catenary disconnection in high speed train’ has analysed the current harmonic, electromagnetic field characteristics and leakage inductance which all caused by DC magnetic bias. Results showed that with the rising of DC magnetic bias, the current harmonic and secondary leakage inductance were increasing and the primary leakage inductance was decreasing. Variation rules of electromagnetic field have been summed up in this paper.

In ‘Application of space-time coding technique in maritime communication’, authors introduced a novel approach on the application of space-time coding technique in WiMAX-based maritime communication. Since WiMAX has been lucrative in terrestrial communication system, authors proposed to extend the service coverage of WiMAX in marine environment. In particular, authors demonstrate the application of Alamouti scheme – space time block code to improve the BER of the system in various sea conditions.