

# Reinforcement learning, graph neural networks and graph grammars for generating drivetrains of battery electric vehicles

Bachelor's Thesis / Semester Thesis / Research Internship / Master's Thesis

## Motivation:

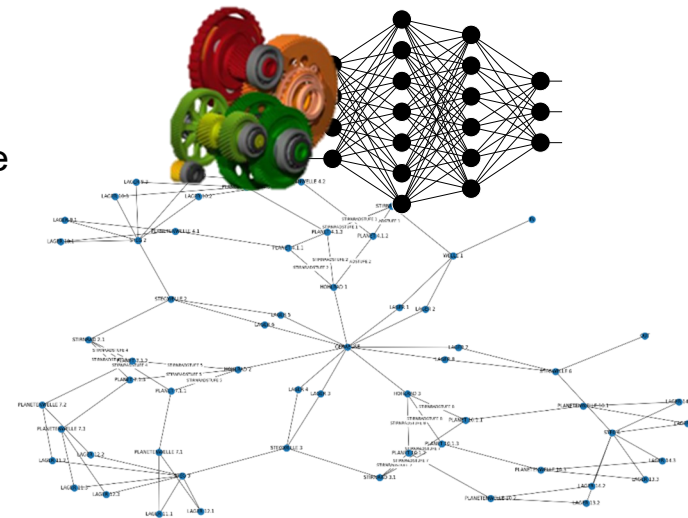
At the Institute of Machine Elements we do research on drive systems and components. Therefore, we are interested in technologies in drive system development and are about to integrate latest artificial intelligence methods in the process of development and design.

## Your task:

The goal of this project is to develop, implement and evaluate reinforcement learning strategies in combination with graph neural networks (GNNs) and graph grammars in order to generate drivetrain design solutions for battery electric vehicles. As part of your work you need to consider diverse requirements of drivetrains and development scenarios. Subsequently, you will implement chosen strategies and evaluate them in the context of automated design.

## Your profile:

- Highly interested in AI-methods, generative design, GNNs and reinforcement learning
- Advanced coding skills
- Strong math skills and knowledge of graph theory
- Highly motivated and responsible
- Fluent in English or German



TU Munich  
Mechanical Engineering



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