

Guest Editorial

Special Section on the 2017 International Conference on Automation Science and Engineering

WE ARE very pleased to present this Special Section of these TRANSACTIONS, including six extended articles selected from the technical program of the 2017 International Conference on Automation Science and Engineering (CASE 2017), held in Xi'an, China, August 20–23, 2017. CASE is an offspring of the TRANSACTIONS ON AUTOMATION SCIENCE AND ENGINEERING and is the flagship automation conference of the IEEE Robotics and Automation Society, constituting the primary forum for cross-industry and multidisciplinary research in automation.

The 2017 conference theme was Automation for Next Industry Revolution, a global challenge emphasized at the conference by a number of invited and regular sessions, as well as of specific workshops. The conference technical program included the most recent advances in automation that allow us to make many industrial systems smarter and more creative, particularly smart manufacturing, smart buildings, smart cities, smart transportation, smart energy systems, smart healthcare, and many more.

We served as the Conference Program Chairs at CASE 2017. We take this occasion to offer our sincere thanks for all their hard work and dedication to the Conference General Chairs, Prof. Xiaohong Guan, Xi'an Jiaotong University, Xi'an, China, and Prof. Qianchuan Zhao, Tsinghua University, Beijing, China, as well as to the entire organization team, particularly to the Conference Editorial Board, led by Prof. Spyros Reveliotis at the Georgia Institute of Technology, Atlanta, GA, USA.

Among more than 300 excellent presentations at CASE 2017, and after an extremely thorough peer-reviewed process, six articles were finally included in this Special Section. These contributions can be classified into two main categories: 1) Automation for Smart Cities and 2) Automation for Smart Manufacturing.

In the category of Automation for Smart Cities, Yuan, Bi, and Zhou addressed the emerging concept of distributed green data centers and present an innovative and profit-sensitive spatial scheduling approach for these novel infrastructures in their article entitled "Profit-Sensitive Spatial Scheduling of Multi-Application Tasks in Distributed Green Clouds." The second article, "Energy-Efficient Elevating Transfer Vehicle Routing for Automated Multi-Level Material Handling Systems," by Fang and Mao, presented an energy-efficient

approach for solving an NP-hard elevating transfer vehicle routing problem, in which an elevating transfer vehicle serves a multilevel freight handling system to transport cargo containers between airside and landside in an air cargo terminal. The third article, "Public Hospital Inpatient Room Allocation and Patient Scheduling Considering Equity," addressed the important theme of Smart Healthcare and is authored by Zhou *et al.* They investigated the optimal allocation of inpatient rooms for multiple types of patients in public hospitals and the patient management problem with planned acceptance ratios while maximizing hospital revenue and upholding service equity and considering uncertainties in patients' arrival and length of stay. In the fourth article, "A Dynamic Programming Approach for the Decentralized Control of Energy Retrofit in Large-Scale Street Lighting Systems," Carli and Dotoli presented a dynamic programming approach for the decentralized control of energy retrofit in large-scale urban street lighting systems. The proposed decision-making strategy supports the city energy manager in simultaneously maximizing the energy consumption reduction and achieving an optimal allocation of the retrofit actions among the street lighting subsystems while efficiently using the available budget.

Articles that belong to category 2) are dedicated to Automation for Smart Manufacturing. In the first article, "An Integrated Solution to Minimize the Energy Consumption of a Resource-Constrained Machining System," Li *et al.* presented an integrated approach to minimize both energy consumption and makespan of resource-constrained machining systems. The second article, "Dispersed Automation for Industrial Internet of Things," by Quirós *et al.* presented the concept of dispersed automation, a novel enabling technology for future smart and adaptive Industrial Internet of Things that considers critical infrastructure and devices.

We are convinced that this Special Section exemplifies in a great manner the rich and diverse flavor of the CASE 2017 program, with many innovative ideas and methods of implementation.

We conclude this Editorial by thanking all the authors for their high-quality contributions. We are also indebted to all associate editors and anonymous reviewers for their professional and valuable work that helped improve all articles. Likewise, we express our gratitude to the TRANSACTIONS' Editor-in-Chief, Prof. Michael Yu Wang, and to the editorial assistant, Ms. Rebecca Hytowitz, for their invaluable support.

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Dr. Dotoli was a member of the International Program Committee of more than 80 international conferences. She was the Co-Chair of the Training and Education Committee of ERUDIT and the European Commission Network of Excellence for fuzzy logic and uncertainty modeling in information technology. She was a key node representative of EUNITE, the EUropean Network of Excellence on Intelligent Technologies. She is the General Chair of the 2021 Mediterranean Conference on Control and Automation and the Program Chair of the 2020 IEEE Conference on Automation Science and Engineering. She is the Editor-in-Chief of the IEEE Systems, Man, and Cybernetics Society e-Newsletter and an Associate Editor of the IEEE TRANSACTIONS ON SYSTEMS, MAN, AND CYBERNETICS: SYSTEMS, the IEEE TRANSACTIONS ON CONTROL SYSTEMS TECHNOLOGY, and the IEEE TRANSACTIONS ON AUTOMATION SCIENCE AND ENGINEERING.



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