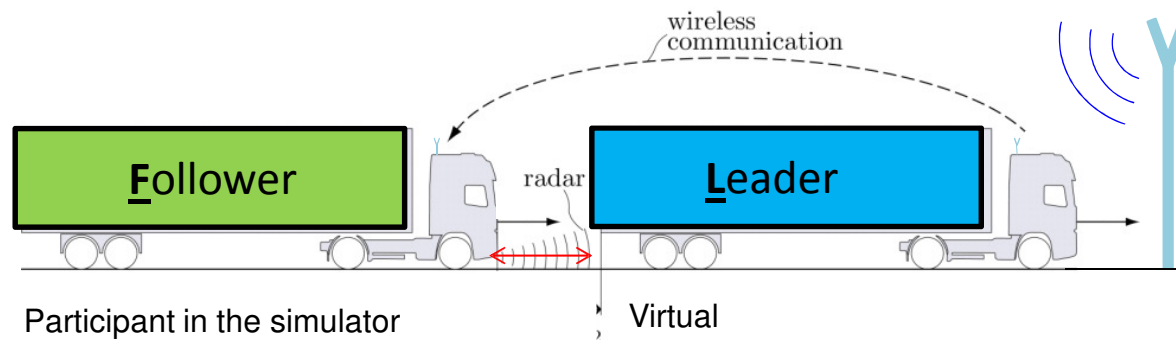




FAILING TRUCK PLATOON: GOAL AND SETUP

- › Research question:
How does a driver react to a failure of an automated truck platoon in an safety critical situation?
- › Two-truck platooning



- › Half of the participants have a see-through/normal truck in front of them
- › In half of the cases the lead truck will go the left/right lane.



METHOD

- › 22 participants
- › Truck driver's licenses for at least 8 years at least 10.000 km per year
- › On average participants were 47.4 years old, with a standard deviation of 11.5.
- › The group consisted of 20 male and 2 female drivers.
- › Education level MBO (13), HBO (5), Havo (2), WO (1) and unknown (1)





METHOD

Dependent measures

Driving performance:

- › Lane positioning
- › Speed
- › Reaction time to warning
- › Type of reaction

Questionnaires

- › Acceptance

Human Machine Interface

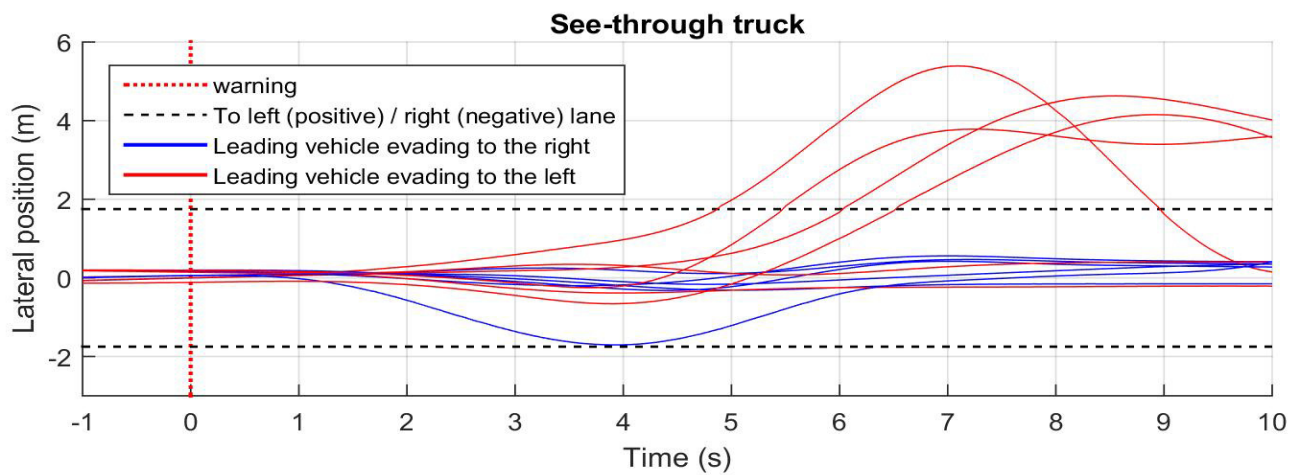
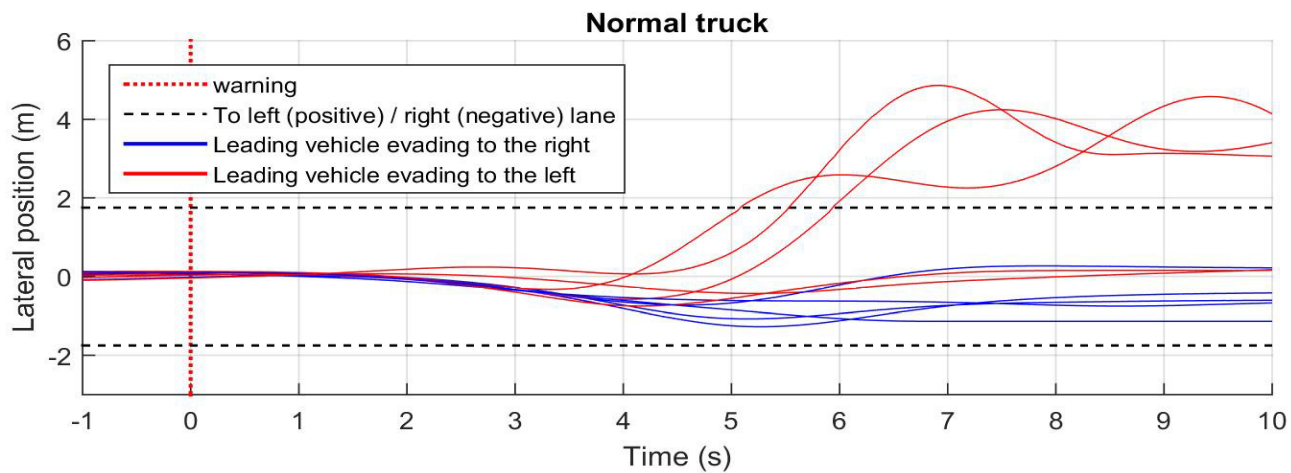


