Special Issue

Object Detection for Autonomous Vehicles

Message from the Guest Editor

The rapid development of transportation has had a profound positive impact on the global economy and society. The demand for vehicle intelligence, a crucial component of the transportation system, is growing, as its enhancement would not only improve transportation efficiency but also effectively reduce costs. The primary prerequisite for vehicle intelligence is the ability to perceive the surrounding environment, and object detection is a key method for achieving perception. As an important research direction in the field of deep learning, object detection has made significant progress in recent years. The perception sensors used have expanded from visible-light cameras to infrared cameras, LiDAR, and millimeter-wave radar. Moreover, the scope of object detection has been broadened by extending algorithm data from a single-image modality to multi-modal data fusion and deepening the detection algorithm's capabilities, advancing from conventional models which could only detect objects to detecting both objects and the relationships between them. Continuously optimized object detection algorithms provide essential support for intelligent vehicle perception and safe operation.

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