Introduction to Special Issue on: Web of Things and Big Data

Magdi S. Mahmoud[1], M. Eltoweissy[2], Danda B. Rawat[3] and Wael M. El-Medany[4]

[1] *Systems Engineering Department, KFUPM, P.O. Box 5067, Dhahran 31261, Saudi Arabia*
[2] *Department of Computer and Information Sciences, Virginia Military Institute, USA*
[3] *Department of Electrical Engineering, Georgia Southern University, USA*
[4] *Department Of Computer Engineering, University Of Bahrain, Bahrain*

Preamble: This special issue of the International Journal of Computing and Digital Systems (IJCDS) focuses on Web of Things and Big Data, and publishes selected papers from the 2015 International Symposium on Web of Things and Big Data (WoTBD 2015), 18-20 October 2015, Manama, Bahrain, which was held in conjunction with the Fifth International Conference on e-Learning: Cognitively Informed Technology, October 2015, Bahrain [1]. The WoTBD 2015 Symposium included two sessions; Web of Things and Big Data Session I, and Web of Things and Big Data Session II, each session included 5 peer-reviewed papers [3-12]. The papers covered a range of topics related to the theme of Web of Things and Big Data. From these papers, seven have been selected to be submitted as extended versions in the special issue on Web of Things and Big Data in the IJCDS journal [3-9], with four papers only that have been accepted to be included in the special issue [3-6], in addition to another two papers selected from normal submission to the IJCDS journal.

Keywords: Web of Things; Cloud Computing; Internet of Things Analytics; Big Data Models and Algorithms

1. INTRODUCTION

Admittedly, the Web of Things (WoT) is a novel paradigm, which is shaping the evolution of the future Internet. According to the vision underlying the WoT, the next step in increasing the ubiquity of the Internet, after connecting people anytime and everywhere, is to connect inanimate objects. When the number of subscriptions exceeded the population size, the WoT was tuned. In the WoT, huge amounts of multimedia traffic and data are being continuously generated. It is worth noting that the WoT and big data should be treated as two sides of the same coin. Recent studies have shown that over 200 million emails, over 1 million Facebook likes and over 2000 thousands tweets are being generated every single minute. In the web of things storage, processing and communication of continuous stream of data are major components. When selecting the technology for big data analytics, we need to keep in mind that there would be tremendous influx of data that needs to be mined and processed in almost real-time. Recently many industries have been Hadoop and Hive to store big data and distributed cloud computing for processing data for real-time operations. Extracting meaningful and valuable data from big data generated from the WoT is one of the important tasks. A big data analytics platform should be based on three main aspects: performance, infrastructure, and scalability. Moreover, the WoT is regarded as a heterogeneous system where security vulnerabilities are diverse and different. In the WoT era, we also need to make fundamental changes in their security landscape. Note that the WoT and the IoT are bringing not only more benefits to the world/business, but also many more unique and new challenges. The accepted papers in the SI of WoTBD cover different areas related to the theme of the Web of Things and Big Data, in the following two sections we are going to highlight the main contributions of the accepted papers in the SI of WoTBD.

Email Addresses: msmahmoud@kfupm.edu.sa, eltoweissymy@vmi.edu, db.rawat@ieee.org, welmedany@uob.edu.bh

2. SELECTED PAPERS FROM MOBIAPPS 2015

In this section, we discuss the four papers selected from WoTBD 2015. The authors in [13] propose a solution to the problem of client dissatisfaction with long waiting times associated with some services. This solution is a smart queue management system that provides real-time visual and audio updates to service requests via a smartphone app. Users receive digital tickets and are free to leave the waiting area until it is their turn to be served. In [14], the author presents an unsupervised hyperspectral image classification algorithm, in particular, Iterative Self-Organizing Data Analysis Technique Algorithm (ISODATA) algorithm used to produce a classified image and extract agricultural information, using ENVI (Environment of Visualizing Images) that is a software application utilized to process and analyze geospatial imagery. The study area, which has been applied on Florida, USA. Hyperspectral dataset of Florida was generated by the SAMSON sensor, the performance was evaluated on the base of the accuracy assessment of the process after applying Principle Component Analysis (PCA) and ISODATA algorithm. The overall accuracy of the classification process is 75.6187%.

A Mobile Agents (MA) paradigm has been introduced and discussed in [15] to implement a decentralized microenergy system instead of using a centralized system, with a security model that is based on Rivest Cipher 5 (RC5). It is shown that (RC5) block cipher algorithm can be implemented efficiently for encryption of real-time applications and demonstrated that the (RC5) block cipher algorithm is highly secure from the strong cryptographic viewpoint, which ensures the confidentiality of network management agents. The authors in [16] outlines the design and development phases of a residential energy monitoring system that has been tailored to meet local needs, that is to say a non-intrusive system with a user friendly interface available both in English and Arabic endowed with an alert system providing real-time consumption information, as well as energy saving and awareness tips.

