

Volvo Cars Thesis Work Proposal

Working on your thesis at Volvo Cars

Are you interested in completing your degree by doing your thesis at Volvo Cars?

You have come to the right place!

The following project is now available:

Title	
Investigation of the influence of tyre deformation and tyre "foot print" on the lift and drag force predictions of a passenger car	
Fields of study	Department / Company / Location
CFD, Aerodynamics , Fluid Mechanics	91780 CFD group , Volvo Car Corporation , Göteborg
Description of thesis work	
<p>It is a known fact that wheels and tyres have a strong contribution and influence on the total aerodynamic drag and lift of passenger vehicles. Therefore, it is of extreme importance to have a numerical model that represents, as close as possible to the reality, the shape and deformation of the tyres at ground contact for the different curb positions. These aspects can have a significant influence on the flow around this area and on the wake behind the wheel. It is proposed in this thesis to perform a series of CFD simulations with the wheels placed at different ground contact positions and with different deformation of the tyres, according to specifications from the tyre suppliers. Whenever possible, the results of the simulations will be compared with wind tunnel results. All the aforementioned simulations are to be carried out on a fully-detailed CFD model. If time allows, simulations with moving meshes of a single rotating wheel will also be performed to add knowledge to this very complex flow problem.</p> <p>At the end of this work, the student will have a very good basis of the most common CFD softwares available in the market today, good knowledge of passenger vehicle aerodynamics, in addition to the opportunity of having worked with one of the leading CFD teams in the car industry today.</p>	
Suitable Student background	
Required: Good knowledge in fluid mechanics and aerodynamics. Will to do work with computer programs and CFD. Self standing, curious and fast learner. Knowledge of CFD codes and mesh generation softwares is not required, but it will be considered as an asset.	
Starting date	Number of students
February or March 2007	1

Tutor / Contact Person	E-mail	Telephone
Simone Sebben	ssebben@volvocars.com	031- 596636
Address		
Volvo Car Corporation Computational Fluid Dynamics Dept. 91780, PVT3 SE-405 31 Göteborg		

ADM Info	
Date of publication 07-01-26	Withdrawal date 07-03-31
Publisher Simone Sebben	