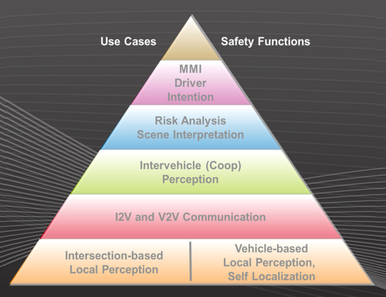


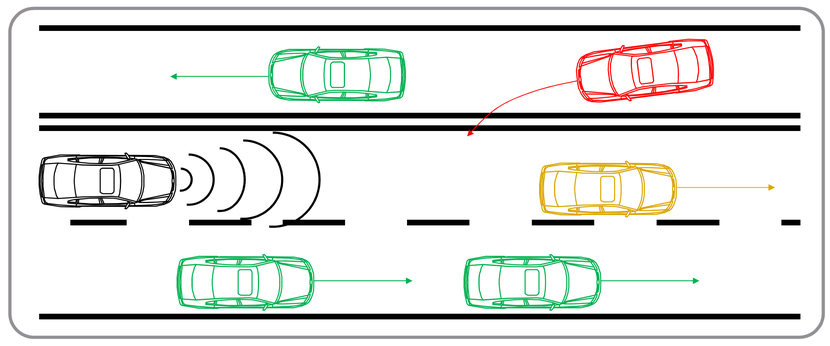
Vehicle Based Local Perception in the driveu Test Vehicle

Project Ko-PER

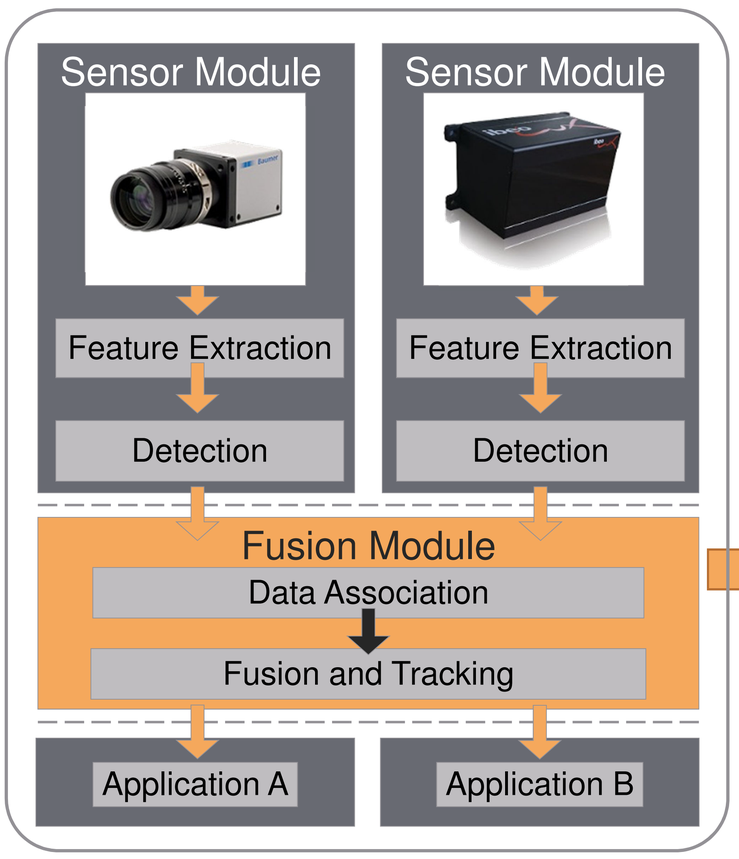
FORSCHUNGSINITIATIVE
K O - F A S

Multi-Object Tracking

- Tracking is the estimation of the state of dynamic objects based on external measurements.
- Already in use in adaptive cruise controls or emergency break assists.
- Use of complementary sensors, like camera and radar or lidar.
- Challenges are the uncertainty in data association as well as "mistakes" of sensors.
- Applications require a high reliability on position and existence estimation.



