



TRAIL

TRAIL THESIS SERIES T2025/6

Yongqi Dong

Safe, Efficient, and Socially Compliant Automated Driving in Mixed Traffic

Summary

As automated vehicles (AVs) gradually integrate into mixed traffic with human-driven vehicles, this thesis addresses critical challenges during the transition era. It enhances AV capabilities in sensing and perception, anomaly detection, as well as planning and control. Employing spatial-temporal deep learning models, self-supervised pretraining methods with masked sequential autoencoders, and innovative social-aware decision-making strategies, this thesis aims to facilitate safe, efficient, and socially compliant automated driving, thereby advancing future transportation systems.

About the Author

Yongqi Dong is a researcher specializing in automated driving systems and artificial intelligence. He conducted his PhD research at TU Delft, focusing on enhancing automated vehicles' capabilities in mixed-traffic environments. He holds degrees in Control Science and Engineering and Telecommunication Engineering.

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Safe, Efficient, and Socially Compliant Automated Driving in Mixed Traffic

Sensing, Anomaly Detection, Planning and Control

Yongqi Dong



Radboud University



rijksuniversiteit
 groningen



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 University of Technology

Invitation

You are cordially invited
to attend the public defence
of my PhD dissertation entitled:

**Safe, Efficient, and Socially
Compliant Automated
Driving in Mixed Traffic:
Sensing, Anomaly Detection,
Planning and Control**

The defence will be held
on 12 May 2025 at 17:30h
in the Senate Hall of the
Aula Conference Centre,
Mekelweg 5 in Delft.

Prior to the defence,
I will give a brief presentation
in English about my research
starting at 17:00h.

After the defence,
there will be a reception
in the Aula.

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