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Multi-Object Tracking and Label Fusion in Automotive Sensor Data

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Modern autonomous vehicles utilize sophisticated sensor suites to perceive their environment. This work performs object detection and tracking to extract time-series data from onboard camera images and Lidar point clouds. We propose a fusion method to match labels from these heterogeneous sensors, aiming to resolve discrepancies and provide more stable, long-term tracking. We formulate this multi-sensor data association as a Quadratic Unconstrained Binary Optimization (QUBO) problem. This approach allows the matching process to be solved efficiently using quantum annealers, a hardware-accelerated optimization currently under implementation.

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