



DESCRIPTION

Modern control systems for production and logistics applications are increasingly developed and validated in simulation environments before deployment in the real world. Recent advances in large language models (LLMs) offer new opportunities to assist in control systems. Nevertheless, the integration of LLMs into simulation-based control workflow is still largely unexplored.

TASK & EXPECTED ACHIEVEMENT

The task of this work is to develop a simulation model of a dynamic system and to design a control approach that integrates LLMs. This includes conducting a literature review on simulation-based control systems, developing the simulation environment, and designing methods for integrating LLMs into the control systems. A control method will be selected and implemented as a baseline.

The developed LLM-based control approach is expected to operate reliably within the simulation, demonstrating stable and effective control performance across relevant operating conditions. The results should provide insights into the strengths and limitations of LLM-assisted control.

REQUIREMENTS

- Solid knowledge of Python.
- Strong experience in machine learning, especially in large language model (LLM)
- Careful, responsible and independent working style
- Structured and independent way of working



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Simulation-Based Control Systems Enhanced by Large Language Models

*Research
Project /
Master Thesis*

CONTACT

Zheng Sun

E-Mail: zheng.sun@ift.uni-stuttgart.de