

Viktor Lizenberg, Opel Automobile GmbH



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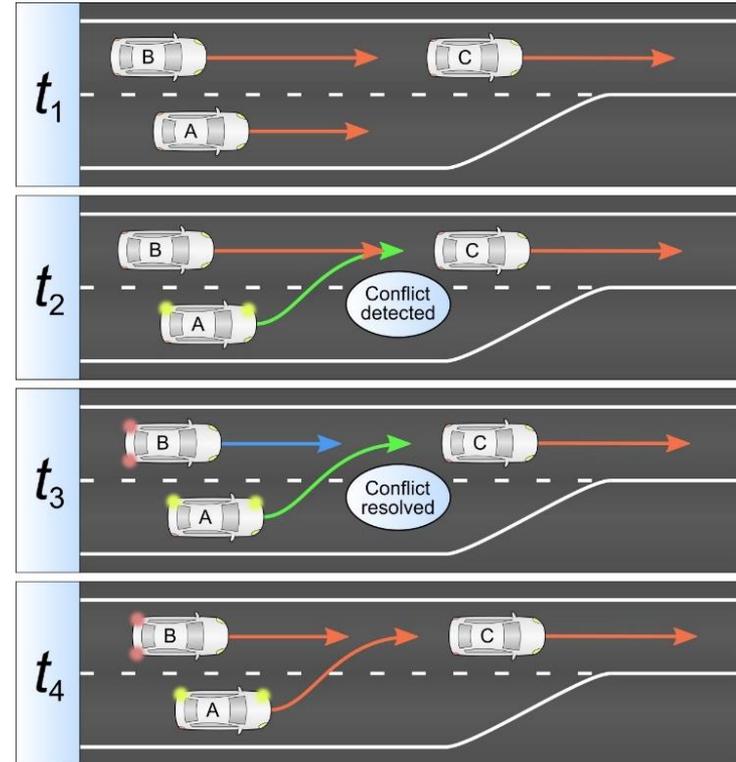
FINAL EVENT



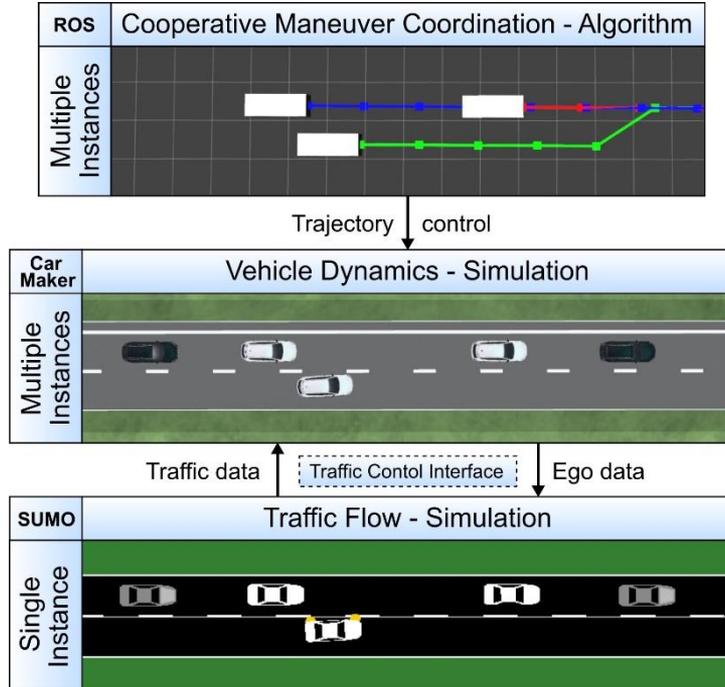
Continuous Cooperation Reduced

Continuous Cooperation Reduced Concept “Opel Core”