3. SELECTED PAPERS FROM REGULAR SUBMISSION

The authors of paper [17] presented a research work that focused on citizens' attitude and satisfaction with the e-government, and try to shed light on physical and psychological barriers to gain better understanding of the reasons that prevent citizens from using e-government services. The aim of this research is to explore the public's behavioral intentions towards using the Bahraini E-government services. The problem of this research evolved as the author was considering the reasons why some people hesitate to exploit the E-government portal despite the great value of its services and the huge efforts and funds invested in such a venture. Paper [18] a hybrid MAC protocol for M2M network has been introduced which collects the advantages of both reservation-based and contention-based protocols. In that proposed protocol, the transmission time is divided into frames and each frame consists of three parts: Notification Period (NP), Contention Only Period (COP) and Transmission Only Period (TOP). BS broadcasts a notification messages to the devices at each frame. The COP is based on NP-CSMA mechanism where the devices contend over transmission opportunities.

REFERENCES

[1] The Fifth International Conference on e-learning: Cognitively Informed Technology, 18-20 October 2015, Manama, Bahrain, http://econf.uob.edu.bh/conf5/Default.htm.

[2] Preliminary Schedule of econf 2015, http://econf.uob.edu.bh/conf5/CallforTutorial.htm

[3] Ghazal, Mohammed, Rania Hamouda, and Samr Ali. "An IoT Smart Queue Management System with Real-Time Queue Tracking." 2015 Fifth International Conference on e-Learning (econf). IEEE, 2015.

[4] El Rahman, Sahar A. "Hyperspectral Imaging Classification Using ISODATA Algorithm: Big Data Challenge." 2015 Fifth International Conference on e-Learning (econf). IEEE, 2015.

[5] Eldegwi, Hossam, M. B. Badawy, and Hamdy M. Kelash. "Improve Sustainability of Decentralized Energy Using Product Service System Based on ICT." 2015 Fifth International Conference on e-Learning (econf). IEEE, 2015.

[6] Khadijah AlSafwan, Fatimah AlShaer, Lolah Hakami, Khawlah Aseeri, Masoumah AlJishi, and Dilek Dustegor, " iTrack: a residential energy monitoring system tailored to meet local needs" 2015 Fifth International Conference on e-Learning (econf). IEEE, 2015.

[7] Ghazal, Mohammed, Rania Hamouda, and Samr Ali. "An IoT Smart Queue Management System with Real-Time Queue Tracking." 2015 Fifth International Conference on e-Learning (econf). IEEE, 2015.

[8] Eldegwi, Hossam, M. B. Badawy, and Hamdy M. Kelash. "Improve Sustainability of Decentralized Energy Using Product Service System Based on ICT." 2015 Fifth International Conference on e-Learning (econf). IEEE, 2015.

[9] Algwaiz, Aljoharah, Reda Ammar, and Sanguthevar Rajasekaran. "Framework for Data Mining of Big Data Using Probabilistic Grammars." 2015 Fifth International Conference on e-Learning (econf). IEEE, 2015.

[10] Tawalbeh, Lo'ai, et al. "Resilience Mobile Cloud Computing: Features, Applications and Challenges." 2015 Fifth International Conference on e-Learning (econf). IEEE, 2015.

[11] Zaza, Sarween, and Mostafa Al-Emran. "Mining and Exploration of Credit Cards Data in UAE." 2015 Fifth International Conference on e-Learning (econf). IEEE, 2015.

[12] Yousif, Tasneem M., et al. "ROBODEM Remote Monitoring System Using Web/Mobile Applications." 2015 Fifth International Conference on e-Learning (econf). IEEE, 2015.

[13] Ghazal, Mohammed, Rania Hamouda, and Samr Ali. "A Smart Mobile System for the Real-Time Tracking and Management of Service Queues," Int. J. Com. Dig. Sys, http://dx.doi.org/10.12785/ijcds/050402, Vol. 5-4, 2016.

[14] Sahar A. El_Rahman. " Big Data Analysis: Hyperspectral Image Processing For Agriculture Applications," Int. J. Com. Dig. Sys, http://dx.doi.org/10.12785/ijcds/050403, Vol. 5-4, 2016.

[15] H. M. Eldegwi, M.B. Badawy, and Hamdy M. Kelash. "Utilization of Mobile Agents for Building a Secure Decentralized Energy System with Remote Monitoring," Int. J. Com. Dig. Sys, http://dx.doi.org/10.12785/ijcds/050404, Vol. 5-4, 2016.

[16] Khadijah AlSafwan, Fatimah AlShaer, Lolah Hakami, Khawlah Aseeri, Masoumah AlJishi, and Dilek Dustegor. "Design and implementation of a residential energy monitoring system prototype tailored to meet local needs," Int. J. Com. Dig. Sys, http://dx.doi.org/10.12785/ijcds/050405, Vol. 5-4, 2016.

[17] Mohammad Qasem, and Ali Hussein Zolait. "Determinants of Behavioral Intentions towards Using E-Government Services in the Kingdom of Bahrain," Int. J. Com. Dig. Sys, http://dx.doi.org/10.12785/ijcds/050406, Vol. 5-4, 2016.

[18] Eman Hegazy, Waleed Saad, Mona Shokair, and Said El halafawy. "Proposed MAC Protocol for M2M Networks," Int. J. Com. Dig. Sys, http://dx.doi.org/10.12785/ijcds/050407, Vol. 5-4, 2016.

