Editors
Nikos E. Mastorakis
Pierre Borne
Kleanthis Psarris

Recent Advances in Computer Science

Proceedings of the 13th International Conference on Applications of Computer Engineering (ACE '14)

Lisbon, Portugal, October 30 - November 1, 2014

Recent Advances in Computer Engineering Series | 24

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Preface

This year the 13th International Conference on Applications of Computer Engineering (ACE '14) was held in Lisbon, Portugal, October 30 - November 1, 2014. The conference provided a platform to discuss artificial intelligence, computer networking, programming languages, quantum computing, security and privacy, wireless sensor networks, operating systems, hardware engineering, intelligent systems, microprocessors, microcomputers, mobile computing etc. with participants from all over the world, both from academia and from industry.

Its success is reflected in the papers received, with participants coming from several countries, allowing a real multinational multicultural exchange of experiences and ideas.

The accepted papers of this conferences are published in this Book that will be sent to international indexes. They will be also available in the E-Library of the WSEAS. Extended versions of the best papers will be promoted to many Journals for further evaluation.

Conferences such as this can only succeed as a team effort, so the Editors want to thank the International Scientific Committee and the Reviewers for their excellent work in reviewing the papers as well as their invaluable input and advice.

The Editors

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Plenary Lecture 1

A Surveil on Machine-to-Machine Communications as a New Technology in Evolution of Internet of Things

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Abstract: In addition to-human-to-human communications, an emerging technology enabling full mechanical automation,
Internet of Things (IoT), is being developed. Communications among machine-type devices are known as machine-to-machine (M2M) communications. Current market penetration and recent predictions confirm that M2M system deployments are increasing exponentially.This is driven by the needs of industries to automate their real-time monitoring and control processes as well as the increasing popularity of smart applications to improve the living style. Owing to low power, cost efficiency and low human intervention, M2M communication has become a huge force for a number of wide variety of real-time applications such as smart grid, IP multimedia subsystem, environmental monitoring,remote
health care,industrial automation.
Leading standardization bodies, such as ITU, ETSI, 3GPP, Telecommunication Industry Association (TIA) and the Chinese Communications Standard Association (CCSA) have commensed work on satisfying some M2M constraints, while not jeopardizing current cellular system usage for human-based applications. In 2009, ETSI launched an M2M technical committee to actively look into architectural design, while 3GPP is incorporating M2M through its machine type communications (MTC) designs, coexisting with human type communications (HTC). However, without guaranteed energy efficiency, reliability and security, M2M communications cannot be widely accepted.
In the first part of this survey, the end-to-end architecture is analyzed. M2M system architecture design work is focused on providing both basic functionalities (registration and message handling) and various advanced functionalities (interworking with other systems). To achieve this, one M2M defines a common service layer providing M2M services,which is independent of the underlying networks. The second part contains the influence of M2M system on the smart grid, including the network architecture for home management system. In particular, M2M technology and IP multimedia subsystem
analysis,together with security requirements for M2M communications are provided. The M2M service platform itself is an asset that requires appropriate security measures to protect its availability as well as integrity and non-repudiation of service messages to support charging. An expected added value of an M2M service platform in terms of security is to hide transport network specificities,while relying on them when possible and completing them to expose end-to-end security services to the applications.

Brief Biography of the Speaker: Prof.Dr Zoran Bojkovic (http://www.zoranbojkovic.com/)from the University of Belgrade, Serbia, is the permanent Visiting Professor of the University of Texas at Arlington, UTA,TX,USA,EE Department, Multimedia System Lab. He was a visiting professor at more than 20 Universities worldwide and taught a number of courses in the field of digital signal processing, communication and computer networks, multimedia communications. Prof.Bojkovic is the co-author of 7 International Monographies/Books published by Prentice Hall, Wiley, CRC Press Taylor&Francis Group, WSEAS Press,etc. Also, he is the co-author in 20 Chapters of the International Books published by Springer, Elsevier, Alinea Editrice, NTNU Trondheim Norway, TICSF Finland. He is co-editor in 75 International Books and Conference Proceedings. He has published more than 450 papers in peer-reviewed journals,conference proceedings and publications, Ne served as
Editor-in-Chief, Associate Editor and Guest Editor in 7 International Journals. Prof.Bojkovic has conducted many Keynote/Plenary Lectures, Workshops/Tutorials, Seminars and participated in many international scientific and industrial projects.
He is a Senior Member of IEEE, member of EURASIP, IASTED Canada, SERC Korea, expert in IAMSET, full member of Engineering Academy of Serbia, and a member of Serbian Scientific Society.

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