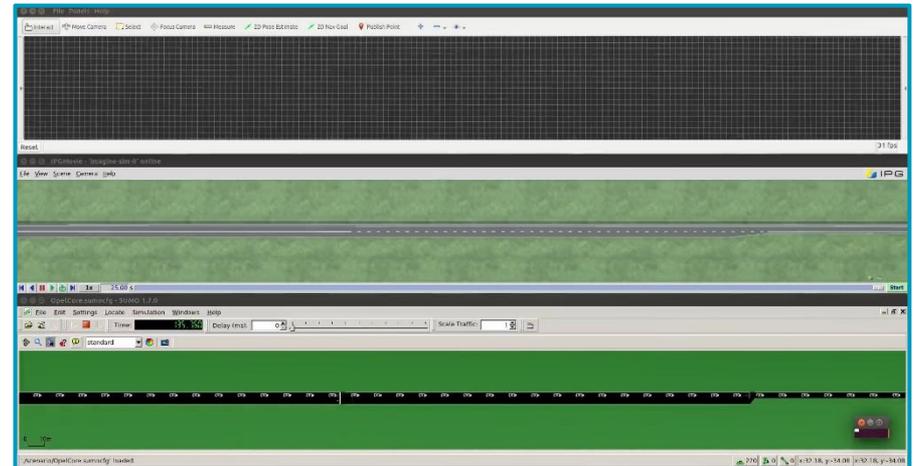
- Implicit, continuous, decentralized maneuver coordination.
- Intentions (tactical/operational) exchange via MCM.
 - 1 trajectory at a time.
 - Saving bandwidth.
- Suitable for autonomous and manually driven vehicles.
- Proof-of-concept F1 implementation.

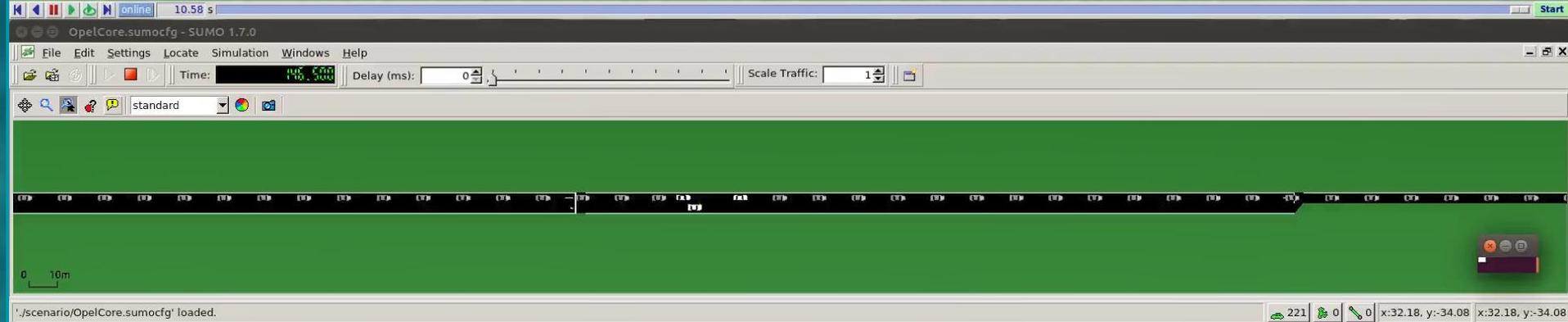
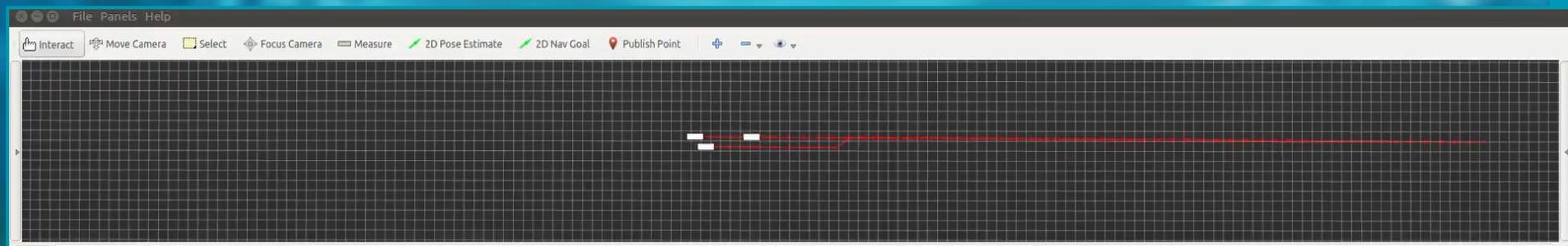


