Sensors and Sensor Fusion for Decision Making in Autonomous Driving and Vehicles

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Abstract

Vehicles are becoming increasingly automated by taking on more and more tasks under improving intelligent control systems equipped with enhancing sensor technologies and Artificial Intelligence (AI) techniques from the prior automation level to the next automation level – targeting the autonomy of level-5 with no steering wheel, no pedals, no breaks, even no windshield [1,2,3,4,5,6,7]. Sensors are the main components of Autonomous Vehicles (AVs), i.e., Self-Driving Vehicles (SDVs) – paving the way for autonomous driving by providing AVs with the ability to perceive the environment through continuous vehicle environmental interaction. Vehicle sensors, with multiple sensor data fusion, feed the main phases of self-driving, i.e., vehicle learning and decision-making, which are instilled with advanced artificial Intelligence (AI). No efficient self-driving can be possible without perceiving the environment properly - leading to poor decisions in AVs. In this special issue, we are keen to process the most recent sensor technologies developed or being developed for AVs to establish the most experienced (self-) driver. More explicitly, we would like to analyse the role of sensors in increasing the efficacy of vehicle autonomous decision-making. In this direction, we would like to invite the academic and industrial research community to submit original research as well as review articles to this Special Issue.

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