# Bachelor's or Master's thesis to be assigned

Knowledge Transfer of Intelligent Track Fault Detection Based on Condition Monitoring and Machine Learning Algorithms Using Laboratory and Real-life Data

Maintenance is a critical step to guarantee the safety and reliability of railway transport. Nowadays, the railway has been playing a more and more important role both in passenger transport and freight transport. The current maintenance strategy in railways, which is so-called the Preventive Maintenance based on human labor, can no longer fully meet the increasing need in the industry. Under this context, this work aims to explore a new digital approach to assist the modern maintenance philosophy – the Predictive Maintenance Strategy (PdM).

Nürtingen

Neuffen
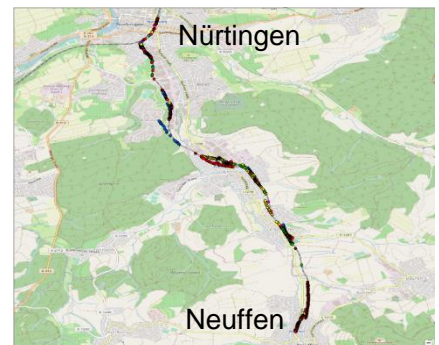
Based on our preliminary work on our laboratory down-scale model, we are now putting our emphasis on the knowledge transformation step. In order to eventually employ the laboratory algorithms into reality, we have established our "Reallabor" with kind support of our industry partner WEG to test and modify the models for real life. We have also built up a close corporation with the fast-developed technical company CEMIT, to try to find out the future answer of the railway maintenance. In this work, you are going to attempt to use knowledge transfer processes to detect the track irregularities in the track side through the real-life inertial measurements from the vehicle side, on the basis of our laboratory machine learning models.

Prior Knowledge of Python or Matlab are preferred (but not mandatory).

If you are interested, please contact:
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