Magdi Sadek Mahmoud obtained B. Sc. (Honors) in communication engineering, M. Sc. in electronic engineering and Ph. D. in systems engineering, all from Cairo University in 1968, 1972 and 1974, respectively. He has been a professor of engineering since 1984. He is now a Distinguished Professor at KFUPM, Saudi Arabia. He was on the faculty at different universities worldwide including Egypt (CU, AUC), Kuwait (KU), UAE (UAEU), UK (UMIST), USA (Pitt, Case Western), Singapore (Nanyang) and Australia (Adelaide). He lectured in Venezuela (Caracas), Germany (Hanover), UK ((Kent), USA (UoSA), Canada (Montreal) and China (BIT, Yanshan). He is the principal author of thirty-six (36) books, inclusive book-chapters and the author/co-author of more than 525 peer-reviewed papers. He is the recipient of two national, one regional and several university prizes for outstanding research in engineering and applied mathematics. He is a fellow of the IEE, a senior member of the IEEE, the CEI (UK), and a registered consultant engineer of information engineering and systems (Egypt). He is currently actively engaged in teaching and research in the development of modern methodologies to distributed control and filtering, networked-control systems, triggering mechanisms in dynamical systems, fault-tolerant systems and information technology. He is a fellow of the IEE, a senior member of the IEEE, the CEI (UK), and a registered consultant engineer of information engineering and systems Egypt.

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 also served as Chief Scientist for Secure Cyber Systems at Pacific Northwest National Laboratory. Eltoweissy's current interests crosscut the areas of network security and resilience, cooperative autonomic systems, and networking architecture and protocols. Eltoweissy has over 175 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.

Danda B. Rawat received his Ph.D. in Electrical and Computer Engineering from Old Dominion University, Norfolk, Virginia. He is an Assistant Professor in the Department of Electrical Engineering at Georgia Southern University, USA. Dr. Rawat's research focuses on wireless communication networks, cyber security, big data, cyber physical systems and internet of things including design, analysis and evaluation of cognitive radio networks, wireless virtualization, cyber-physical systems, software-defined networks, cloud radio access networks, network security, smart grid, wireless sensor networks, and vehicular/wireless ad-hoc networks. Dr. Rawat is the recipient of NSF Faculty Early Career Development (CAREER) Award in 2016. He has published over 120 scientific/technical articles, 8 books and over 15 peer-reviewed book chapters. He has been serving as an Editor/Guest Editor for over 10 international journals. He serves as a Web-Chair for IEEE INFOCOM 2016/2017, served as a Student Travel Grant Co-chair of IEEE INFOCOM 2015, Track Chair for wireless networking and mobility of IEEE CCNC 2016, Track Chair for Communications Network and Protocols of IEEE AINA 2015, and so on. He served as a program chair, general chair, and session chair for numerous international conferences and workshops, and served as a technical program committee (TPC) member for several international conferences including IEEE INFOCOM, IEEE GLOBECOM, IEEE CCNC, IEEE GreenCom, IEEE AINA, IEEE ICC, IEEE WCNC and IEEE VTC conferences. He has received the Best Paper Awards at the International Conferences. He is also the recipient of Outstanding Research Faculty Award (Award for Excellence in Scholarly Activity) 2015, Allen E. Paulson College of Engineering and Technology, Georgia Southern University, 2015. He is the Founder and Director of the Cyber-security, Wireless Systems and Networking Innovations (CWiNs) Research Lab at GSU. Dr. Rawat is a Senior Member of IEEE, and a member of ACM and ASEE. He is serving as a Vice Chair of the Executive Committee of the IEEE Savannah Section since 2013.

Wael Elmedany is currently an associate professor of Computer Engineering at University of Bahrain, Kingdom of Bahrain, and senior member of IEEE society. Elmedany holds a PhD degree in Electrical Engineering, Manchester University, UK, 1999; MSc degree in computer communications, Menoufia University, Egypt, 1991; BSc degree in Electronic Engineering, Menoufia University, Egypt 1987. Elmedany was assistant professor of computer communications, department of Electrical Engineering, Cairo University, Fayoum branch, 2000-2005, and assistant professor of electronics and computer communications, in Faculty of Electronic Engineering, Menoufia University, Egypt, 1999-2000. Elmedany was the research and development director of Evara R&D, Egypt, 2001-2003, and general director of Varia IC, Egypt, 2003-2005. He is the founder and managing editor of International Journal of Computing and Digital Systems (IJCDS). He is the founder and organizer of MobiApps, DPNoC, and WoTBD workshops and symposium series. He is also an editor of many journals special issues, member of editorial boards for many international journals, and member of technical program committees of many conferences. He is also reviewer in many international journals and conferences, and acts as chairperson in many conferences. El-Medany has over forty publications in a well-known international conferences and journals, and attended several national and international conferences and workshops. His research interests in ASIC design, FPGA, embedded systems, network on chip, remote monitoring systems, and reconfigurable computing.

