Editorial

Imène Khanfir Kallel

Institut Supérieur des Biotechnologies de Sfax (ISBS),
Université de Sfax,
Route de Sokra km 4, Sfax, BP 261, 3000, Tunisia
Email: imen.khanfir.kallel@gmail.com

Biographical notes: Imène Khanfir Kallel received her Electrical Engineering Diploma in 2001, Master's in Electrical Engineering in 2003, PhD in Electrical Engineering in 2010 and accreditation to conduct researches (HDR) in 2019 from the National Engineering School of Sfax, Tunisia. She is now an Associate Professor in Biotechnology Higher Institute of Sfax, member of Control and Energy Management Laboratory at the Sfax University and Associate Researcher in Image and Information Processing (iTi) Department at TELECOM Bretagne. She works on information theory, processing, analysis and interpretation. Her research work is essentially applied on biometrics and biotechnologies. She manages a research team working on decision-making-based applications. She has published more than 40 papers in reputed journals and conferences. She is an editorial board member of i-manager's *Journal on Digital Signal Processing* (*JDP*) since February 2015.

This *IJDSSS* special section includes four papers published in the 15th edition of the international multi-conference on Systems, Signals and Devices (SSD'18), an event that took place in Hammamet, Tunisia during 19–22 March 2018. The SSD has been established since 2001 and since that, it focuses on research, development and applications associated with the field of electrical engineering and information technology. SSD'18 has received 398 submissions from 31 countries. Only 254 papers have been accepted for publication, after a review process ensured by more than 100 scientists from more than 30 countries. The guest editor of this section is conference chair of one of the four conferences of SSD'18, namely the Conference on Communication, Signal. The research presented in this special issue samples the range of applied problems in knowledge processing and information quality. The following collection of papers offers interesting applications and avenues for further research.

In the first paper in this section, Eloi Bosse and Basel Solaiman discuss about potential methods to cope with uncertainty in complex environments (big data and IoT), in the framework of information fusion. They consider that fusion of information and analytics technologies (FIAT) are often used for the design of current and future decision support systems (real-time, online, and near real-time), to support prognosis, diagnosis, and prescriptive tasks for systems. They present in their paper a discussion of potential integrating frameworks as well as a description of elements that will support the development of a computational model to evolve FIAT-based systems capable of meeting the challenges of complex environments such as in big data and IoT.

In the second paper, Maaoui Amel, Amir Abdellatif, Achraf Jabeur Telmoudi and Said Gattoufi report on the development of a Petri nets (PN) scheduling and rescheduling approach to model and simulate the multi-site manufacturing system while minimising

the makespan. Indeed, in multi-site manufacturing systems, operations are subject to a great number of unexpected interruptions that may withdraw the original manufacture schedules. Among the many types of disturbances that can upset the schedule, they only consider the machine breakdown as disruption that requires schedule updating. To assess the efficiency of their proposal, they give a case study.

Salwa Baabou, Furqan Khan, Francois Bremond and Awatef Ben Fradj provide a representation of human appearance descriptors for multi-shot person re-identification (re-ID). Re-ID is one of the most challenging tasks in video surveillance field, due to similarity of human's appearance and visual ambiguities across different cameras. First, they present the tracklets, i.e., trajectories of persons. Then, they compute the signature and represent it based on the approach of part appearance mixture (PAM). Their experiments on two public datasets and on their own dataset show promising results and good performances.

In the final paper, Mabrouka Gmiden, Mohamed Hedi Gmiden and Hafdh Trabelsi raise the problem of security in communication between electronic control units, called ECUs, which are a major part in modern car architecture since it can contain from 70–100 of ECUs. These ECUs are interconnected via several protocols to form an overall internal network. Controller area network (CAN) bus is the widely used among these protocols in automotive network because of its robustness and efficiency. Authors present a survey on current restrictions of CAN bus to insure a secure communication and describe some security approaches and defence mechanisms, designed to ensure CAN bus security, such as cryptography and intrusion detection.

The guest editor of this issue, would like to thank the Editor-in-Chief of *IJDSSS*, Professor N. Derbel and the chairs of the conference SSD'18, Professors Moez Feki and Faouzi Derbel for their confidence and trust in her, during this endeavour, as well as the authors of the papers and the anonymous reviewers for their time and efforts towards a high quality outcome.