Student Assistant / Thesis

Generation of Position Data by Cooperative Sensor Data Fusion

Problem Statement

In automated driving, various sensors and measurement systems are often used to detect and track objects in road traffic. The systems 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, a radar can detect the distance to objects very accurately, but can only detect the object class to a limited extent. Sensor data fusion is used to combine the advantages of different sensor types and measurement systems. Thereby the measurements of different sources are transferred into a joint representation of the object.

A special aspect of this project is that we do not restrict ourselves to common sensor systems such as radar, LiDaR, camera and laser scanner, but also include a sensitive road surface layer in the model. This layer measures the load distribution on the surface and thus allows us to derive the positions of the vehicles.

Your Tasks

▶ Developments/extension of various model-based sensor data fusions (Kalman filter, particle filter, moving horizon estimation).
▶ Application of sensor data fusion using the CPM Lab as an example.

Your Profile

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

Our Offer

Positions are to be filled as soon as possible and are limited to 3 months. If suitable, an extension is possible/desired. The regular weekly working hours are 7-9 hours.

Contact

Please read our Instructions for Applications.

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