Generic Sensor Data Fusion

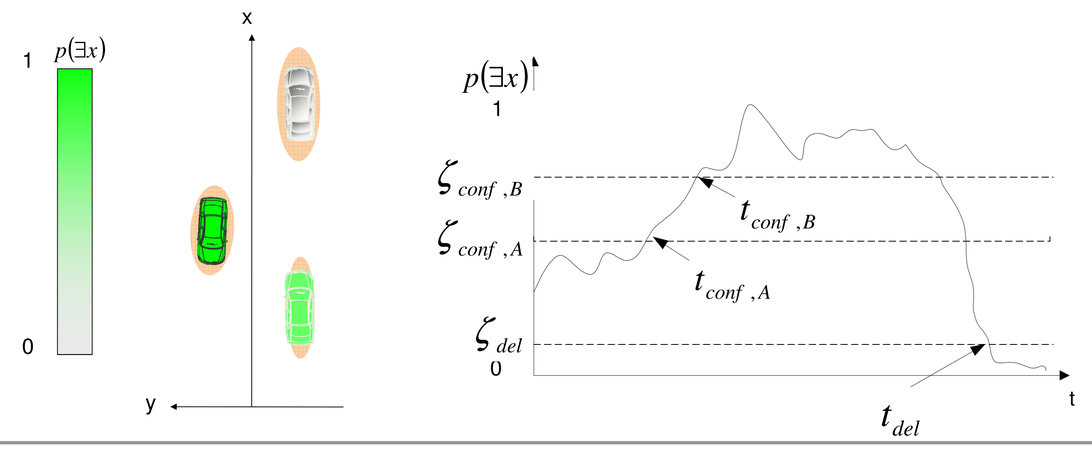


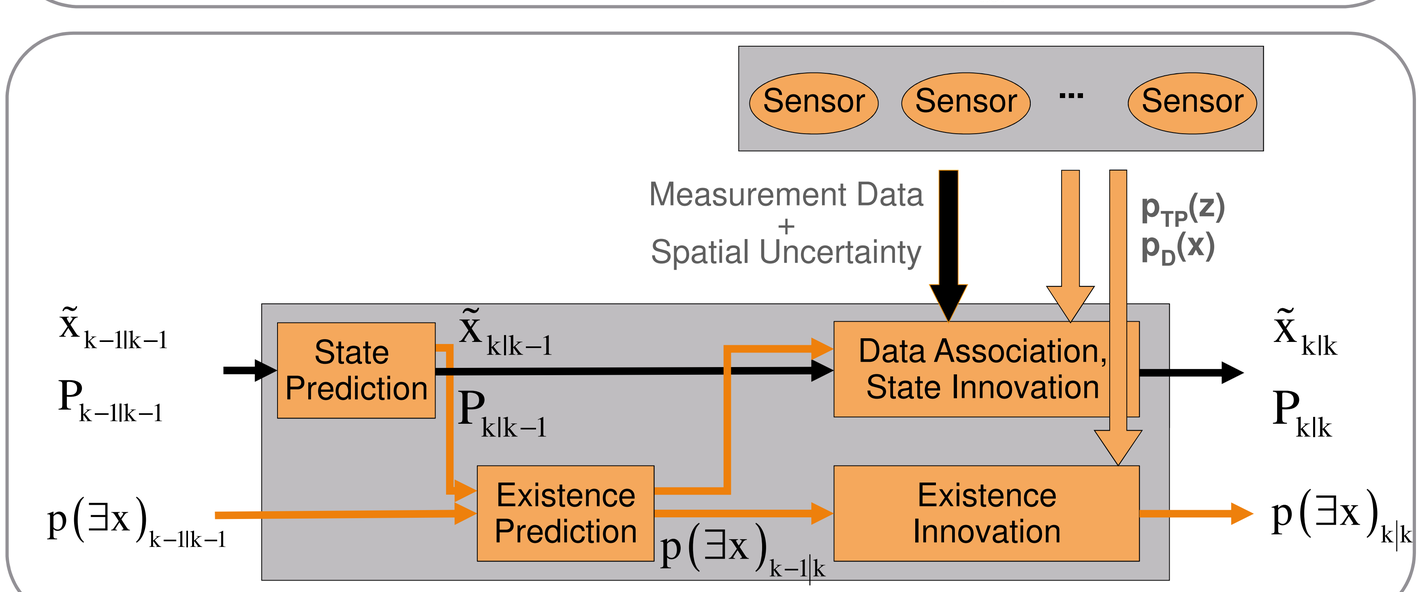
- Generic probabilistic Interfaces allow easy exchange of sensors.
- Integrated Existence Estimation.
- Real time extension to guarantee upper bound in computation time.
- Dempster Shafer Theory allows fusion of information of heterogeneous sensors.

