Student research assistant/HIWI with excellent programming skills for German research on autonomous driving

Background

Within the German PROVIDENTIA++ project (https://innovation-mobility.com/), the highway A9 between Munich and Nuremberg as well as an extensive urban area in Garching-Hochbrück has been equipped with more than 70 different types of sensors (cameras, lidars, radars etc.). to allow monitoring and steering of the traffic plus to improve the coordination between autonomous and traditional cars. The data provided by these different types of sensors needs to be integrated into a large toolchain to produce a highly performant, robust and reliable digital twin with 24/7 availability. This objective comes with a variety of demanding scientific challenges as object detection, tracking, fusion, real-time data transmission, simulation and software architecture.

The scientific team (counting 16 researchers and assistants) under the leadership of Prof. Alois Knoll is therefore looking for the support of **student assistants with excellent programming skills.**

Your Tasks

Your contribution to the multi-sensor digital twin will include:

- Implementing features and algorithms for state-of-the-art perception, detection and tracking for autonomous driving
- Testing software modules for real-time and 24/7 operation
- Increasing the robustness and code cleanliness of existing software modules
- Calibrating sensors and integrating them into the sensor network system
- Developing and refactoring sensor driver code

Requirements

- Outstanding programming skills (which will be challenged by a test exercise during the selection process)
- Very good experience with software development in at least one programming language (ideally C++ and Python)
- Experience with software architectures, design patterns and clean code-principles

- Experience with Linux environments and ROS is desired
- A strong interest in autonomous driving
- High motivation and self-reliance

As part of the Excellence Initiative of the German federal and state governments, TUM has been pursuing the strategic goal of substantially increasing the diversity of its staff. As an equal opportunity and affirmative action employer, TUM explicitly encourages nominations of and applications from women as well as from all others who would bring additional diversity dimensions to the university's research and teaching strategies. Preference will be given to disabled candidates with essentially the same qualifications. International candidates are highly encouraged to apply. The remuneration will be in accordance with TUM compensation rates for student and graduate assistants.

Please send your complete application (CV, letter of motivation, transcript of records and a copy of certificates (if applicable) to Marie-Luise Neitz (neitz@in.tum.de) **by August 31st, 2021**.