![IPH - Institut für Integrierte Produktion Hannover logo]

Bachelor thesis, master thesis, project thesis

Combining imitation and reinforcement learning

Most vehicles in intralogistics are driven manually, as human drivers are superior to automated systems in many respects from today's perspective. In order to harness human capabilities for automated systems, human driving behavior is to be simulated in a logistics environment and used to generate synthetic data sets. Based on this, an AGV is to be enabled via imitation learning to autonomously execute driving movements based on the implicit knowledge of experienced drivers.

Your tasks

The aim of the thesis is to develop a concept for implementing a reinforcement learning-based approach in combination with

imitation learning. Based on an extensive literature review, various existing concepts are to be evaluated with regard to the use

case at hand. Subsequently, it should be shown how the selected concept can be transferred to the present use case. In

particular, the sensor technology installed in the FFZ must be taken into account.

Work packages:

- Literature research on existing concepts for the combination of reinforcement learning and imitation learning
- Determination of an evaluation scale to assess the existing concepts with regard to the prevailing boundary conditions
- Evaluation of the concepts based on the evaluation scale
- Development of an implementation concept for the selected approach based on the sensor technology available at the industrial truck

Your profile

You are studying one of the following subjects:

- Mechanical Engineering
- Industrial engineering

- Production and Logistics
- or similar

Are you interested in artificial intelligence, robotics and sensor technology? And do you enjoy independently familiarizing yourself with new topics? Then send us your application!

Good written and spoken German and English skills are required!

We offer

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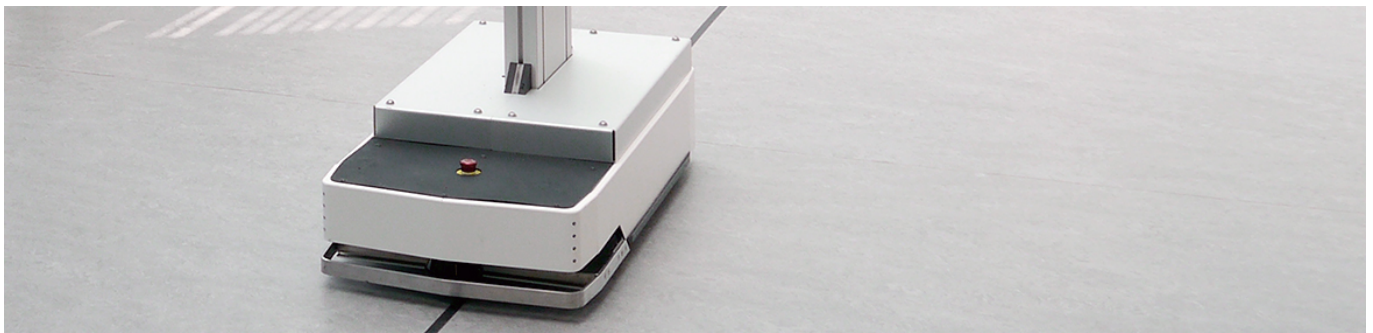
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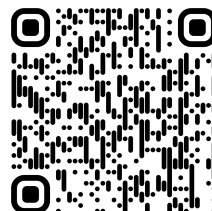
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