Workshop Organizing Committee

Workshop Chairs

Dr. Wael M El-Medany
Department Of Computer Engineering,
University Of Bahrain, Bahrain
welmedany@uob.edu.bh

International Program Committee:

Abdel-Hameed A Badawy, The George Washington University, USA
Mohamed Eltoweissy, Virginia Military Institute & Virginian Tech, USA
Adel Abdulla, Chair, IEEE Bahrain Section, Bahrain
Nik Bessis , University of Derby, United Kingdom
Mohammad Mozumdar, California State University, USA
Tomonari Furukawa, Virginia Tech, USA
Adriano Fagiolini, University of Palermo, Italy
Saleh Al-Araji, Khalifa University of Science, UAE
Mohamed Younas, Oxford Brookes University, UK
Maysam Abbod, Brunel University, UK
Ali Zolait, University Of Bahrain, Bahrain
Hassan Hamdoun, The University of Aberdeen, UK
Eduard Babulak, Maharishi University of Management, USA
Samia Loucif, ALHOSN University, UAE
Magdi S. Mahmoud, KFUPM University, KSA
Mohamed A. Azim, Taibah University, KSA
Rizwan Ahmed, Q M CompuTech Pvt. Ltd., India
Sabu M. Thampi, Indian Institute of IT and Management, INDIA
Yacine Atif, UAE University, UAE
El-Sayed El-Alfy, KFUPM University, KSA
Mohamed Hassan, American University of Sharjah, UAE
Manar Mohaisen, Korea University of Technology and Education, Korea
Maytham Safar, Kuwait University, Kuwait
Quoc-Tuan Vien, Middlesex University, UK
Nedal Ababneh, University of Bahrain, Bahrain
Luca Vollero, Universita' Campus Bio-Medico, Italy
Hung-Yu Wei, National Taiwan University, Taiwan
Marek Miskowicz, AGH University of Science and Technology, Poland
Marius Marcu, Politehnica University of Timisoara, Romania
Alejandro Barranco, Universidad de Sevilla, Spain
Christos Bouras, University of Patras, Greece
Mohab A. Mangoud, University Of Bahrain, Bahrain
Anna Antonyová, University of Prešov in Prešov, Slovakia
Bossoufi Badre, University of Mohammed I, Oujda, Morocco
Francesco Cannone, Politecnico di Bari, Italy
Hessa Al-Junaid, University of Bahrain, Bahrain
Jose Bravo, University of Castilla-La Mancha, Spain
Anjana Gosain, Indraprastha University, India
Chen Chen, University of Texas at Dallas, USA
Mu-Song Chen, Da-Yeh University, Taiwan

List of Reviewers

Given Name	Surname	Affiliation	Country
Aamir	Hussain	Wuhan University of Technology	P.R. China
Abbas	Mehdizadeh	Nilai University	Malaysia
Abdallah	Kassem	Notre Dame University	Lebanon
Abdul Halim	Ali	Universiti Kuala Lumpur - International College	Malaysia
Abduladhem	Ali	University of Basrah	Iraq
Abdullah	Almuttiri	De Montfort University	United Kingdom
Abhijit	Lele	Samsung	India
Abhishek	Das	Tripura Central University	India
Abu Khari	A'ain	Universiti Teknologi Malaysia	Malaysia
Achilleas	Achilleos	University of Cyprus	Cyprus
Achmad	Rully	Waseda University	Japan
Aditi	Sharma	MBM Engineering College Jodhpur	India
Adriano	Farias	Federal Institute of Sul-riograndese	Brazil
Afaf	Merazi	Djillali Liabès University of Sidi Bel-Abbès	Algeria
Afrand	Agah	West Chester University of Pennsylvania	USA
Ahmad	Quttoum	University of Quebec	Canada
Ahmad Reza	Akhava Sarraf	Sheikh Bahaee University	Iran
Ahmed	Abu Jbara	System Architectures Laboratory, George Mason University	USA
Ahmed	Serhrouchni	ENST	France
Ajey	Kumar	Symbiosis Centre for Information Technology	India
Akash	Singh	IBM	USA
Akimitsu	Kanzaki	Shimane University	Japan
Akitoshi	Matsuda	Panasonic	Japan
Alexandre	Mota	PUC Campinas	Brazil
Alexis	Olivereau	CEA LIST	France
Ali	Al-Sherbaz	The University of Northampton	United Kingdom
Ali	Ali	Isra Private University	Jordan
Ali	Rafiei	University of Technology Sydney	Australia
Ali	Sagheer	College of Computer - University of Anbar	Iraq
Ali	Zolait	University of Bahrain	Bahrain
Alla	Talal Yassin	UOITC	Iraq
Aman	Jantan	University	Malaysia
Ameur	el- Amine	University USTHB	Algeria
Amir	Noori	Islamic Azad University - Karaj Branch	Iran
Amjad	Gawanmeh	Khalifa University	UAE
Andrei	Sukhov	Samara State Aerospace University	Russia
Andrew	Jones	De Montford University	United Kingdom
Angelos	Antonopoulos	Telecommunications Technological Centre of Catalonia (CTTC)	Spain
Anil	Yadav	CSJM University, Kanpur	India
Anna	Antonyová	University of Prešov in Prešov	Slovakia
Anouar	Saadi	Rogers Wireless	Canada
Aqeel-ur	Rehman	Hamdard University	Pakistan
Arvind	Singh	Visvesvaraya National Institute of Technology	India
Asif	Iqbal	Athena Labs, Zayed University	UAE
Asmala	Ahmad	Universiti Teknikal Malaysia Melaka	Malaysia

