## **Together Distracted?** The Effect of Driver-Passenger Collaboration on Workload, Glance Behavior, and Driving Performance

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- Driver-passenger collaboration can improve passenger's riding experience and can reduce driver distraction and driver's mental workload
- Collaboration for In-Vehicle Infotainment Systems (IVIS) can be approached in different ways when it comes to control

**RQ: How do IVIS concepts with different** approaches to driver-passenger collaboration impact workload, glance behavior, and driving performance?

## Prototype

- IVIS UI implemented in Unity 3D
- Communication between IVIS via MQTT

12:50 Groningen

- Interaction effect between the concepts and the ulletvehicle speed, and between the operator and the speed
- Lane Position (m):
  - Interaction effect between the operator and the ulletlane position
- Eyes-off-the-road Time (%):
  - Consensual IVIS causes an increased eyes-off-the road time
- Workload (NASA-TLX):
  - Familiar IVIS concept (Autocratic control) highest passenger workload
  - Unfamiliar IVIS concepts, highest driver workload ullet

A tendency for the collaborative approach to IVIS operation on tertiary activities to cause driver distraction



## Method & Study

• User study with 16 duos (driver and front-seat) passenger) in a driving simulator Every user performed **four tasks** per concept 



