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Member of the [Cyber-physical Mobility Group](#)

Kontakt

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Forschung

Meine Forschung im Bereich [Cyber-physical Mobility](#) befindet sich in der interdisziplinären Schnittmenge von Software-Engineering, Regelungstechnik, mathematischer Optimierung und Kommunikationstechnik. Derzeit bearbeite ich das Projekt [AutoKnigge](#), sowie den Aufbau des [Cyber-physical Mobility Labors](#).

Abschlussarbeiten

Im Rahmen meiner Forschungstätigkeit ergeben sich kontinuierlich Themen für Abschlussarbeiten. Bei Interesse bitte ich um Kontaktaufnahme per E-Mail oder persönlich bei mir im Büro. Eigene Vorschläge sind ebenfalls möglich.

Offene Hiwistellen

Aktuelle Stellenausschreibungen können [hier](#) gefunden werden. Initiativbewerbungen sind ebenfalls

willkommen. Bewerbungen sollen folgende Unterlagen beinhalten: Notenspiegel, kurzer Lebenslauf und Zeugnisse.

Publikationen

[KA23]

[PDFBIB](#)

Kloock, M. M. and Alrifaae, B., "Coordinated Cooperative Distributed Decision-Making Using Synchronization of Local Plans", *IEEE Transactions on Intelligent Vehicles*, vol. 8, iss. 2, pp. 1292-1306, 2023

Coordinated Cooperative Distributed Decision-Making Using Synchronization of Local Plans

Bibtex entry :

```
@article { KA23,
  author = { Kloock, Maximilian Martin and Alrifaae, Bassam },
  title = { Coordinated Cooperative Distributed Decision-Making Using
    Synchronization of Local Plans },
  journal = { IEEE Transactions on Intelligent Vehicles },
  publisher = { IEEE },
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  volume = { 8 },
  number = { 2 },
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[KA23a]

[PDFBIB](#)

Kloock, M. M. and Alrifaae, B., "Cooperative Pose Control of Non-Holonomic Vehicles Using Synchronization", in *Proc. 2023 IEEE 26th International Conference on Intelligent Transportation Systems (ITSC) : [Proceedings]*, 2023, IEEE, pp. 93-99.

Cooperative Pose Control of Non-Holonomic Vehicles Using Synchronization

Bibtex entry :

```
@inproceedings { KA23a,
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Bewertung
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  Interagierende Automobile (273237627) },
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[Klo23]

[PDFBIB](#)

Kloock, M. M., "Synchronization-based cooperative trajectory planning of networked vehicles", PhD Thesis, Aachen, 2023.

Synchronization-based cooperative trajectory planning of networked vehicles

Bibtex entry :

```
@phdthesis { Klo23,
  author = { Kloock, Maximilian Martin },
  othercontributors = { Kowalewski, Stefan and Althoff, Matthias },
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networked vehicles },
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  pages = { 1 Online-Ressource : Illustrationen, Diagramme },
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[KSA23]

[PDFBIB](#)

Kloock, M. M., Scheffe, P., and Alrifaae, B., "Testing distributed trajectory planning in the cyber-physical mobility lab", *Automatisierungstechnik*, vol. 71, iss. 4, pp. 317-325, 2023

Testing distributed trajectory planning in the cyber-physical mobility lab

Bibtex entry :

```
@article { KSA23,
  author = { Kloock, Maximilian Martin and Scheffe, Patrick and
Alrifaae,
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[KSG+23]

[PDFBIB](#)

Kloock, M. M., Scheffe, P., Gress, O., and Alrifaae, B., "An Architecture for Experiments in Connected and Automated Vehicles", *IEEE open journal of intelligent transportation systems*, vol. 4, pp. 175-186, 2023

An Architecture for Experiments in Connected and Automated Vehicles

Bibtex entry :

```
@article { KSG+23,
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```
author = { Kloock, Maximilian Martin and Scheffe, Patrick and  
Gress,  
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Automated  
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journal = { IEEE open journal of intelligent transportation systems  
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[SHK+23]

[PDFBIB](#)

Scheffe, P., Henneken, T. M., Kloock, M. M., and Alrifaae, B., "Sequential Convex Programming Methods for Real-time Optimal Trajectory Planning in Autonomous Vehicle Racing", *IEEE Transactions on Intelligent Vehicles : T-IV*, vol. 8, iss. 1, pp. 661-672, 2023

Sequential Convex Programming Methods for Real-time Optimal Trajectory Planning in Autonomous Vehicle Racing

Bibtex entry :

