



We take research – and ourselves – to the highest levels.

Change starts with us.

Final Thesis (Master): Reinforcement Learning Based Traffic Optimization

Would you like to improve your programming skills and apply your knowledge in the field of machine learning?

For our ongoing research projects, we are seeking exceptional candidates to write their final (Master's) thesis with a focus on machine learning / reinforcement learning. Our research at the Fraunhofer Application Center "Connected Mobility and Infrastructure" in Ingolstadt addresses current and future topics of automated and cooperative driving, also including urban air mobility.

Your tasks

In your thesis, cutting-edge methods for improving traffic flows (for example, in the context of autonomous mobility) are to be developed and evaluated based on reinforcement learning approaches.

Your profile

- enrolled in a study program in one of the following (or similar) areas: data science, electrical engineering, information technology, physics, computer science, mathematics or mechanical engineering
- strong background in the fields of machine learning and reinforcement learning
- very good academic performance
- very good programming skills (Python)
- experienced in using TensorFlow, PyTorch and SUMO
- previous own work in the field of reinforcement learning
- knowledge of algorithms such as Q-Learning, A2C, PPO, Rainbow
- deep understanding of neuronal networks as well as LSTM and transformer architectures
- strong commitment and ability to work collaboratively in a team
- proactive and creative working style

What you can expect

- challenging tasks in highly relevant and application-oriented projects
- professional supervision
- highly motivated teams working in an open and cooperative environment
- modern research infrastructure
- flexible working hours

Interested? Apply online now under the requisition number **IVI-Hiwi-00736** and send us your meaningful application documents. We look forward to getting to know you!

If you have any questions, please contact:
bewerbung.studenten@ivi.fraunhofer.de

You can find more information on the institute online:

www.ivi.fraunhofer.de/en

https://www.ivi.fraunhofer.de/en/about-us/departments/application_center_THI.html



 **Apply now!**