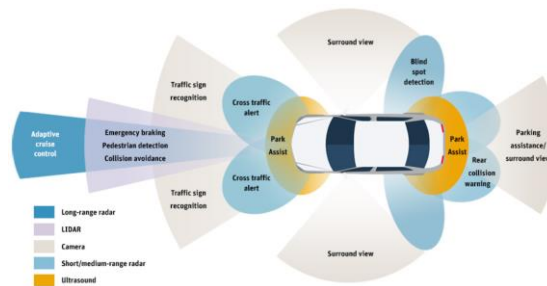




Liquids behavior on surfaces

Introduction:

Modern cars have several sensors monitoring the surroundings to enable technologies like autonomous driving, lane-keeping, blind-spot detection, active safety, parking assistance and adaptive cruise control. To ensure that these sensors are working properly in real world driving conditions, they need to be kept as clean from contaminants as possible.



Scope:

The aim of the thesis is to develop methodologies and techniques to accurately model liquid interaction with different types of surfaces. This includes modeling the liquid characteristics/properties, as well as formulating and verifying models capable of predicting the interaction between liquids and solids. The liquid can be water, or any other fluid that the vehicle might be subjected to. The thesis will include both experimental as well as numerical work.

The expected result is a numerical framework capable of accurately predicting liquid/solid interaction.

Location:

The thesis work will be conducted at the Contamination & Core CFD section at Volvo Cars, a subsection within the department Sustainability Centre. Contamination & Core CFD is responsible for all development regarding water, dirt and snow contamination, including testing, prototyping and virtual development (CFD). Similar sections responsible for aerodynamics and thermal efficiency are residing within Sustainability Centre.

Profile:

- Suitable background is Mechanical or Chemical Engineering
- Have a structured approach and an interest in virtual development
- Knowledge in Computational Fluid Dynamics and multiphase flows is a plus.

Duration: 20 weeks / 30 ECTS

Starting/End date: January-Summer 2021 (20 weeks)

Number of students: One student

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