



VOLVO GROUP TRUCKS TECHNOLOGY
MASTER'S THESIS PROPOSAL
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WIND MODELLING FOR AERODYNAMIC SIMULATIONS

BACKGROUND

Computational fluid dynamics (CFD) is an indispensable tool for evaluating aerodynamic features in modern vehicle development. The pursuit of sustainable transport solutions and lower emission limits set by authorities are putting more focus on aerodynamics in order to reduce emissions. This, together with new on-road certification methods for commercial vehicles, is fueling the demand for ever more accurate and efficient CFD simulations. In order to increase the accuracy of predicting real world driving improvements with simulations, it is important to understand and correctly model real on-road wind conditions.

AIM

The aim of the Master's thesis is to improve the wind modelling in external aerodynamic CFD-simulations of heavy vehicles.

METHOD

The thesis will encompass a literature study, data analysis and CFD-simulations in Star-CCM+. In short the thesis worker will:

- Investigate and analyze European road wind conditions.
- Create an accurate and efficient model of the wind conditions.
- Implement the wind model into the CFD simulation methodology.

ABOUT THE THESIS

The thesis will be carried out at Volvo's office in Lundby, Gothenburg. It will be performed during the spring of 2021 by one or two students and covers 30 ECTS per student. The thesis worker will be a part of the Vehicle Performance & Analytics group, which evaluates and develops concepts for future product solutions. The team has expertize knowledge in simulation fields of aerodynamics, noise, crash and optimization. We work as a global team with the different Volvo sites around the world.

The position will soon be available at volvogroup.com. For further information, please contact:
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