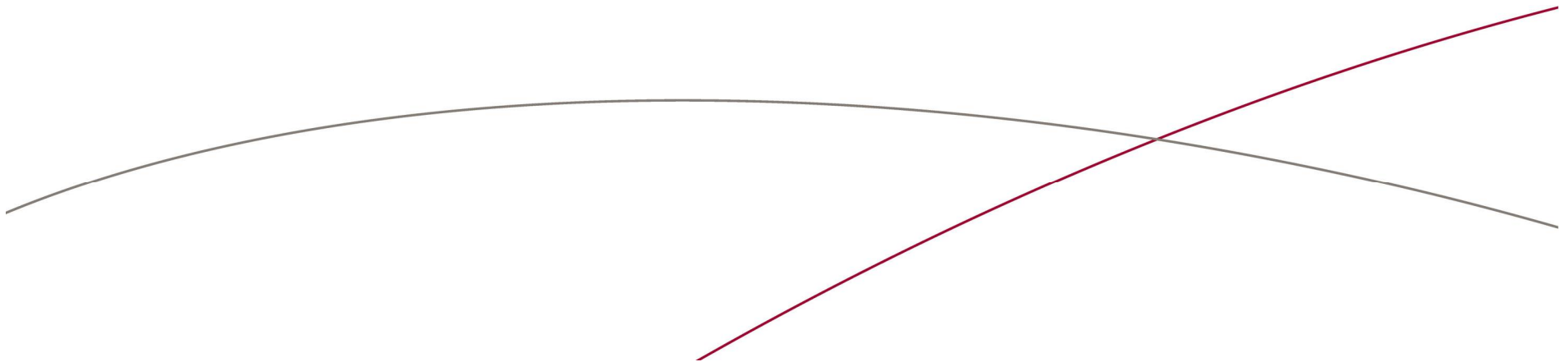


Driver usage and understanding of adaptive cruise control

Annika Larsson
Lund University



Introduction

Automation increasingly part of everyday driving
• not perfect yet, though

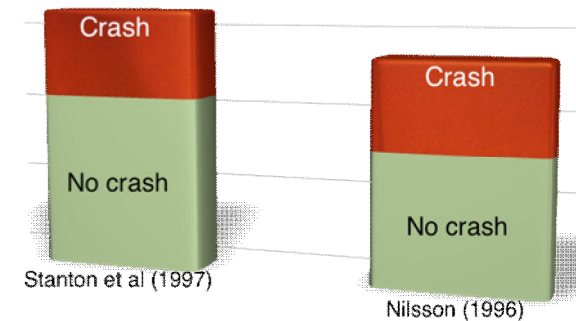
Driver needs to reclaim control . we need to know more!

Study: Questionnaire to 130 ACC users
How ACC is used, what drivers think about the system



Issues in reclaiming control

“ Are system limitations known to the driver?



“ Can the driver be supported by removing driving tasks?

“ Does the driver understand what the system is doing?



“ Can we rely on driver monitoring of system performance?



Results

- “ Drivers learn more about system limitations over time

- “ System limitations cause transfer of control
 - . Sharp turns
 - . Roundabouts
 - . Etc

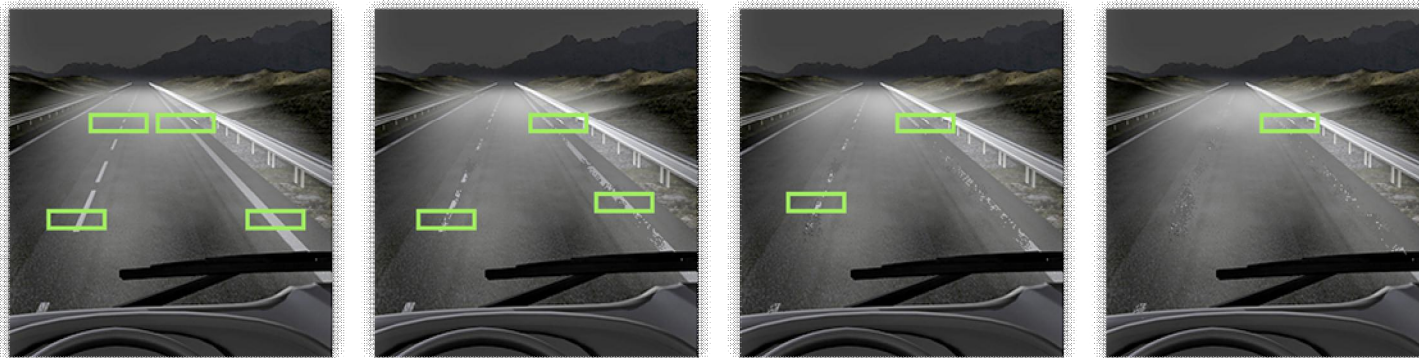
- “ Frequent transfers of control may be better than infrequent transfers

- “ Drivers are not always aware if the system is on/off



Resilience

Increasing performance does not imply creating a safer car-human system when automation fails



**It may be relevant to communicate detection decrements,
not only that detection has been lost**



The three W's

- “ Why does the driver reclaim control?
- “ When does the driver reclaim control?
- “ What happens when the driver reclaims control?



Future research

“ Transfer of control

- . How do drivers experience delegating control to a system?
- . How do they experience the transfer of control?

“ Perception and attention

- . What are the effects on driver perception and attention?
- . Is %mode error+a suitable concept in this area as well?

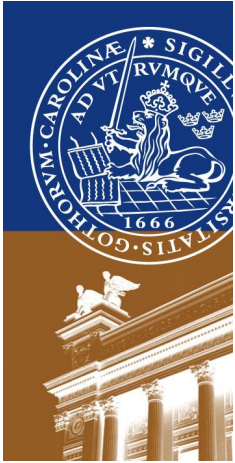


Summary

- “ Need to know more about the transfers
 - . Effects on cognition
 - . Effects on performance (joint and human)
 - . Effects over time

- “ Now: Studying different ways to delegate control, and the effects on driver cognition and planning





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annika.larsson@tft.lth.se

