PhD Position in Automotive Engineering for Intelligent Mobility

Machine learning application to meet Euro 7 On-Board Monitoring standards

Period 01/11/2024 – 31/10/2027 (3 years)

Place GMRL – Green Mobility Research Lab
Facoltà di Ingegneria/FEV ITALIA
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Description The European Commission is going to publish the new Euro 7 standard shortly, with the target of reducing the impact on pollutant emissions due to transportation systems. The incoming regulation will point out the role of On-Board Monitoring (OBM) as a key enabler to ensure limited emissions over the whole vehicle lifetime, necessarily taking into account the natural aging of involved systems and possible electronic/mechanical faults and malfunctions. In this scenario, this research activity aims to study the potential of data-driven approaches in detecting emission-relevant engine and after-treatment faults. For this purpose, machine learning models can help to detect and identify different faults of components and sensors , by taking as input measurements and Engine Control Unit (ECU) signals already present on-board. The models shall be firstly optimized, trained, and tested on simulation data generated by a validated 0-D Simulink model and by the engines at the test cells. In view of vehicle on-board application, the developed model shall be implemented on a real-time hardware to evaluate its real-time capability. The activity research will be carried out in collaboration with international partners and it will require a period abroad.

Academic tutor
- Prof. Nicolò Cavina – nicolo.cavina@unibo.it

Company supervisor
- Ing. Stefano Longhi – longhi@fev.com

Requirements
- Master's degree (by the end of October 2024) in Mechanical, Electrical engineering or similar.
- Good knowledge of MATLAB / Simulink and automotive fundamentals.
- Proficient English language skills in speaking and writing.
- High motivation and commitment.
- Experience in Machine Learning and programming is a plus.

Application deadline 07/08/2024

Useful links Call for applications

PhD website