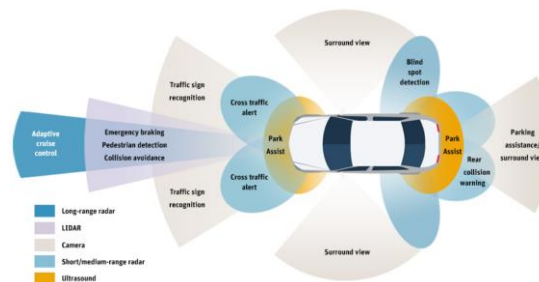




Spray characteristics and dirt deposition/removal

Background:

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 to model the full process of active cleaning using nozzles. This includes modeling the spray characteristics, as well as formulating and verifying models capable of predicting the removal of dirt from the subjected surface.

The expected result is a numerical procedure capable of predicting cleaning performance of different nozzle designs.

The thesis will include both experimental as well as numerical work

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 or 40 weeks / 60 ECTS

Starting/End date: January-Summer 2021 (20 weeks) or winter 2021 (40 weeks)

Number of students: One or two students working together on the same topic

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