Ata Jahangir	Moshayedi	University of Pune	India
Ataul	Bari	University of Western Ontario	Canada
Avinash	Jha	OppCorp Learning & Development Private Limited	India
Awais	Khawar	Virginia Tech	USA
Bahram	Amini	Soft Computing Research Group (SCRG)	Malaysia
Beatriz	Sainz	University of Valladolid	Spain
Behrouz	Maham	University of Tehran	Iran
Behzad	Aliahmad	RMIT University	Australia
Belal	Amro	Hebron University	Palestine
Bibhudatta	Sahoo	National Institute of Technology Rourkela	India
Bipin	Indurkhya	AGH University of Science and Technology	Poland
Bjoern	Wiedersheim	Ulm University	Germany
Brijesh	Iyer	D. B. A. Technological University, Lonere, Maharashtra	India
Cairo	Nascimento	Instituto Tecnológico de Aeronáutica	Brazil
Carlos	Oliveira	IFRJ	Brazil
Carlos Becker	Westphall	Federal University of Santa Catarina	Brazil
Chandrakant	Khairnar	MCTE	India
Charles	Miers	Santa Catarina State University	Brazil
Chetan	Rao	Drexel University	India
Chia-Hung	Wang	Fujian University of Technology	Taiwan
Chien-Jen	Wang	National University of Tainan	Taiwan
Chiu-Kuo	Liang	Chung Hua University	Taiwan
Cong	Wang	University of Massachusetts, Amherst	USA
Cong Hung	Tran	Posts and Telecoms Institute of Technology	Vietnam
Dale	Rowe	Brigham Young University	USA
Daniele	Manzaroli	University of Bologna	Italy
Deepak	Choudhary	LPU	India
Deepak	Karia	University of Mumbai	India
Deepti	Mehrotra	AMITY School of Engineering and Technology	India
Dennis	Kergl	Universität der Bundeswehr München	Germany
Dhananjay	Singh	Hankuk University of Foreign Studies	Korea
Dheerendra	Mishra	Indian Institute of Technology, Kharagpur	India
Dimitri	Papadimitriou	Alcatel-Lucent	Belgium
Dimitrios	Karas	Aristotle University of Thessaloniki	Greece
Dimitrios	Stratogiannis	National Technical University of Athens	Greece
Diogo	Gomes	Universidade de Aveiro	Portugal
Diogo	Pratas	University of Aveiro	Portugal
Djamel Eddine	Chaouch	University of Mascara	Algeria
Donald	McMillan	Mobile Life VINN Excellence Centre at Stockholm University	Sweden
Dong-hwa	Kim	Hanbat National University	Korea
Dongkyun	Kim	Korea Institute of Science and Technology Information	Korea
Eduard	Babulak	Maharishi University of Management	USA
Edward	Jung	Kennesaw State University - Marietta Campus	USA
Edward	Moreno	UFS - Federal University of Sergipe	Brazil
Enrico	Buracchini	Telecom Italia Lab	Italy
Eric	Matson	Purdue University	USA
Eric	Renault	Institut Mines-Telecom -- Telecom SudParis	France
Erik	Markert	Chemnitz University of Technology	Germany
Ezendu	Ariwa	University of Bedfordshire	United Kingdom

Fadzilah	Siraj	Universiti Utara Malaysia	Malaysia
Farrah	Wong	Universiti Malaysia Sabah	Malaysia
Farzan	Khatib	Islamic Azad University Mashhad Branch	Iran
Federica	Paganelli	National Inter-University Consortium for Telecommunications	Italy
Felix J.	Garcia Clemente	University of Murcia	Spain
Firas	Ousta	University Teknologi PETRONAS	Malaysia
Francesco	Maiorana	University of Catania	Italy
Francine	Krief	University of Bordeaux	France
Francisco Javier	González-Cañete	University of Malaga	Spain
G	Ganesan	Adikavi Nannaya University	India
George	Tambouratzis	Institute for Language & Speech Processing	Greece
George	Tombras	National and Kapodistrian University of Athens	Greece
Gianluca	Papaleo	National Research Council, CNR-IEIIT	Italy
Giuseppe	Avellone	STMicroelectronics	Italy
Guannan	Qu	Jilin University	P.R. China
Gyanendra	Joshi	Yeungnam University	Korea
Ha Duyen	Trung	Hanoi University of Science and Technology	Vietnam
Habachi	Oussama	LIA	France
Haikal	El Abed	Technical Trainers College (TTC)	Saudi Arabia
Hamed	Khiabani	University Technology Malaysia	Malaysia
Hamid	Alasadi	IRAQ- BASRA	Iraq
Hammad	Khan	Islamia University Bahawalpur	Pakistan
Haris	Pervaiz	Lancaster University	United Kingdom
Harry	Skianis	University of the Aegean	Greece
Henry Yuk-tung	Ngan	Hong Kong Baptist University	Hong Kong
Hiroshi	Sugimura	Kanagawa Institute of Technology	Japan
Hojjat	Hamidi	To be Entered	Iran
Hossam	Eldegwi	Menoufia University	Egypt
Hsiao-Hsien	Chiu	National Cheng-Kung University	Taiwan
Hu	Ng	Multimedia University	Malaysia
Hueseyin	Çakmak	Karlsruhe Institute of Technology (KIT)	Germany
Hung-Yu	Wei	National Taiwan University	Taiwan
Iffat	Ahmed	Simula Research Laboratory	Norway
Israel	Martin-Escalona	Technical University of Catalonia	Spain
J. Mailen	Kootsey	Simulation Resources, Inc.	USA
Jack	Burbank	The Johns Hopkins University Applied Physics Laboratory	USA
Jaganath	Mohanty	INSTITUTO SUPERIOR TECNICO, LISBOA	Portugal
Jaisingh	Thangaraj	Indian School of Mines, Dhanbad, Jharkhand	India
Jeffrey	McDonald	University of South Alabama	USA
Jirapong	Manit	University of Luebeck	Germany
Jitendra	Agrawal	Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal	India
Joan	Melià-Seguí	Universitat Oberta de Catalunya	Spain
João	Kleinschmidt	Universidade Federal do ABC	Brazil
João	Pinto	Ministerio Publico do Estado de Rondonia	Brazil
John	Vardakas	IQUADRAT Informatica S. L. Barcelona	Spain
Jorge	Alvarez	CICESE Research Center	Mexico
Jorge	Pires	University of Vigo	Portugal
Jorge	Sá Silva	University of Coimbra	Portugal
Jose	Bravo	University of Castilla-La Mancha	Spain

