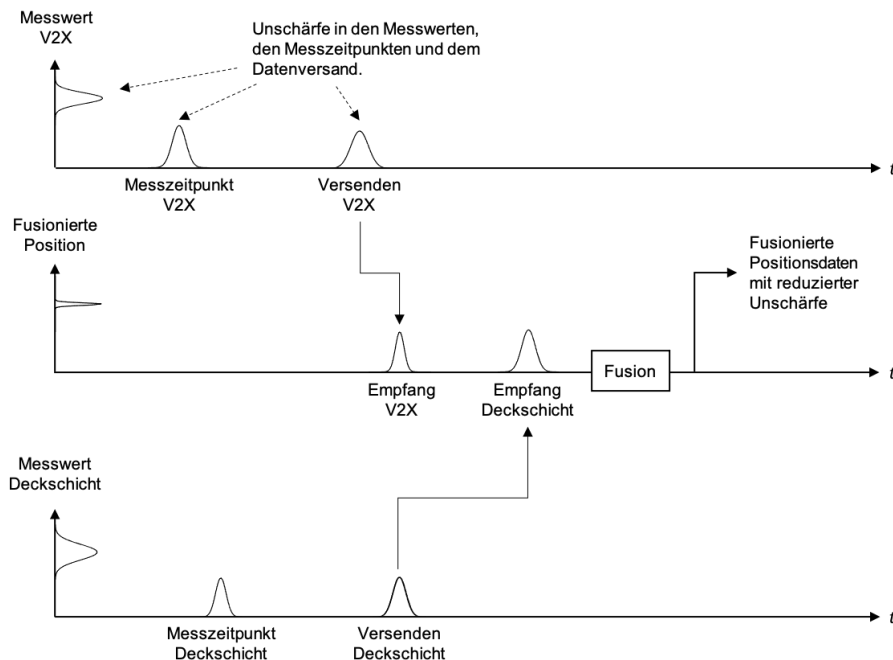


Student Assistant / Thesis

Vehicle Matching and Sensor Data Fusion for Model-Scale Vehicles



Problem Statement

In automated driving, cars use various sensors and measurement systems to detect and track objects on the road. The sensors often differ in their functionality and measurement parameters. A camera, for example, is good at lateral position detection and classification of objects but not at detecting distances to the object. Conversely, radar can measure the distance to objects very accurately but can only estimate the object class to a limited extent. In general, there are two types: vehicle-based and environment-based sensors. The vehicle-based sensors transmit their data to the roadside units via V2X. These units then find a match in their environment model for this vehicle. The RSU must account for the spatial and temporal uncertainty of the different position estimates to find the best possible pair of objects and estimate the state.

Your Tasks

- ▶ Develop an association algorithm to match vehicles from two environment models.
- ▶ **Resolve the temporal uncertainty of the measurements.**
- ▶ **Account for the spatial uncertainty of the model.**
- ▶ Use the [CPM Lab](#) as an example.

Your Profile

- ▶ Experience or interest in C/C++, Python, or comparable programming languages
- ▶ Reliable, motivated, independent
- ▶ Desired but not required: Experience with ROS2 and sensor data fusion.

Contact

Please read our [Instructions for Applications](#).

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