Sensors and Materials

Special Issue on Sensor Fusion and Environment Perception for Autonomous Systems

Call for Papers

Autonomous systems such as robots usually demonstrate human-like intelligence to represent, reason about, and interpret data for various applications. Sensor fusion is an important method for autonomous systems to obtain reliable and comprehensive internal and external information for enhanced perception. In comparison with a single-source approach, sensor fusion can acquire more robust, sensitive, and accurate information from the surrounding environment. The function of perception grants autonomous systems the features of awareness of or perceiving the environment, and also understanding of situations, so that they can make decisions responding to the complex environment around them. It is necessary to consider the irreplaceable roles of sensor fusion and environment perception for autonomous systems. In this special issue, we aim to publish original pioneering contributions that address the issues of gathering and learning about the structure of the information with different modalities, processing and analyzing the information to extract patterns and meaning, deriving new information, and transforming the obtained information into actionable intelligence to change the behaviors of autonomous systems. This special issue will be focused on but not limited to the following topics: multisensor-based design of autonomous systems; state-of-the-art methods for signal processing, feature extraction, pattern recognition, classifier design, and their novel applications in sensing technologies; and investigation of how autonomous systems perceive and interact with human users in dynamic physical and social environments.

Scope:

– Multisource data fusion and mining
– Sensor fusion for detection, tracking, recognition, and classification
– Sensor fusion for robot localization/mapping/navigation
– Distributed sensor networks and mobile sensor deployment
– Geospatial analysis and perception for autonomous systems (ground, aerial, underwater, etc.)
– Situation awareness for grasping and sorting by autonomous robots
– Human identification using biometric modalities (e.g., face, fingerprints, iris, hand)
– Sensing and perception for cognitive human-machine interaction
– Sensing systems for intelligent humanoid robots
– Perception-based human intent detection
– Sensing and perception technology for cognitive robots
– Sensor fusion for robot multimodal learning
– Sensing technology for fault diagnosis and prediction
– Multimodal surveillance/inspection/monitoring of transportation/buildings/manufacturing systems

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Guest Editor: Prof. Chenguang Yang (Bristol Robotics Laboratory, UWE Bristol, UK)

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(Attention)

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If you have any questions, please feel free to contact the editorial staff at the address below.

Editorial Department of *Sensors and Materials*
MYU K.K.
1-23-3-303 Sendagi, Bunkyo-ku, Tokyo 113-0022, Japan
Tel: +81-3-3827-8549, Fax: +81-3-3827-8547
E-mail: myukk@myu-inc.jp