Josep	Domenech	Universitat Politècnica de València	Spain
Jouni	Tervonen	University of Oulu	Finland
Jovana	Zoroja	University of Zagreb	Croatia
JuCheng	Yang	Tianjin University of Science and Techonology	P.R. China
Kalvinder	Singh	Australia Development Lab, IBM and Griffith University	Australia
Kamularifin	Abd Jalil	Universiti Teknologi MARA	Malaysia
Kambiz	Badie	Iran Telecom Research Center	Iran
Karim	Al-Saedi	University of Mustansiriyah	Iraq
Kashif	Khan	University of the West of Scotland	United Kingdom
Katia	Sarsembagieva	NCSR Demokritos	Greece
Katsumi	Sakakibara	Okayama Prefectural University	Japan
Kavuri	Devi	INTI International University	Malaysia
Kenneth	Nwizege	University of SWANSEA	United Kingdom
Kevin Kam Fung	Yuen	Xi'an Jiaotong-Liverpool University	P.R. China
Khaled	ElMahgoub	Trimble Navigation / Auto-ID Labs MIT	USA
Khalil	Sayidmarie	University of Mosul	Iraq
Kishor	Sarawadekar	Indian Institute of Technology	India
Kok-Seng	Wong	Soongsil University	Korea
Kuan-Chieh	Huang	National Cheng Kung University	Taiwan
Lamiaa	Elrefaei	King Abdulaziz University	Egypt
Lau	Lung	UFSC	Brazil
Lei	Qian	The University of Auckland	New Zealand
Leijia	Wu	University of Technology, Sydney	Australia
Li Wern	Chew	MediaTek Inc. (Headquater)	Taiwan
Liaqat	Hayat	Yanbu Industrial College	Saudi Arabia
Libo	Huang	National University of Defence Technology	P.R. China
Liljana	Gavrilovska	Ss Cyril and Methodius University - Skopje	Macedonia, the former Yugoslav Republic of
Ling	Tang	Aletheia University	Taiwan
Luay	Tahat	Gulf University for Science and Technology	Kuwait
Luca	Bedogni	University of Bologna	Italy
Luca	Vollero	Universita' Campus Bio-Medico (Roma)	Italy
M. Udin	Harun Al Rasyid	Politeknik Elektronika Negeri Surabaya (PENS) - Indonesia	Indonesia
Mahdin	Mahboob	University of Liberal Arts Bangladesh	Bangladesh
Maher	Algreer	University of Mosul	Iraq
Mahmoud	Doughan	Lebanese University, Faculty of Engineering, Branch 3	Lebanon
Mais	Nijim	Texas A&M University Kingsville	USA
Majid	Aryanezhad	Shahid Chamran University of Ahvaz	Iran
Manoj	Sharma	BVCOE	India
Manu	BN	Independent Researcher	India
Manuel	Silva	ISEP/IPP - School of Engineering, Polytechnic Institute of Porto	Portugal
Marc	Jansen	University of Applied Sciences Ruhr West	Germany
Marco	Listanti	University of Rome "La Sapienza"	Italy
Marco	Marinho	University of Brasilia	Brazil

