## Editorial

## Philip Moore

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**Biographical notes:** Philip Moore obtained his First Class Honours degree (BSc Hons) and Masters degree (MSc) at the University of Central England in Birmingham, UK. He has been awarded a Doctor of Engineering degree by the Graduate School of Engineering at Fukuoka Institute of Technology, Japan. He is an Adjunct Professor and Master Supervisor at The School of Information Science and Engineering, Lanzhou University, China and Guest Professor at the Shandong Normal University, Jinan, Shandong, China. His research interests include intelligent context-aware systems and context modelling. His work has been published in international conference proceedings, journals, lecture notes in computer science, and books. He has presented invited talks, has served on program committees, and has acted as workshop, track, and program committee chair for international conferences. He has edited books and is on the editorial board of international journals.

Dating from the early 1990s, there has been significant and far-reaching developments in mobile systems; such systems are generally pervasive, context-aware, and are characterised by their ubiquity. These developments have been driven by advances in communication infrastructure, networking technologies and wireless sensor networks including the internet-of-things. Additionally, there have been developments in, and take up of, cloud-based solutions and the use of unstructured data. These advances offer both potentially exciting opportunities for interactive systems in diverse domains and systems and challenges in implementation strategies. This special issue on advances in pervasive, ubiquitous, and mobile systems targets the sharing of topical research in context-aware systems.

The papers included in this special issue are extended versions of papers presented at the 8th International Conference on Complex, Intelligent, and Software Intensive Systems (CISIS-2014) held at Birmingham City University, Birmingham, UK from the 2nd July to 4th July 2014. Each submitted paper in this special issue has been peer reviewed and based on the papers quality, originality, and significance five high quality papers have were accepted for this special issue.

In the first paper: 'Efficient matching of services with users in opportunistic network environments', Anthony Smith, Stuart Berry and Richard Hill address the proliferation of mobile devices with Wi-Fi capability which presents opportunities to enable the forwarding of packets by utilising nodes as they present themselves. The authors propose an architecture for a protocol with an algorithm to facilitate the matching of relevant service adverts with interested recipients in an opportunistic networking environment whilst minimising energy consumption.

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In the second paper: 'FlightQM: a multi-agent system for the analysis of flight qualities' a study by Teodor-Florin Fortiş, Alexandra Emilia Fortis, and Stefan Balint is presented in which the authors consider a the multi-actor system developed to provide support for advances in flying quality research applied to unmanned aerial vehicles. The authors present an agile and scalable multi-actor solution, adaptable to different variations of the mathematical models developed in relation with a set of initial execution scenarios, described for various flight conditions. The authors show that numerical investigations can be performed with the theoretical framework, thus offering support for the validation of theoretical results while complementing the theoretical backgrounds.

In the third paper: 'A write abortion-based protocol in role-based access control systems', Shigenari Nakamura, Dilawaer Duolikun, Tomoya Enokido, and Makoto Takizawa present a role-based access control model (RBAC) model based on two types of write-abortion (WA)-based synchronisation protocols WA-RBS and WA-OBS. The authors propose a system in which a unique object has data is not allowed to flow to another object thus preventing an illegal write transaction after reading a unique object or illegally reading an object. The authors show in their evaluation that the number of transactions aborted can be reduced in the WA protocols as compared to the results obtained for the RA protocols.

The fourth paper: 'A machine learning system for automatic detection of preterm activity using artificial neural networks and uterine electromyography data', Paul Fergus, Abir Hussain, D. Al-Jumeily and Hani Hamdan address the public health issue of preterm births and consider electromyography to capture electrical activity in the uterus as an aid to understanding and treating the condition and the recent interest in automated detection of the electromyography correlates of preterm activity. The authors explore this concept the use of artificial neural networks to classify term and preterm records and show that performance improvement is realised using the proposed approach.

In the final paper: 'Context-based service for intelligent public transportation systems', Valeriu-Daniel Stanciu, Ciprian Dobre and Valentin Cristea address context-awareness for intelligent transport systems. The authors present an investigation which considers the issues of pollution, congestion, and overcrowding in modern cities. The authors propose techniques to accommodate mobility of individuals and groups with the aim of proposing alternative means of transport based on dynamic contextual information. The authors propose the use of mobile apps capable of understanding the user's environment and reacting accordingly.

I hope this special issue will promote an interest in, and an improved understanding of, the nature and potential complexity of context and context-awareness in complex, intelligent, and software intensive systems. I would extend my thanks to all the authors for submitting their papers and additionally I would express our appreciation to the reviewers for their efforts and expertise which makes the publication of this special issue possible. In particular, my special thanks must go to the Editor-in-Chief of the *International Journal of Adaptive and Innovative Systems*, Professor Salvatore Vitabile for his support and encouragement.