Editorial

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Biographical notes: Mohamed Amine Ferrag received his Bachelor's (June 2008), Master's (June 2010) and PhD (June 2014), all in Computer Science, from the Badji Mokhtar – Annaba University, Algeria. Since October 2014, he is a Senior Lecturer at the Department of Computer Science, Guelma University, Algeria. His research interests include wireless network security, network coding security and applied cryptography. He has been conducting several research projects with international collaborations on these topics. He participated in many international conferences worldwide, and has been granted short-term research visitor internships to many renown universities including, De Montfort University, UK. He is currently serving on various editorial positions such as an editorial board member in journals (indexed SCI and Scopus) such as, *IET Networks*, *International Journal of Internet Technology and Secured Transactions* (Inderscience Publishers), *EAI Endorsed Transactions on Security and Safety* (EAI), and *International Journal of Web Services Research* (*IJWSR*) (IGI Global).

Abdelaziz Amara Korba is an Assistant Professor in the Department of Computer Science, Badji Mokhtar University, Algeria. His research focuses on security issues in internet of things, smart grid, and wireless ad hoc networks. He received his PhD from the Badji Mokhtar University. He is currently a researcher at the Networks and Systems Laboratory.

Technologies for networking and advanced systems are progressing at a rapid pace, which has introduced new paradigms for the future internet such as internet of things (IoT). The world will have 50 billion devices connected to the existing Internet via IoT by 2020. By leveraging different emerging technologies such as 5G communication, wireless sensor networks, ubiquitous and pervasive computing, embedded devices, unmanned aerial vehicles, software-defined networking, device-to-device, underwater optical communication, etc. IoT would revolutionise human lives in different domains

such as healthcare, transportation, agriculture, irrigation, industrial automation, and emergency response. The IoT offers diverse applications for the vision of smart cities, such as smart health, smart home, intelligent transportation, monitoring and surveillance, and smart grid and industries. However, there are many issues to be resolved before effective use of these emerging paradigms and technologies.

This special issue solicits high-quality original research papers, which are revised and substantially extended versions of selected papers presented at the 3rd International Conference on Networking and Advanced Systems (ICNAS 2017). Some information about these papers follows.

In article 'Virtual network functions placement system for 5G mobile network architecture' by Sara Retal and Abdellah Idrissi, a virtual network functions placement system is presented, which is designed to have the maximum level of flexibility for meeting the operators preferences and adjusting to the users behaviour. The system finds a fair solution respecting the constraints conforming to the 3GPP standards, which are minimising serving gateways relocations, cost and the cost of the path between packet data network gateways and eNodeB base stations.

In article 'A new model for communities' detection in dynamic social networks inspired from human families' by Rachid Djerbi, Mourad Amad and Rabah Imache, a new model to find communities based on a new concept is presented. This model can motivate a community detection strategy to identify and effectively monitor the evolution of dynamic communities. Simulations results show that the proposed model is globally satisfactory.

In article 'Industrial internet of things over IEEE 802.15.4 TSCH networks: design and challenges' by Mohamed Mohamadi, Badis Djamaa and Mustapha Reda Senouci, a survey of the emerging research concerning IIoT with a focus on the most promising solutions is presented. Specifically, the paper presents an overview accompanied by a comparative study of the most prevalent IIoT communication technologies. The paper concludes the need to propose new solutions addressing such issues in order to make successful IIoT systems.

In article 'A novel hybrid broadcasting protocol based on coverage area segmentation and delay adjustment for VANETs' by Houda Hafi, Wahabou Abdou and Salah Merniz, a reliable dissemination protocol for broadcasting safety messages in vehicular ad hoc networks called segment delay-based broadcasting protocol (SDBP), is presented. The comparison study (in terms of delivery ratio, dissemination time, forwarders and redundancy packets ratio) shows that SDBP outperforms two VANETs' broadcasting protocols.

In article 'Vehicular-cloud simulation framework for predicting traffic flow data' by Sahraoui Abdelatif, Derdour Makhlouf, Ahmed Ahmim and Philippe Roose, a vehicular-cloud simulation framework with a layer of traffic cloud services to predict accurate traffic flow data, is presented. The learning algorithm can solve the regression problem by predicting the values of a continuous measure. The accuracy of the proposed cloud services is tested under congestion conditions, where the results show better performances over short periods and daily forecasts.

In article 'Fault tolerance in grid computing by resource clustering' by Miloud Khaldi, Mohammed Rebbah, Boudjelal Meftah and Mohammed Debakla, a fault-tolerance model, named FT-GRC, is presented. The FT-GRC model is based on dynamic coloured graphs without replication of computer resources. The proposed fault

tolerance mechanism uses a scoring function to determine the appropriate substitute for each failed node by calculating the performance level of each node.

In article ‘Comparative study of Top_k based on Fagin’s algorithm using correlation metrics in cloud computing QoS’ by Kaoutar El handri and Abdellah Idrissi, an approach based on top k algorithm combined with the weighted sum method, is presented. The approach is introduced for refining the skyline result using the top k query advantages. The experimental results show the efficiency of the proposed algorithm by comparing the runtime results and using specific metrics of correlation.

In the last article ‘Microblaze-based parallel implementations of elliptic curve scalar multiplication over F_p on FPGA’ by Ahmed Mohamed Bellemou, Nadjia Benblidia, Mohamed Anane and Mohamed Issad, a flexible software/hardware parallel architectures for embedded elliptic curve cryptosystem (ECC) on FPGA as multi-processor system on the programmable circuit (MPSoPC) design, are presented. The implementations perform elliptic curve scalar multiplication (ECSM) over arbitrary prime fields (F_p) using Montgomery power ladder (MPL) algorithm and Chudnovsky projective system. The execution times for performing 256-bit and 521-bit ECSM are 19.98 ms and 81.42 ms, respectively.

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