Marco	Mugnaini	University of Siena	Italy
Marco	Mussetta	Politecnico di Milano	Italy
Marek	Miskowicz	AGH University of Science and Technology	Poland
Marek	Wegrzyn	University of Zielona Góra	Poland
Marina	Ivasic-Kos	University of Rijeka	Croatia
Marius	Gafen	Virtual Extension company	Israel
Marius	Marcu	Politehnica University of Timisoara	Romania
Markos	Anastasopoulos	University of Bristol	United Kingdom
Mateen	Yaqoob	The University of Lahore	Pakistan
Mateusz	Stankiewicz	Poznan University of Technology	Poland
Maurizio	Naldi	University of Rome "Tor Vergata"	Italy
Maythem	Abbas	Universiti Teknologi PETRONAS	Malaysia
Mazlina	Esa	Universiti Teknologi Malaysia	Malaysia
Media	Ayu	International Islamic University Malaysia	Malaysia
Mehran	Asadi	The Lincoln University	USA
Michel	Kulhandjian	State University of New York at Buffalo	USA
Ming-Fong	Tsai	Feng Chia University	Taiwan
Moeen	Mostafavi	& Computer Engineering, K.N. Toosi University of Technology	Iran
Moeiz	Miraoui	Ecole de Technologie Superieure	Canada
Mohamad Fahmi	Hussin	UiTM	Malaysia
Mohamed	A. Azim	Taibah University	Saudi Arabia
Mohamed	Fezari	Badji Mokhtar Annaba University	Algeria
Mohamed	Hassan	American University of Sharjah	UAE
Mohamed	Ould-Khaoua	Sultan Qaboos University	Oman
Mohammad Arif	Siddiqui	Najran University	Saudi Arabia
Mohammad Firoj	Mithani	Telstra Corporation	Australia
Mohammad Haseeb	Zafar	University of Engineering and Technology, Peshawar	Pakistan
Mohammad Mehdi	Sanaatiyan	Mazandarn University of Science and Technology	Iran
Mohammed	Benmoussat	Fraunhofer IIS	Germany
Mohammed	Qayyum	King Khalid University	Saudi Arabia
Mohiuddin	Ahmed	University of New South Wales	Australia
Muhammad	Tahir	University of WAH	Pakistan
Murtaza	Rizvi	National Institute of Technical Teachers' Training and Research, Bhopal	India
Musaddiq	Ali Shah	SUPARCO	Pakistan
Musbah	Shaat	CTTC	Spain
Musheer	Ahmad	Jamia Millia Islamia, New Delhi	India
Mu-Song	Chen	Electrical Engineering, Da-Yeh University	Taiwan
Muzaffer	Dogan	Anadolu University	Turkey
N	Nasimuddin	Institute for Infocomm Research	Singapore
Natarajan	Meghanathan	Jackson State University	USA
Nattee	Pinthong	Rajabhat Rajanagarindra University	Thailand
Nguyen	Van Cuong	Danang University of Technology	Vietnam
Nidal	AlBeiruti	University of South Wales	United Kingdom
Nikhil	Marriwala	Kurukshetra University	India
Nikola	Vlahovic	University of Zagreb	Croatia
Nilesh	Sakpal	Cheers Interactive	India

Nileshsingh	Thakur	Prof Ram Meghe College of Engineering and Management, Badnera-Amravati	India
Nishant	Doshi	MEFGI	India
Noriko	Etani	Kyoto University	Japan
Norton	González	DeVry University	Brazil
Nukhet	Sazak	Sakarya University	Turkey
Nur Idawati	Md Enzai	Universiti Teknologi MARA	Malaysia
Odelu	Vanga	Indian Institute of Technology Kharagpur	India
Om	Vyas	Indian Institute of Information Technology, Allahabd	India
Omneya	Issa	Communications Research Centre Canada	Canada
Osama	Elsayed	National Authority for Remte Sensing and Space Sinces	Egypt
Osamu	Ono	Meiji University	Japan
Pakorn	Watanachaturaporn	King Mongkut's Institute of Technology Ladkrabang	Thailand
Panagiotis	Sarigiannidis	University of Western Macedonia	Greece
Pang-Chieh	Wang	Industrial Technology Research Insititute (ITRI)	Taiwan
Patricia	Anthony	Lincoln University	New Zealand
Paulo	Gil	Universidade Nova de Lisboa	Portugal
Paulo	Loureiro	Polytechnic Institute of Leiria	Portugal
Paulus	Sheetekela	University of Namibia	Namibia
Pawan	Bhandari	Intel	India
Pawel	Dworak	West Pomeranian University of Tchnology, Szczecin	Poland
Peiyan	Yuan	Henan Normal University	P.R. China
Peter	Oriogun	Elizade University Ilara-Mokin	Nigeria
Pingyi	Fan	Tsinghua University	P.R. China
Priya	Ranjan	Templecity Institute of Technology and Engineering	USA
Qiang	Yang	Zhejiang University	P.R. China
Qing	Wang	IBM China Research Lab	P.R. China
Quansheng	Guan	South China University of Technology	P.R. China
Quoc-Tuan	Vien	Middlesex University	United Kingdom
Radu	Arsinte	Technical University of Cluj-Napoca	Romania
Rahul	Gupta	Manipal Institute of Technology	India
Raimi	Dewan	Universiti Teknologi Malaysia	Malaysia
Rajendra	Patrikar	Visvesvaraya National Institute of Technology	India
Rami	Youail	Polytechniq University/ Erbil / Iraq	Iraq
Ravi	Bhushan	Kurukshetra University	India
Reza	Atani	University of Guilan	Iran
Rivindu	Perera	Auckland University of Technology	New Zealand
Robert	Dixon	Tomsk State University of Control Systems and Radioelectronics	Russia
Rodolfo	Meneguette	Instituto Federal de Educação, Ciência e Tecnologia de São Paulo	Brazil
Rohilah	Sahak	Universiti Teknologi Mara	Malaysia
Rosalyn	R Porle	Universiti Malaysia Sabah	Malaysia
Rosaura	Palma-Orozco	Instituto Politécnico Nacional	Mexico
Rozmie Razif	Othman	Universiti Malaysia Perlis	Malaysia
Ruggero	Donida Labati	Università degli Studi di Milano	Italy

