Our team is currently looking for a post-doctoral fellow working full-time on the topic

**Large Scale Sensor Fusion / Intelligent Infrastructure Systems**

In 2017 the German highway A9 between Munich and Nuremberg has been announced to become Germany's first testing site for autonomous driving. To allow monitoring and steering of traffic as well as to improve the coordination between autonomous and traditional cars a large network of sensors has been set up along the road.

In our follow-up Project Providentia++ we plan to extend this installation to more challenging urban areas. In this position you will be part of group of researches working the fusion of sensor data from both, stationary sensors (e.g. Radars, Cameras) as well as information provided by vehicles (e.g. LiDARs) to create digital twin of the current traffic situation. This data will be communicated via LTE and 5G to provide cars and/or drivers with a far-reaching view of the road ahead in any situation, at day and night, and under all other environmental conditions. Thus, we yield an essential contribution for automated vehicle control applications, improved traffic flow and safety. Your tasks will cover both, the scientific and administrative management of the project, including:

- Development and evaluation of Hard- and Software components, e.g. algorithms for distributed real-time multi-sensor data fusion in C++
- Extending the current infrastructure system in the digital testbed on the A9 highway (sensors, computers, backend, 5G-communication, integration)
- Continuous testing and improvement of the ongoing development in the digital testbed
- Working in agile processes in close collaboration with our industry and research partners to improve and extend the intelligent infrastructure buildup.
- Mentoring of Ph.D. students working on the project
- Administration of the project

**Requirements**

- Ph.D. in Computer Science, Robotics, Data Analytics, Electrical Engineering, MSE or a related field
- Professional proficiency in at least one common programming language (preferably C/C++ and Python)
- Expert knowledge in at least one of the following topics:
  - Real-time, distributed sensor data fusion
  - Traffic flow simulation and steering
  - Vehicle behavior prediction
  - Distributed algorithms and computing in combination with WFIF/5G/LTE
  - Trajectory planning and execution based on distributed measurements from radars, cameras or other sensors
  - Development of an intelligent infrastructure systems
  - Software engineering and software architecture concepts
- Excellent writing skills and a self-reliant well-organized style of working are essential
- Fluent German skills (B2 or higher)
- High motivation, strong communications skills and high team spirit
What We Offer

- Employment as a research associate (TV-L E13\(^1\)) in a full-time position (fixed-term contract)
- Close collaboration with leading European companies from the semiconductor and the automotive industry
- An open and innovative working environment at one of Europe’s top universities
- Working in a diverse research group in robotics with topics ranging from autonomous driving to biomimetic robotics and brain-inspired technologies

About Us

The Technical University of Munich (TUM) is one of the largest and in terms of third party funding one of the most successful universities in Germany. It is consistently ranked among the best universities in the world and is appointed as one of only three top-level elite universities by the German National Science Foundation since 2006. TUM as an entrepreneurial university actively supports knowledge transfer with over 300 start-ups created over the last years, numerous partnerships with industry and a comprehensive set of services aimed at successful commercialization of research. The Chair of Robotics, Artificial Intelligence and Real-time Systems led by Prof. Alois Knoll performs research in fields of human robot interaction and service robotics, medical robotics, cognitive robotics and cyber-physical systems. Across all these areas, there is a strong focus on the development and application of AI-based methods ranging from traditional machine learning to brain-inspired methods and neuromorphic computing.

Application

We are looking forward to receiving your application. The earliest starting date is March 1st, 2020. Applications will be considered as long as the position is open and should include:

- A letter of motivation that describes your professional experience, your interest in the topic and why you think that you are a good fit for the topic and our team
- A detailed up-to-date CV that includes completed projects and publications
- Transcripts of record of your Bachelor’s and Master’s degree
- Names and e-mail addresses of at least two professors that can provide letters of recommendation on request

Please submit all documents in a single PDF via e-mail to Ms. Marie-Luise Neitz (neitz@in.tum.de) using the subject “Post-Doc in Providentia++”. Alternatively, you can submit the documents by mail to the address below.

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 equal qualifications. International candidates are highly encouraged to apply.

\(^1\) https://oeffentlicher-dienst.info/c/t/rechner/tv-l/west?id=tv-l-2020&matrix=12
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Data Protection Information
When you apply for a position with the Technical University of Munich (TUM), you are submitting personal information. With regard to personal information, please take note of the Datenschutzhinweise gemäß Art. 13 Datenschutz-Grundverordnung (DSGVO) zur Erhebung und Verarbeitung von personenbezogenen Daten im Rahmen Ihrer Bewerbung (data protection information on collecting and processing personal data contained in your application in accordance with Art. 13 of the General Data Protection Regulation (GDPR)). By submitting your application, you confirm that you have acknowledged the above data protection information of TUM.