Special Issue on Mobile Applications

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Preamble: This special issue of the International Journal of Computing and Digital Systems (IJCDS) focuses on mobile applications and publishes selected papers from the 2014 International Workshop on Mobile Applications (MobiApps 2014), 27-29 August 2014, Barcelona, Spain, which was held in conjunction with the 11th International Conference on Mobile Web Information Systems (MobiWIS 2014), and the 2nd International Conference on Future Internet of Things and Cloud (FiCloud 2014) [1-3]. The MobiApps workshop has attracted papers from authors from several countries across the world. Each paper was reviewed by the members of program committee. On average, each research paper has been assigned to three reviewers. Based on the reviews, eight papers were accepted for presentation at the workshop. The accepted papers cover a range of topics related to the theme of MobiApp. From these papers, five have been selected to be submitted as extended versions in the special issue on mobile applications in the journal, in addition to another two papers from outside the workshop, submitted through another call for paper to the special issue, and also selected from normal submission to the IJCDS journal.

Keywords: mobile applications, android, cybersecurity, smart phones

1. INTRODUCTION

With the advance in mobile technology and the emergence of mobile devices such as tablets and smart phones, mobile applications are gaining a great interest from researchers and software developers to meet the needs of end users' mobile devices. We are witnessing an explosion of mobile applications targeting a wide range of fields and sectors such as business, health, education, gaming, interior design, etc. Nevertheless, given the diversity of mobile platforms and mobile development tools, the development of mobile applications is becoming more challenging. Mobile applications are growing fast both in number of devices and variety of applications. The development of mobile application is becoming more challenging with diverse platforms and their software development kits. Developers are migrating to cross platform application development tools in order to reduce the cost of development and maximally reach users across several platforms [4]. On a downside, the growing popularity of smart mobile devices such as smartphones and tablets has made them an attractive target for cyber-criminals, resulting in a rapidly growing and evolving threat as attackers experiment with new strategies by targeting mobile users [5, 6]. As mobile applications are becoming mainstream albeit with a myriad of unresolved challenges, an increasing number of researchers and developers are focusing on designs and solutions to meet the needs of end users and their mobile devices. We envision that security, resilience, mobile platforms, intelligence, and monetization will play a center role in advancing mobile applications in the near future. Emerging architectures with much enhanced battery power, personalization, and business models will accrue.

The main goal of the MobiApps 2014 workshop was to create a meeting place for researchers from academia and industry to promote the field of mobile applications, and to exchange and discuss trends, new ideas, and challenges in

that field [1]. The five papers published in this issue are extended versions of selected papers from MobiApps 2014 workshop, which have been published in the proceeding of the 2nd International Conference on Future Internet of Things and Cloud (FiCloud 2014). These papers cover a wide range of topics in mobile applications which are: cross-platform mobile applications, mobile attack vector, and smart system in mobile applications, Real-Time mobile applications, and mobile platforms [7-11]. The other two papers selected from the call for papers to the special issue and normal submission to IJCDS journal covers two more topics: mobile robots applications and Ad-Hoc network; paper number 6 in the special issue introduces study of distinctive localization and navigation methods for mobile robots; and paper number 7 discusses simulation model design for reliability and performance evaluation of Ad-Hoc network.

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Mohamed Eltoweissy is Department Head and Professor of Computer and Information Sciences at The Virginia Military Institute, USA. He is also a Professor affiliated with The Bradley Department of Electrical and Computer Engineering at Virginia Tech. Eltoweissy served as Chief Scientist for Secure Cyber Systems at Pacific Northwest National Laboratory. He also served on the faculty of James Madison University. Eltoweissy co-founded several start-up companies including Video Semantics and Teradata Science. Eltoweissy's current interests crosscut the areas of network security and resilience, cooperative autonomic systems, and networking architecture and protocols. Eltoweissy has over 170 publications in archival journals and respected books and conference proceedings and an extensive funding record. He also served on the editorial board of IEEE Transactions on Computers (the flagship and oldest Transactions of the IEEE Computer Society) as well as other reputable journals. In addition, Eltoweissy is active as an invited speaker at both the national and international levels. Eltoweissy received several awards and recognition for research, education, service and entrepreneurship, including best paper awards, top placements at Cyber Security competitions, and nomination for the Virginia SCHEV Outstanding Faculty Awards, the highest honor for faculty in Virginia. Eltoweissy is a senior member of IEEE and ACM.

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Samia Loucif received the B.Sc. degree in computer science from Constantine University, Constantine, Algeria in 1986, her Master's degree in computer science from Constantine University in cooperation with Glasgow University, Scotland, in 1990, and her Ph.D. degree in computer science from Glasgow University in 1999. Currently, she is an associate Professor in the Department of Software Engineering, ALHOSN University, UAE. Prior to joining ALHOSN University, Dr. Loucif was a Post-Doctoral Research Fellow with the Faculty of Engineering, Moncton University, Moncton, Canada, in 2007. an Assistant Professor at United Arab Emirates University, Al-Ain, UAE, from 1999 to 2006; and a Lecturer in the Computer Science Department, Constantine University from 1986 to 1995. Her current research interests include parallel computer architectures, high performance computing, networks on chip, performance evaluation and mathematical modelling, and wireless networks. Dr. Loucif has served on program committees of over 30 international conferences and workshops. She is the Workshop Coordinator of the International Conference on Mobile Web Information Systems (MobiWIS), and She is Co-Chair of several international workshops: IEEE International Workshop on the Performance Analysis and Enhancement of Wireless Networks (PAEWN), the IEEE International Workshop on Performance and Management of Wireless and Mobile Networks (P2MNet), the International Workshop on the Design and Performance of Networks on Chip (DPNoC), the International Workshop on mobile applications (MobiApps). Dr. Loucif is a member of the IEEE Computer Society and IEEE Communications Society.

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