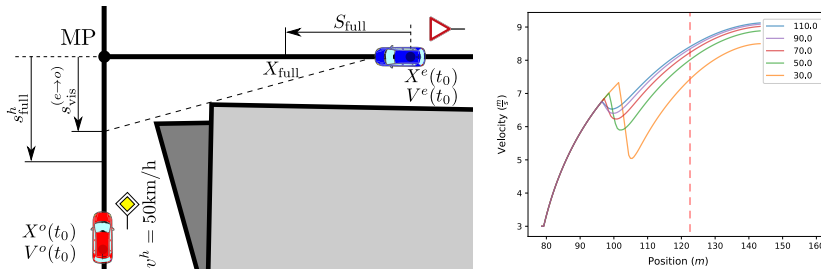


## Student Research Assistant

### Environment Modeling for Behavior Planning



An intersection scenario (left) and the resulting speed profile of the blue vehicle with different sensor ranges (right) for safe and comfortable driving.

The Institute of Measurement Control Systems lead by Prof. Dr.-Ing C. Stiller has been focusing on self-driving cars for over 15 years and is highly reputed for its contributions in this field. Over the last decade there has been profound development in this field, but there are still quite a lot open research questions that need to be tackled.

The proposed student research assistantship position focuses on environment modeling that is required as an input for the behavior planner of an automated vehicle. The behavior planner considers the environment representation and plans alternative actions to be executed, each with their corresponding rewards and risks. Within the context of this work, the assistant should use some computational geometry libraries to construct constraints to the planner.

The student should ideally:

- + be able to think analytically
- + has experience with Boost-Geometry and Boost-Python libraries
- + be willing learn environment and map representations such as Lanelet 2.
- + be interested in optimal decision making under uncertainty methods.

I am happy to answer any questions you might have. Feel free to ask for an appointment. Please attach a brief Résumé and your transcript of records while asking for an appointment!

**Some additional information:** it is not problem, if you are inexperienced with some of the topics listed above, as long as you are willing to learn these. You can apply and take a multitude of my job postings. Working hours are very flexible: you can specify how many hours you would like to work and when to work. Upon completion of the assistantship, it is possible to start a master's thesis that is related to the student job, in case you are enrolled in School of Informatics or School of Mechanical Engineering (for students of electrical engineering this might be possible as well). If you do not receive a response to your application within one week, you can regard this as a refusal.

**Institute of Measurement and Control Systems (MRT)**  
Prof. Dr.-Ing. Christoph Stiller

#### Advisor:

Ö. Sahin Tas, M.Sc.

#### Programming language(s)<sup>1</sup>:

C++ proficient  
Python advanced

#### System, Framework(s):

Linux, Git

#### Required skills:

- Work on your own

#### Language(s):

German, English

For more information please contact:

#### Ömer Sahin Tas

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Phone: +49 721 9654-262

Email: [sahin.tas@kit.edu](mailto:sahin.tas@kit.edu)

Or directly send in your application including your current grades as well as our questionnaire!



#### <sup>1</sup> skill levels:

*beginner* < 500 lines of code (LOC)

*advanced* 500 – 5000 LOC

*proficient* > 5000 LOC