User and Acceptance Evaluation: Video Coding

L3 Pilot Final Event

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Purpose and Method

- Understand driver behaviour extending self-reports
- Investigate non-driving related activities (NDRA)

Method

- Video cameras installed inside test vehicles facing driver (non-professional drivers)
- Manual and semi-automated coding of driver activities by annotators with annotation software (frame by frame) → **time consuming**
- Analysing annotations to understand behavioural processes

Code book

- Developed based on previous projects (EuroFOT and UDRIVE)
- Focused around non-driving related activities (NDRAs) of interest
  - Interaction with passenger
  - Interact with center stack (mounted tablet for driver use)
  - Phone usage (texting, calling)
  - Reading, Eating/Drinking
- Hands on wheel incl. hovering
- Foot position incl. hovering
- Eye gaze direction (discretization : on road, mirrors, instrument cluster, etc.)

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Thursday 14/10 9-10.30: Supplementary Studies session

- Hands on wheel incl. hoovering
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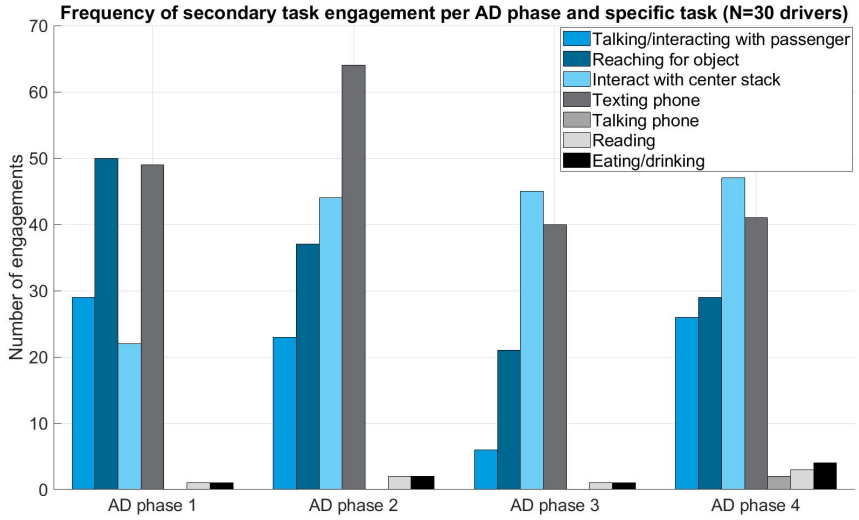
Video view example

Data collection on public road to assess engagement in NDRA

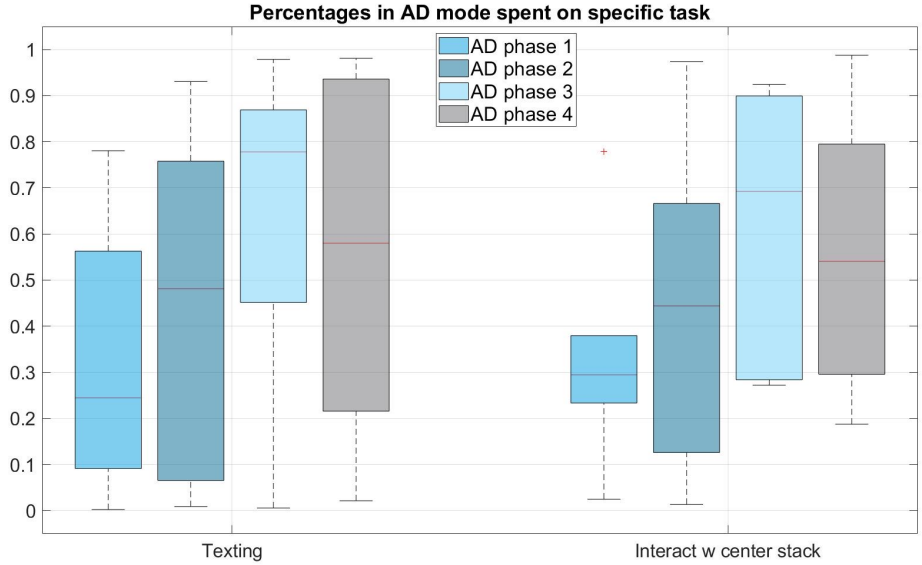
Frequency of non-driving related activties (NDRAs)

- Majority of drivers (87%) engage in NDRAs – predominantly texting with the phone or interacting with the center stack (mounted tablet)



Duration

- Duration of texting and interacting with the center stack (tablet) increased over the AD phases



Publications

Trust and NDRA engagement

- Streubel, T., Ekman, F., Johansson, M. (2021). Investigating trust in vehicle automation in a Wizard of Oz study on public roads. Manuscript in prep.

Visual attention & Driver response to take-over requests

- Pipkorn, L., Dozza, M., & Tivesten, E. (2021). Driver glance behaviour before and after take-over requests in conditional automation on public road. Manuscript submitted for publication.
- Pipkorn, L., Tivesten, E., & Dozza, M. (2021). Driver response to take-over requests in automated driving in real traffic. Manuscript in prep.

Thank you for your kind attention.

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