Title: Ergonomics of Future Automated Trucks

Language: Swedish and English, Swedish will be needed for interviewing drivers

Field of study: Physical ergonomics & Future interior concepts

Company: Volvo Group Trucks Technology; Department BF71482 of Ergonomics & Driver Interface; Location AB2N

Abstract:
Cab Engineering at Volvo Group Trucks Technology (Volvo GTT) are responsible for developing the cabs for the different truck brands. At cab engineering, the department of Ergonomics & Driver Interface are responsible for keeping track of driver needs in order to establish requirements to verify the future concepts. Automated vehicles are likely to mean big changes to how vehicle interiors are used. This is why we would like to run this thesis work to investigate one or two of some remaining questions:

- How can the safety of alternative postures be secured?
- How can motion sickness when doing secondary tasks under autonomous driving be avoided?
- How will it be possible for the system to keep track of the driver (e.g. awake or sleeping, different postures, etc)?
- How should controls and user interfaces be arranged to support alternative driver locations?
- In what way can driver boredom be turned into meaningful and beneficial activities?
- Would it be possible to have a generic interior that can flexibly adapt to the alternative needs and activities?
- How can proposed concepts be evaluated against automation requirements in an efficient way by use of appropriate methods?

Suitable background:
Design engineer at Master level with specific interest in Ergonomics, Interaction design and/or Product Design.
Description of thesis work:
The thesis work will be run according to a proven approach to reach success:

- Work in a pair to secure a significant result and personal development
- Start from studying the user
- Be 100% present at Volvo as members of the ordinary group
- Regular follow-up meetings to share results and plan ahead

For the specific topic of this thesis work, we foresee the following important activities:

- Benchmarking of how automation is handled in other types of transport solutions
- Contact with drivers doing transports where automation is likely to come first
- Learn from analysing what the drivers are doing today
- Establish measurable requirements based on the findings
- Hold brainstorming sessions involving several different competences
- Choose promising concept ideas for continued development of solutions
- Identify potential partners that can help to provide solutions to the chosen problems
- Perform verification of the concept solutions against the established requirements
- Make final development into a mock-up
- Perform validation with drivers to prove the benefits of the chosen concept

Starting date: Early spring 2018 and ending before the summer vacation
Number of students: 2

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