NEEM DE CONTROLE OVER



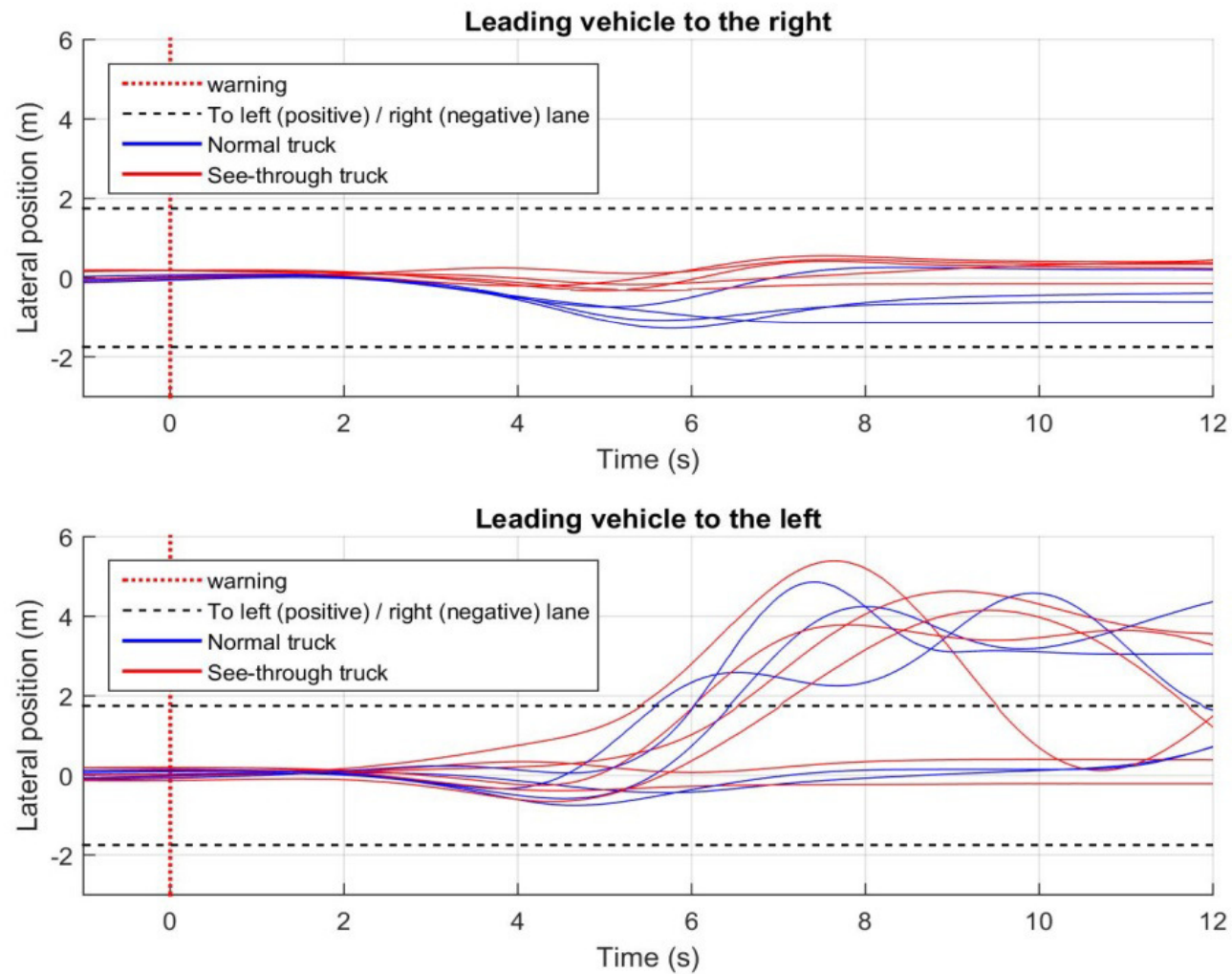


RESULTS: LATERAL POSITION



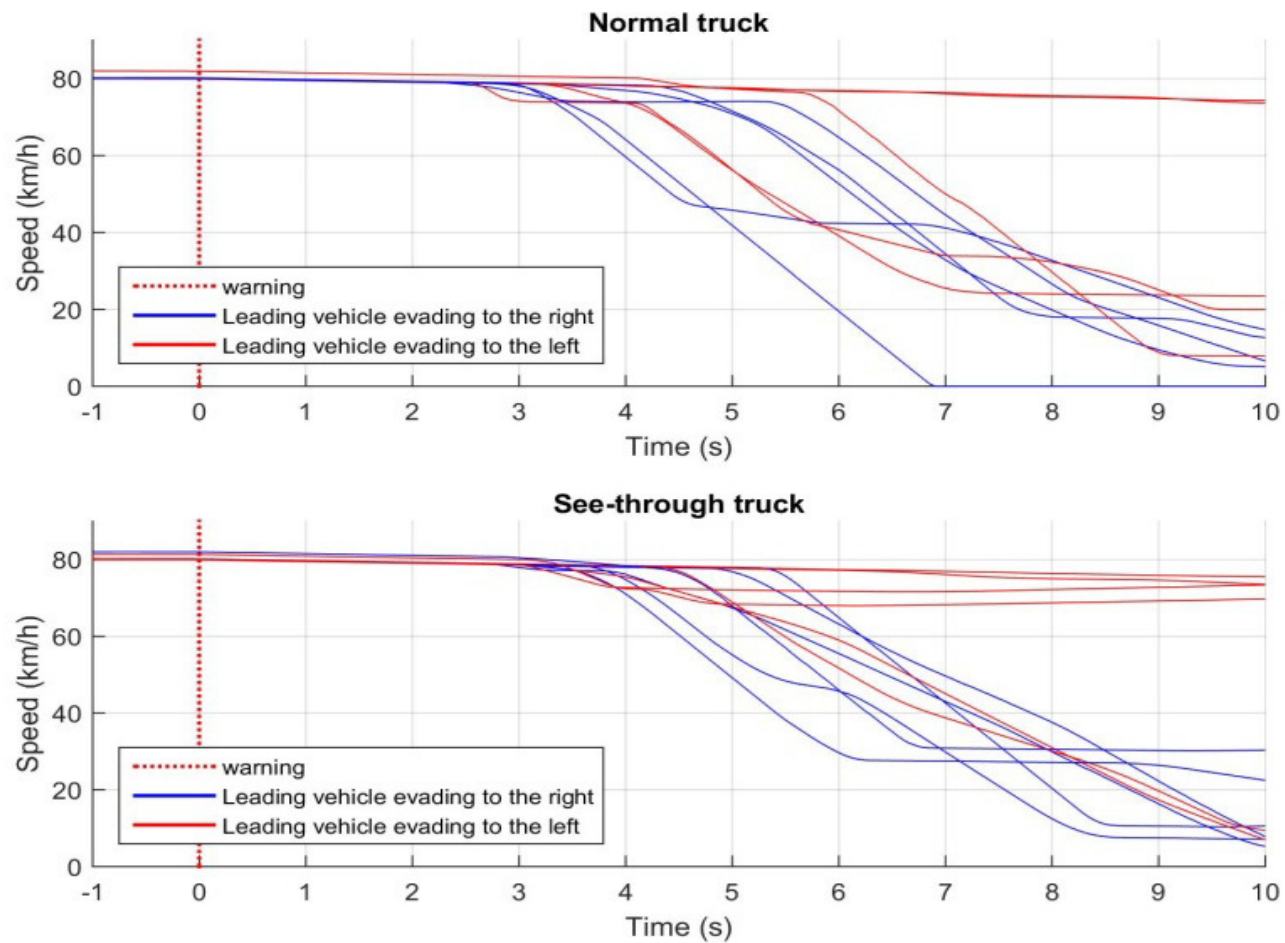


RESULTS: LATERAL POSITION



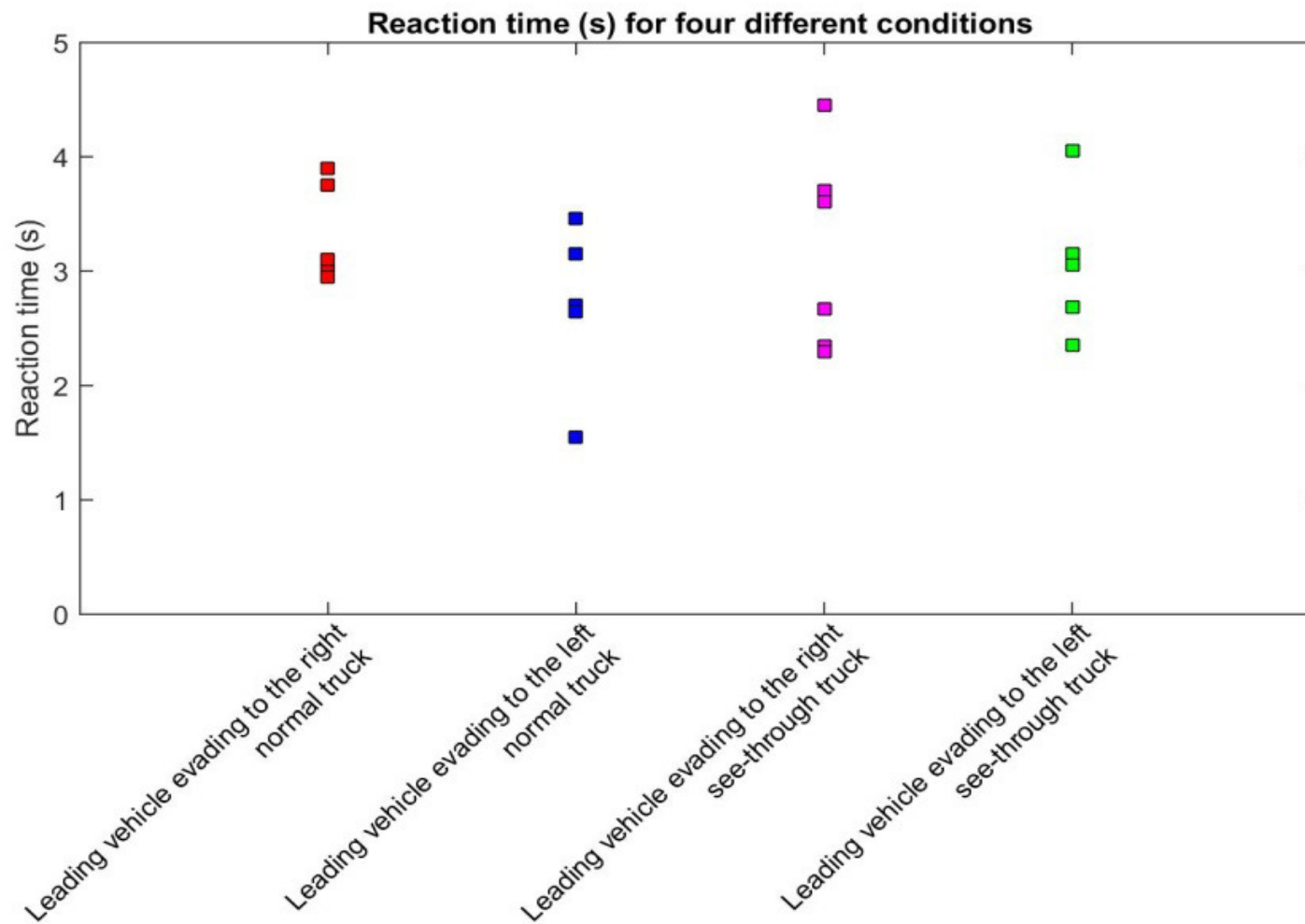


RESULTS: SPEED





RESULTS: FIRST RESPONSE OF THE DRIVER





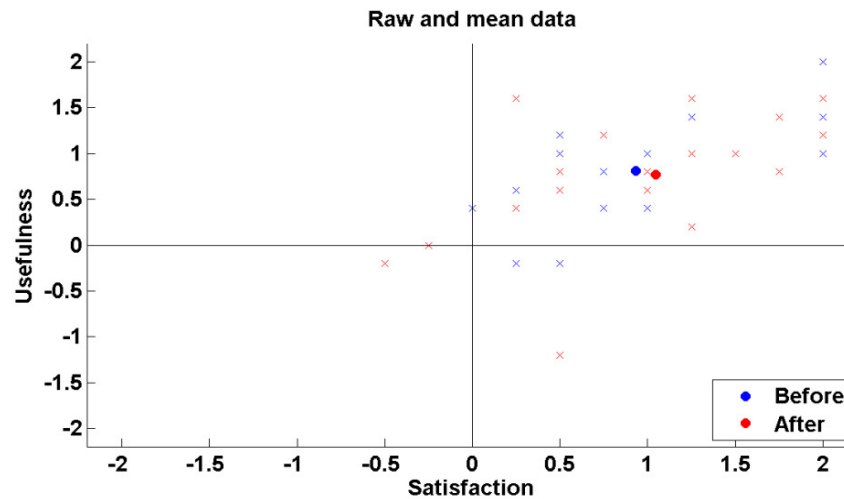
