Advanced and Intelligent Vision Systems

Fabrice Meriaudeau
Tong Boon Tang
Irraivan Elamvazuthi

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Fabrice Meriaudeau
University of Burgundy
ImViA Research Group
Dijon, France

Tong Boon Tang
Universiti Teknologi PETRONAS
Centre of Intelligent Signal and Imaging Research
Perak, Malaysia

Irraivan Elamvazuthi
Universiti Teknologi PETRONAS
Department of Electrical and Electronic Engineering
Perak, Malaysia

The Special Section on Advanced and Intelligent Vision Systems is focused on the use of electronic imaging in intelligent and advanced systems, especially related to autonomous robots, system simulation and integration, internet of things (IoT), big data, and analytics. The technological development in this field has been driven by the fourth industrial revolution, in which we see cyber physical systems, industrial IoT, and cloud computing being integrated for a new creation of value. The introduction of artificial intelligence (AI), in particular, leads to a redefinition and a disruption of service models and products. The special section was suggested by participants of the 2018 International Conference on Intelligent and Advanced Systems (ICIAS2018). Among the eleven accepted papers, seven are related to event/object detection and tracking. Shi et al. propose a new hybrid motion descriptor based on kernel null Foley-Sammon transform for abnormal event detection in crowded scenes, while Hittawe et al. present a deep learning based method for detecting and localizing abnormal/extreme events in the Red Sea. Yusof et al. report the development of an in-socket sensory system for the monitoring of transfemoral amputee movement using adaptive neuro-based fuzzy inference technique, and Lu et al. present a discrete separable shearlet transform separability assessment system for facial expression recognition. Liang et al. describe an improved object tracking system based on kernelized correlation filter to address issues about large-scale variation and target occlusion in tracking. The other two papers by Weng and Guan and Zhong et al. utilize convolution neural network (CNN) for video-based human action recognition and vehicle detection, respectively.

Liu et al. propose a new framework for end-to-end three dimensional CNN video with super resolution. Gao et al. present an interactive geological visualization system based on quadratic surface distance query scheme to explore underground flow path. Xiao et al. report a fusion technique using multiple features and mutual co-operative particle swarm for three-dimensional reconstruction of belly. The special section is completed with the paper by Yang et al. that proposes a novel framework of Delaunay triangulation matching based on feature saliency analysis. We would like to thank all of the authors who have submitted articles to this special section. We also acknowledge all of the reviewers who have helped in the process of selecting and improving the submitted papers. Finally, we would like to thank the JEI editorial staff members for their help throughout the process.

Fabrice Meriaudeau received his MSc and PhD degrees in 1994 and 1997, respectively. He is a full professor at the University of Burgundy (uB). His current research is on medical/biomedical imaging. He has coauthored more than 200 international publications. He was the director of the Le2i (UMR CNRS, France), from 2011 to 2016. From 2016 to 2018, he was with the Universiti Teknologi PETRONAS as a full professor and was appointed (2017) as the director of the Institute of Health and Analytics before returning to the uB in October 2018.

Tong Boon Tang received his PhD and BEng (Hons) degrees from the University of Edinburgh. He is the current director of IHA (Institute of Health and Analytics), and an associate professor at the Universiti Teknologi PETRONAS, Malaysia. His research interests are in biomedical instrumentation, from device and measurement to data fusion. He serves as an editorial board member of the Journal of Medical Imaging and Health Informatics and a vice chair of the IEEE Circuits and Systems Society Malaysia Chapter.

Irraivan Elamvazuthi received his BEng (Hons) in electrical engineering from the University of Technology Malaysia (UTM) in 1989 and his PhD from the Department of Automatic Control and Systems Engineering, University of Sheffield, United Kingdom, in 2002. Currently, he is an associate professor at the Department of Electrical and Electronic Engineering, Universiti Teknologi PETRONAS (UTP), Malaysia. He is actively involved in robotics and automation related research. Prior to joining UTP, he worked at University Kuala Lumpur–Malaysia France Institute, Standards and Industrial Research Institute of Malaysia (SIRIM) and UMW Industrial Power.