IF AN IDEA DOESN'T HAVE WINGS, IT WILL NEVER HAVE WHEELS.

SHARE YOUR PASSION FOR INNOVATIVE SYSTEM FUNCTIONS.

We at BMW Car IT GmbH take the responsibility for software across domains. By delivering software all the way from the idea to the final product we lead BMW into the future of digitalization.

Bachelor Thesis: NDS map data ontological model (m/f)

As an integral part of the Autonomous driving system, High Definition (HD) maps are a key challenge for the automotive industry. They offer core functions to autonomous vehicles (AV) such as high-precision localization, and real-time navigation cloud services. This need for HD maps forces the car manufacturers and map providers to develop a standardized binary database format, called Navigation Data Standard (NDS), which allows the exchange of navigation data between different systems.

As part of our effort in BMW to bring this standardization effort to the knowledge layer using ontologies and symbolic reasoning, we propose to develop an ontological model to store and query the NDS map data within this Bachelor Thesis. A C++ application has to be developed to feed this model. Additionally, the RDFox reasoner will be used to implement map data sanity checks and infer map knowledge.

Requirements:

- Good software development skills in C++
- Basic knowledge of relational databases (SQL Lite)
- Sound knowledge in Knowledge Representation, Ontology or Semantic Reasoner is beneficial
- Strong software-development skills (especially C++, Python)
- Good English and communication skills

Location: Ulm

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