

# **From imaging algorithms to quantum methods Seminar**

## **Report of Contributions**

Contribution ID : 1

Type : **not specified**

## Multi-Object Tracking and Label Fusion in Automotive Sensor Data

*Monday, 12 January 2026 10:00 (60)*

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.

**Presenter(s) :** KALACZYŃSKI, Piotr (CDSI AGH / CAMK PAN)

Contribution ID : 2

Type : **not specified**

## Discussion

*Monday, 12 January 2026 11:00 (30)*