User expectations, understanding, and use of advanced driver assistance systems and automated driving

Background
Volvo Car Corporation (VCC) is an automotive OEM operating in the premium segment. The user experience is key for our customer satisfaction, particularly the use and usefulness of advanced and automated driving systems. As such, knowing the users’ current expectations, understanding, and use of state-of-the-art systems today is critical in the continuous development of these systems.

The current trend around vehicle automation can be likened to a technological race to achieve the maximum amount of automation possible, aiming for complete autonomy. The area is receiving substantial media coverage and a growing public interest, which are all affecting how users perceive this particular technical development. Although most automotive manufacturers work towards some form of complete vehicle autonomy (SAE level 4; including VCC) the majority of currently available automation systems operate at SAE level 2 (partial automation), where the driver still constitutes a critical part of the driving task. With the myriad of systems, all with their unique terminology and differing performances, this is all but a homogenous area.

Knowledge and insights into the users’ perspective is thus critical, especially given the complex system landscape. Therefore, we would like to offer the opportunity to study these components, in an R&D setting. We are keen on generating real value for our users, and see this as an important piece of that puzzle. In line with our commitment, there will be two PhD students working with closely related questions, with a focus on big data collection and analysis, and mode awareness and understanding of semi-autonomous driving, respectively. This may allow for cooperation in joint data collection and analysis, workshops, or experiments.

Goals
● A deep understanding of users’ current expectations, understanding, and usage of automated driving systems, and how this is reflected in currently available systems.
● Actionable insights into the user interactions with automated driving systems.

Tasks
● An independently developed, designed and conducted thesis, including a literature study, data collection and analysis, and a suitable presentation of the results.
● A major part of the data collection should be performed on a large scale (counting participants, data, spread) including customers of several OEMs, ideally through a well-defined and informed questionnaire.
In addition to the collected data; a more in-depth qualitative component, an extended quantitative analysis, or an experiment, could be included to further strengthen hypotheses or broaden the scope developed throughout the study.

- Suggest potential recommendation towards the development of automated driving systems.
- Write a report and present results at Volvo Cars.

**Means**
Office access, computer, and software will be arranged by Volvo Cars, as needed.

**Requirements**
- Masters level thesis, within applicable area of study (e.g. Information, Computer, Technical Design, Cognitive, Human Factors Sciences, or similar).
- Student(s) should have a good grasp of the English language. Swedish is a plus.
- Should be within traveling distance to our Gothenburg Offices, as main part of work is conducted at VCC offices.

**Conduction**
The thesis work should be conducted by one, but preferably two students. The time period is January to June 2018.

**Contact and application**
If you are interested in the position, please email your application to the contact details provided below. The application should include how the position fits into your curriculum as well as a short description of how your background would benefit the thesis work.

*Application deadline is 2017-12-20*, but applications are reviewed continuously.

**Industrial supervisor**
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