Continuous Cooperation Reduced Simulation Example



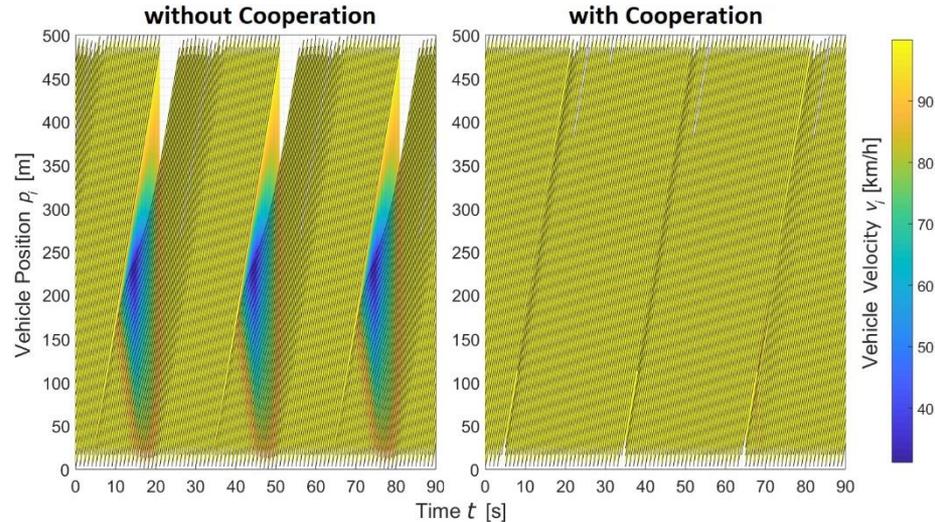
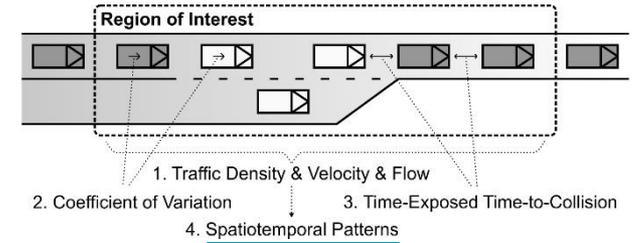
Traffic Flow and Vehicle Dynamics Co-Simulation





Continuous Cooperation Reduced Impact on Traffic Quality

- Simulative Evaluation using various metrics.
- Positive effect of cooperation apparent.



THANK YOU

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- [1] V. Lizenberg, S. Knapp, R. Mannale, V. Wendel & F. Köster. "Simulationsbasierte Bewertungs- und Vergleichsmethodik für Abstimmungsverfahren in kooperativen Fahrfunktionen". *AAET: Automatisiertes und vernetztes Fahren*; pp. 49-65. 2019; Brunswick, Germany.
- [2] V. Lizenberg, B. Büchs, S. Knapp, R. Mannale & F. Köster. "Graphical Data Visualization for Vehicular Communication Systems in Real and Virtual Test Environments". *AmE: Automotive meets Electronics (11th GMM-Symposium)*; pp. 65-70. 2020; Dortmund, Germany.
- [3] V. Lizenberg, D. Bischoff, Y. Haridy, U. Eberle, S. Knapp & F. Köster. "Simulation-Based Evaluation of Cooperative Maneuver Coordination and its Impact on Traffic Quality". *SAE International Journal of Advances and Current Practices in Mobility from WCX: World Congress Experience Digital Summit*; vol. 3, no. 6, pp. 3159-3169; Technical Paper 2021-01-0171. 2021; doi: [10.4271/2021-01-0171](https://doi.org/10.4271/2021-01-0171).
- [4] V. Lizenberg, M.R. Alkurdi, U. Eberle & F. Köster. "Intelligent Co-Simulation Framework for Cooperative Driving Functions". *IEEE ICCP: 17th International Conference on Intelligent Computer Communication and Processing*; pp. 109-115. 2021; Cluj-Napoca, Romania; doi: [10.1109/ICCP53602.2021.9733618](https://doi.org/10.1109/ICCP53602.2021.9733618).

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