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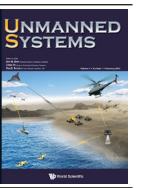

Editorial: Special Issue on Artificial Intelligence and Computer Vision

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Computer vision is the science of analyzing and understanding the environment using vision sensors for machines. Computer vision, a sub area of the mainstream artificial intelligence, has seen great improvement over the past years due to deep learning-based algorithms, powerful parallel computing hardware and large amounts of training data with annotations. Recent advances in computer vision have truly enabled their development in unmanned systems research as well as applications in unmanned aircrafts, ground robots, multi object tracking, etc. This special issue is dedicated to some of the recent developments in ground vehicle navigational applications using computer vision.

The special issue on Artificial Intelligence and Computer Vision includes four selected papers from the International Conference on Control, Automation, Robotics and Vision (ICARCV). ICARCV is organized by Nanyang Technological University, Singapore, and co-organized by Georgia Institute of Technology, USA, Huazhong University of Science and Technology, China, and Shenzhen Institutes of Advanced Technology (SIAT), CAS, China, and technically co-sponsored by IEEE Control Systems Society. ICARCV has a history of more than 28 years. It focuses on both theory and applications mainly covering the topics of control, automation, robotics and computer vision.

Papers in this special issue are selected from ICARCV 2018, based on their relevance to the issue's theme. These papers were reviewed and extended based on the reviews provided by independent reviewers in accordance with *Unmanned System's* peer-review policy. I would sincerely like to appreciate the effort and corporation extended by all the reviewers and contributing authors, without whom this special issue would not have been possible.

Research presented in this special issue mainly focus on addressing the Simultaneous Localization and Mapping (SLAM) problem for ground vehicle navigation. In "Evidential SLAM fusing 2D Laser Scanner and Stereo Camera", information from laser scanner and stereo camera is fused in a grid map to be used in SLAM algorithm. The paper on "Four-Channel 3D Around View Monitoring Algorithm using Hemispherical Projection Model" extends a 2D bird eye view of the 360-degree surrounding around a vehicle to a 3D planar and hemispherical projection using four panoramic cameras to obtain a better visual perception around the vehicle. In "End-to-End Learning of Semantic Grid Estimation Deep Neural Network with Occupancy Grids", the authors propose an end-to-end deep learning network to predict a semantic 2D grid (i.e. to segment each grid as car, pedestrian, road, vegetation, etc.) of the environment using the inputs from Lidar and RGB cameras. In "From Neurorobotic Localization to Autonomous Vehicles", a novel biologically inspired neural network is proposed for efficient place recognition in the SLAM problem using RGB camera input and camera orientation information based on spatial cognition activities in mammals.

In line with *Unmanned Systems'* aims and scope, which covers all areas related to automated machines systems in many fields including but not limited to computer vision systems, navigation and path planning and artificial intelligence, from theoretical findings to hardware implementation in relation to automated systems, I envision the content of this special issue on Computer Vision and Artificial Intelligence is useful and interesting to our readers.

Special Issue Editor
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