

Real Time Lidar and Radar High-Level Fusion for Obstacle Detection and Tracking with Evaluation on a Ground Truth

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Abstract : Both Lidars and Radars are sensors for obstacle detection. While Lidars are very accurate on obstacles positions and less accurate on their velocities, Radars are more precise on obstacles velocities and less precise on their positions. Sensor fusion between Lidar and Radar aims at improving obstacle detection using advantages of the two sensors. The present paper proposes a real-time Lidar/Radar data fusion algorithm for obstacle detection and tracking based on the global nearest neighbour standard filter (GNN). This algorithm is implemented and embedded in an automotive vehicle as a component generated by a real-time multisensor software. The benefits of data fusion comparing with the use of a single sensor are illustrated through several tracking scenarios (on a highway and on a bend) and using real-time kinematic sensors mounted on the ego and tracked vehicles as a ground truth.

Keywords : ground truth, Hungarian algorithm, lidar Radar data fusion, global nearest neighbor filter

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