S	Rajagopalan	Alagappa University	India
S	Zafaruddin	Ikanos Communications, inc.	India
Saber	Jafarizadeh	University of Sydney	Australia
Saeed	Rehman	Unitec Institute of Technology	New Zealand
Salah	Bourennane	Ecole Centrale Marseille	France
Saleh	Al-Araji	Saleh Engineering	USA
Salman	Malik	Philips TV	Belgium
Salman	Shah	Hamdard University	Pakistan
Samah	Mustafa	Salahddin University	Iraq
Sami	Bedra	Electronics Department, University of Batna	Algeria
Sangman	Moh	Chosun University	Korea
Sanguthevar	Rajasekaran	University of Connecticut	USA
Sanjaya Kumar	Panda	Veer Surendra Sai University of Technology, Burla	India
Santoso	Wibowo	CQUniversity Melbourne	Australia
Sara	Sahebdel	Azad University	Denmark
Saravanan	Logan	Coimbatore Institute of Technology	India
Satyananda Reddy	Ch.	Andhra University	India
Saurabh	Saurabh	The LNM Institute of Information Technology, Jaipur	India
Seng	Hansun	Universitas Multimedia Nusantara	Indonesia
Sergio	Saponara	University of Pisa	Italy
Shadi	Khalifa	Queen's University	Canada
Shahin	Vakilinia	Concordia University	Canada
Sheetal	Sahu	Gandhi PR College, BU, Bhopal	India
Sherif	Rashad	Florida Polytechnic University	USA
Shreenivas	Jog	Govt. College of Engineering Pune, University of Pune	India
Sim-Hui	Tee	Multimedia University	Malaysia
Siti Zaiton	Mohd Hashim	Universiti Teknologi Malaysia	Malaysia
Sivarit	Sultornsanee	University of the Thai Chamber of Commerce	Thailand
Skanda	Muthaiah	Trimble Navigation	USA
Sławomir	Kukliński	Warsaw University of Technology	Poland
Sohail	Ahmed	Institute of Avionics and Aeronautics (IAA), Air University	Pakistan
Soma	Pandey	Pan India Utilities Distribution Company Ltd.	India
Srideep	Ghosh	ELTRON Wireless	India
Stephen	Mack	SES	USA
Sudha	Sadhasivam	PSG COllege of Technology	India
Suhas	Aggarwal	IIT Guwahati, Times Internet Ltd.	India
Sunday	Ekpo	Manchester Metropolitan University	United Kingdom
Sunil	Kumar	Mody University	India
Surekha	Varghese	M. A. College of Engineering	India
Tae (Tom)	Oh	Rochester Institute of Technology	USA
Tanweer	Alam	Samsung India	India
Teddy	Mantoro	Universitas Siswa Bangsa International	Indonesia
Tejinder	Singh	Lovely Professional University	India
Thamer	Jamel	Philadelphia University	Jordan
Theo	Kanter	Stockholm University	Sweden
Thiang	Hwang Liong Hoat	Petra Christian University	Indonesia
Thomas	Basmer	IHP- Leibniz-Institut für Innovative Mikroelektronik	Germany

Tor-Morten	Grønli	Westerdals - Oslo School of Art Communication & Technology	Norway
Trilochan	Panigrahi	National Institute of Technology, Goa	India
Usman	Habib	University of KENT, Canterbury	United Kingdom
Vamsi	Paruchuri	University of Central Arkansas	USA
Varun	Mittal	Singtel	India
Venakatasubramanian	Adhinarayanan	Jayaram College of Engineering & tech	India
Vinay	Kumar	Universidad Carlos III de Madrid	Spain
Vivek	Sehgal	Jaypee University of Information Technology	India
Wael	El-Medany	University Of Bahrain	Bahrain
Wang	Ming-Shi	National Cheng Kung University	Taiwan
Wei	Shi	University of Ontario Institute of Technology	Canada
Wei	Wei	Xi'an University of Technology	P.R. China
Wei	Zhan	Texas A&M University	USA
Xiaohang	Li	Purdue University	USA
Xiaoya	Hu	Huazhong University of Science and Technology	P.R. China
Xudong	Ma	Pattern Technology Lab LLC	USA
Yacine	Atif	UAE University	UAE
Yancho	Todorov	Institute of Information and Communication Technologies	Bulgaria
Yang	Liu	Facebook	USA
Yann	Hoareau	University of Paris 8	France
Yassine	Bouslimani	University of Moncton	Canada
Yatendra	Sahu	Samrat Ashok Technological Institute	India
Yatendra	Sharma	Arya College of Engineering Technology & Management	India
Yih-Jiun	Lee	Chinese Culture University	Taiwan
Yingqiong	Gu	University of Notre Dame	USA
Yishuang	Geng	Worcester Polytechnic Institute, MA	USA
Yong	Wang	Dakota State University, Madison, SD	USA
Yordan	Chervenkov	Naval Academy - Varna	Bulgaria
Youcef	Touati	University of Paris 8 SAINT-DENIS	France
Young-Long	Chen	National Taichung University of Science and Technology	Taiwan
Yubin	Zhao	Chinese Academic of Science	P.R. China
Yung-Fa	Huang	ChaoYang University of Technology	Taiwan
Yunquan	Dong	Tsinghua University	P.R. China
Zairi	Rizman	Universiti Teknologi MARA	Malaysia
Zhenfu	Cao	Shanghai Jiao Tong University	P.R. China
Zhenning	Gao	University of Toledo	USA
Zhe-Yang	Huang	Industrial Technology Research Institute	Taiwan
Zi-Tsan	Chou	National Sun Yat-Sen University	Taiwan
Zohair	Abu-Shaban	The Australian National University	Australia