INNOVATION NO. 65

The jambit team faced the following challenges:

▪ BMW would like to use the sensor data of current production vehicles (especially observations of lane markings, road signs, GPS positions & relative movement data) for mapping. Individual measurements can be subject to a large measuring error and each vehicle's view of its current environment is usually incomplete because it shows only part of the overall picture.

▪ The set of objects to be mapped (lanes, road signs, etc.) is a priori unknown, nor do we know which observation refers to which object (data association problem).

jambit's solution:

▪ Optimal fusion of the data of many individual drives by formulating a combinatorial optimization problem and solving it via a beam search with heuristic hypothesis evaluation.

▪ Integration of all uncertain observations of many vehicles on a route section via graph SLAM (probabilistic optimization problem).

▪ jambit's responsibilities: conception, development, validation & scientific documentation of all algorithms
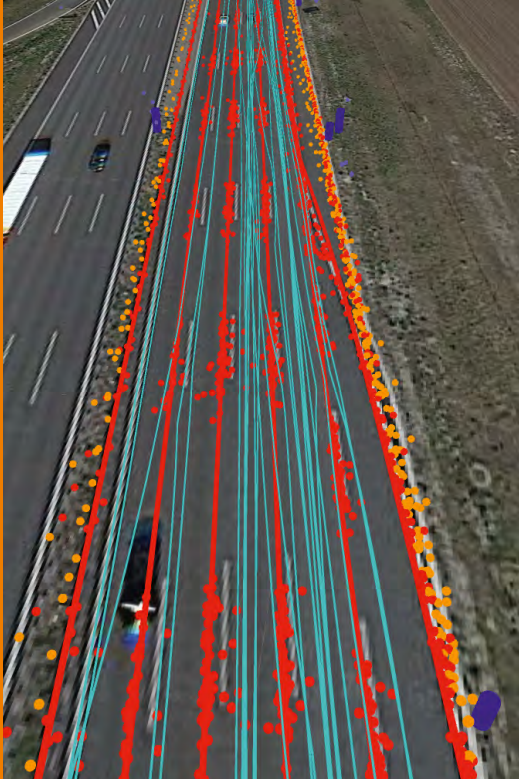
SUCCESS:

- Scientific publication of the algorithm for mapping lanes on highways at the 2019 IEEE Intelligent Vehicles Symposium: „Crowdsourced HD Map Patches Based on Road Model Inference and Graph-Based SLAM".

- Development of a comprehensive Java library for applying 2D and 3D graph SLAM with a wide variety of vehicle sensor data, which constitutes a solid foundation for further mapping applications for BMW.

- Strengthening of the long-standing co-operation with BMW's department for location-based services. Together, we analyzed numerous algorithmic pre-development topics in the area of geoanalytics and digital mapping.

Learn more at:
https://jamb.it/had-en
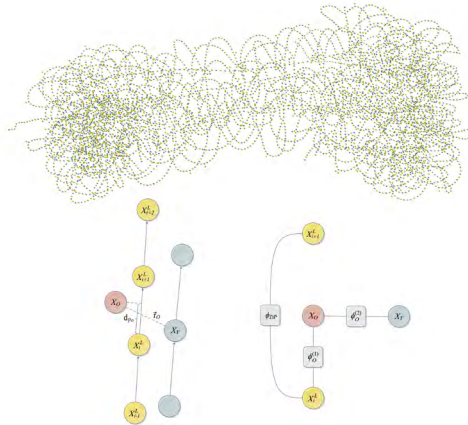
„The result is amazing!
Thank you very much for your commitment!"

Dr.-Ing. M. L.
BMW AG

SOFTWARE & SOLUTION DEVELOPER
INNOVATION PARTNER
COFFEE LOVER

Mission: 100% enthusiasm

Managing directors:
Peter F. Fellinger, Markus Hartinger

Self-financed and
founder-led since 1999

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