

Peer Review

Review of: "Can Human Drivers and Connected Autonomous Vehicles Co-exist in Lane-Free Traffic? A Microscopic Simulation Perspective"

Haoxuan Dong¹

1. National University of Singapore, Singapore

This manuscript examines the impact of HDVs on LFT using a microscopic simulation of a 1-ring road with a width of 10.2 meters. Please consider the following comments.

1. The novelty/originality shall be justified in detail by highlighting that the manuscript contains sufficient contributions to the new body of knowledge.
2. There remains some debate in the field of mixed traffic research, as mixed traffic flow represents a future transportation paradigm. Since CAVs have yet to be widely deployed on public roads, the actual challenges and implications of mixed traffic conditions remain to be fully verified. Therefore, in conducting this study, the author should provide a comprehensive discussion of the background, clearly identify the research gap, justify the underlying assumptions, and demonstrate the rationality of the proposed solutions.
3. A key aspect of research in mixed traffic flow is accurately modeling the stochastic driving behavior of HDVs. This study should also emphasize this aspect to ensure that HDV behaviors are realistically represented and align with real-world driving patterns.
4. To ensure the credibility and reproducibility of this study, it is essential to provide a detailed explanation of the traffic scenarios, assumptions, connected environment, vehicle automation levels, and other foundational elements.
5. We have conducted a series of studies in the field of mixed traffic, including 10.1016/j.apenergy.2024.124448, 10.1109/JIOT.2025.3535732, 10.1109/TCST.2024.3361393. You may find these references insightful and relevant to your research.
6. The study's conclusions currently lack distinctive insights. The authors should conduct a more in-

depth analysis and synthesis of their findings to derive novel and impactful conclusions that set the study apart.

7. The manuscript has too many abbreviations for the reader to grasp the research.

Declarations

Potential competing interests: No potential competing interests to declare.