Integrated Existence Estimation

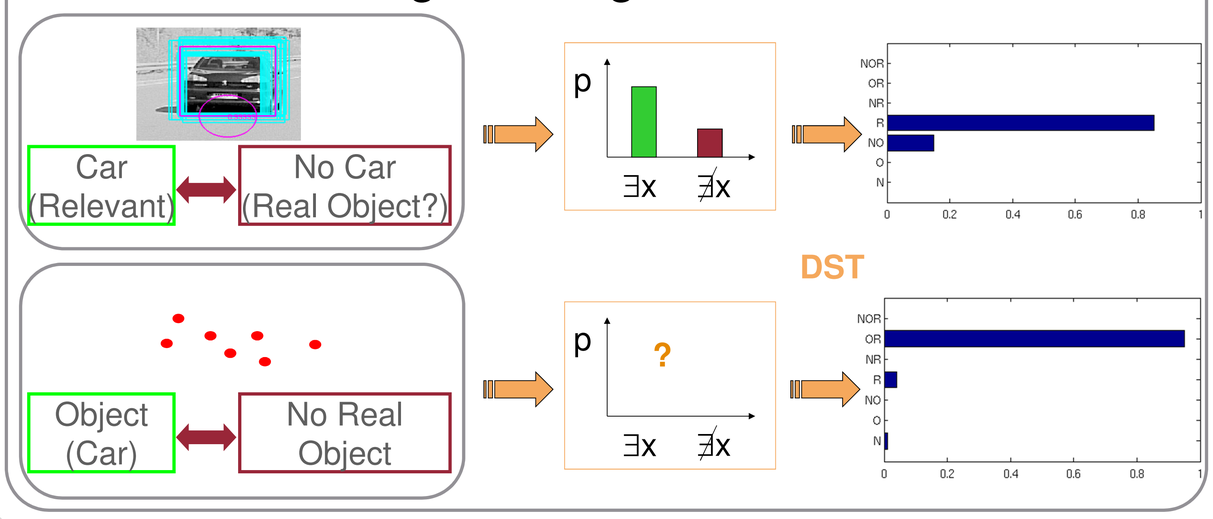
Knowledge about **object existence**: **Existence Probability** $p(\exists x)$

Definition Existence: Object is perceptible, relevant, and real.

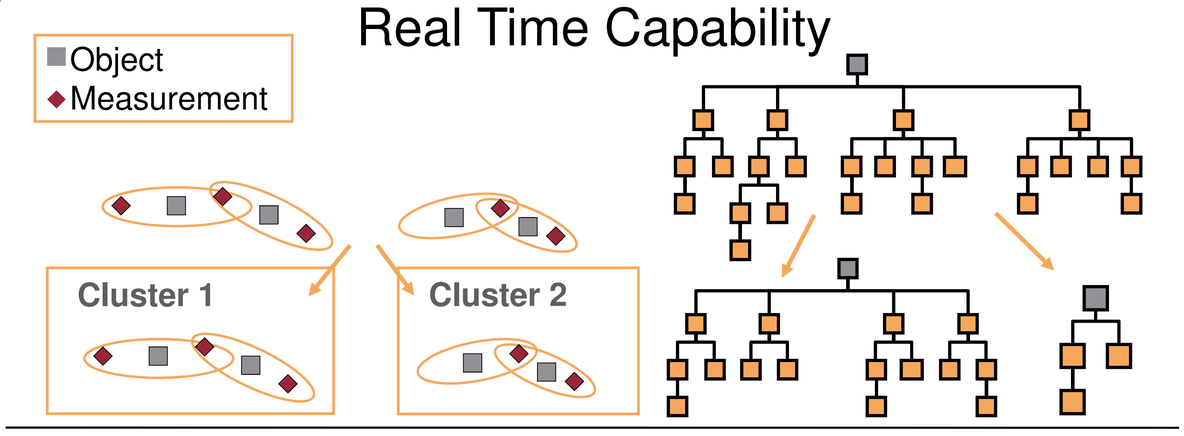




Fusing Heterogeneous Data



Real Time Capability



→ Guaranteed upper bound in computation time!

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