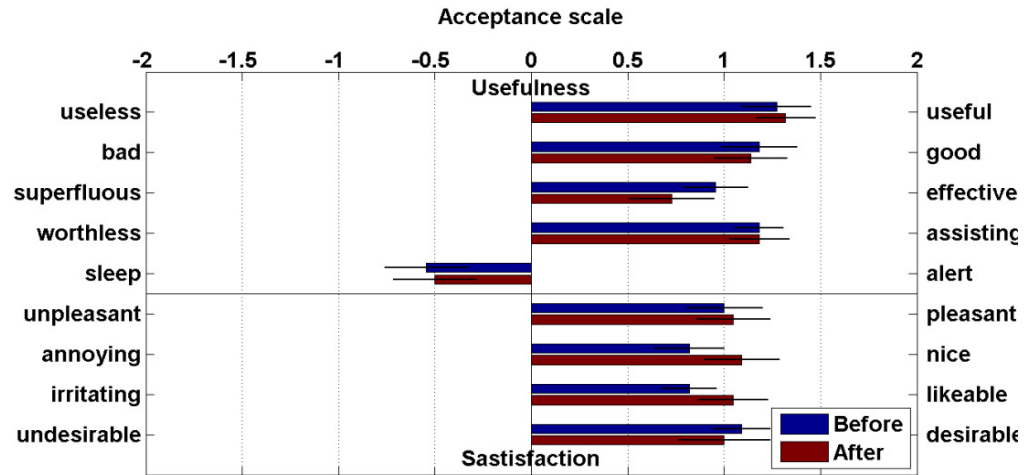
RWS project

RESULTS: FIRST RESPONSE OF THE DRIVER

	<i>First reaction</i>	
	Steering	Braking
Condition 1 Normal right	2/5	3/5
Condition 2 Normal left	3/5	2/5
Condition 3 See-through right	5/6	1/6
Condition 4 See-through left	5/6	1/6



RESULTS: ACCEPTANCE





CONCLUSION

- › It seemed that the see-through truck provided the driver with more situational awareness. They were less inclined to brake as a first response after the warning and rather they started steering.
- › Nobody drove on the emergency lane, drivers did not follow the lead truck when it evaded to the right, but were inclined to brake.
- › All except one driver needed > 2 seconds to respond to the warning (max. 4.5 s)



DISCUSSION

- › What would be an adequate reaction of a driver to a failing truck platoon?



VIDEO

▶ Video





RESULTS: ACCELERATION

- Acceleration levels (driver effort): lower levels for see-through truck

