Bachelor/Master Thesis

Reynolds-Averaged Navier-Stokes (RANS) simulations of in-house engine setups

The need for cleaner, greener combustion processes to cater to the rise in worldwide energy demand and mitigate the effects of emissions, pollutants and greenhouse gases, have led many researchers to focus on alternative fuels and advanced combustion strategies. The experimental combustion engine setups at ITV are invaluable to carry out research in this field, but need to be paired with numerical simulations to gain a deeper understanding of the physics behind these processes. This project will deal with the numerical aspect of the problem, with RANS simulations on commercial software for various engine setups and fuel combinations/injection strategies, and validated against the experimental results.

Tasks:
- Running RANS simulations for different engine setups with different fuels
- Analysing and post-processing data
- Validating simulation results with experimental data

Requirements:
- Basic understanding of computational fluid dynamics and Thermodynamics
- Fluent in English
- Familiar with programming/scripting, preferably python or Matlab
- Familiar with Linux OS

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