



Bachelor Thesis / Master Thesis

Start: from now

- Faculty 1 - Mathematics, Computer Science and Natural Sciences
- Faculty 4 - Mechanical Engineering
- Faculty 6 - Electrical Engineering and Information Technology

Experimentally Applied Reinforcement Learning for Low-Temperature Combustion Control

Machine Learning (ML) approaches have been shown to provide great potential to model processes with highly nonlinear dynamics. Specifically, off-policy Reinforcement Learning (RL) algorithms can be integrated into experimental low temperature combustion engine testing to directly interact with the process. As the RL model learns by continuously receiving rewards and punishments on every action taken, it is able to train a system model leading to improved control of the system.

Your tasks:

- Investigation of various RL algorithms, definition of action/reward functions and safety filters for online implementation
- Experimental implementation of an RL agent on the testbench
- Literature research of the above-mentioned topics

Your competences:

- Knowledge in Python and/or MATLAB/Simulink
- Knowledge in ML

Your benefits:

- Experience with cutting edge open source ML tools
- International, interdisciplinary research project
- Potential publication opportunities

Would you like to know more?

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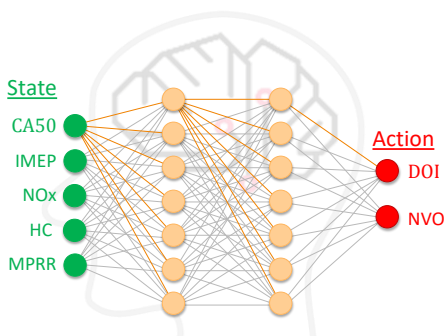
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We are the Teaching and Research Area Mechatronics in Mobile Propulsion (MMP). Our heart beats for the technology of tomorrow's mobility. Around the interdisciplinary topics of mechanics, electrical engineering and information technology, we research sustainable and demand-oriented drive and vehicle concepts. We bring the future into drives!

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