```
@article { SHK+23,  
author = { Scheffe, Patrick and Henneken, Theodor Mario and Kloock,  
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[KDK+22]

[PDFBIB](#)

Kloock, M. M., Dirksen, M., Kowalewski, S., and Alrifaae, B., "Generation of Coupling Topologies for Multi-Agent Systems using Non-Cooperative Games", in *Proc. 2022 IEEE Intelligent Vehicles Symposium (IV) : 4-9 June 2022 / publisher: IEEE, Piscataway, NJ, 2022, IEEE, pp. 1-8.*

Generation of Coupling Topologies for Multi-Agent Systems using Non-Cooperative Games

Bibtex entry :

```
@inproceedings { KDK+22,
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    2022 / publisher: IEEE },
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[KHK+21]

[PDFBIB](#)

Kloock, M. M., He, Q., Kowalewski, S., and Alrifaae, B., "Trajectory Verification for Networked and Autonomous Vehicles using Temporal Logic and Model Checking", in *Proc. 2021 IEEE International Intelligent Transportation Systems Conference (ITSC) : 19-22 Sept. 2021 / publisher: IEEE, [Piscataway, NJ], 2021, IEEE, pp. 244-250.*

Trajectory Verification for Networked and Autonomous

Vehicles using Temporal Logic and Model Checking

Bibtex entry :

```
@inproceedings { KHK+21,  
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[KSM+21]

[PDFBIB](#)

Kloock, M. M., Scheffe, P., Maczijekowski, J., Kampmann, A., Mokhtarian, A., Kowalewski, S., and Alrifaae, B., "Cyber-Physical Mobility Lab : An Open-Source Platform for Networked and Autonomous Vehicles", in *Proc. 2021 European Control Conference (ECC)*, [Piscataway, NJ], 2021, IEEE, pp. 1937-1944.

Cyber-Physical Mobility Lab : An Open-Source Platform for Networked and Autonomous Vehicles

Bibtex entry :

```
@inproceedings { KSM+21,  
  author = { Kloock, Maximilian Martin and Scheffe, Patrick and  
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[KST+20]

[PDFBIB](#)

Kloock, M. M., Scheffe, P., Tülleners, I., Maczijewski, J., Kowalewski, S., and Alrifaae, B., "Vision-Based Real-Time Indoor Positioning System for Multiple Vehicles", *IFAC-PapersOnLine*, vol. 53, iss. 2, pp. 15446-15453, 2020

Vision-Based Real-Time Indoor Positioning System for Multiple Vehicles

Bibtex entry :

```
@article { KST+20,
author = { Kloock, Maximilian Martin and Scheffe, Patrick and
T{"u"}lleners, Isabelle and Maczijewski, Janis and
Kowalewski, Stefan and Alrifaae, Bassam },
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Multiple Vehicles },
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volume = { 53 },
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[SMK+20]

[PDFBIB](#)

Scheffe, P., Maczijewski, J., Kloock, M. M., Kampmann, A., Derks, A., Kowalewski, S., and Alrifaae, B., "Networked and Autonomous Model-scale Vehicles for Experiments in Research and

Education", *IFAC-PapersOnLine*, vol. 53, iss. 2, pp. 17332-17337, 2020

Networked and Autonomous Model-scale Vehicles for Experiments in Research and Education

Bibtex entry :

```
@article { SMK+20,
  author = { Scheffe, Patrick and Maczijewski, Janis and Kloock,
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  volume = { 53 },
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[KKM+19]

[PDFBIB](#)

Kloock, M. M., Kragl, L., Maczijewski, J., Alrifaae, B., and Kowalewski, S., "Distributed Model Predictive Pose Control of Multiple Nonholonomic Vehicles", in *Proc. IV19 : 30th IEEE Intelligent Vehicles Symposium : 9-12 June 2019, Paris / publisher: IEEE, Piscataway, NJ, 2019, IEEE*, pp. 1620-1625.

Distributed Model Predictive Pose Control of Multiple Nonholonomic Vehicles

Bibtex entry :

```
@inproceedings { KKM+19,
  author = { Kloock, Maximilian Martin and Kragl, Ludwig and
    Maczijewski,
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booktitle = { IV19 : 30th IEEE Intelligent Vehicles Symposium :  
9-12 June  
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(France),  
2019-06-09 - 2019-06-12 },  
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[KSB+19]

[PDFBIB](#)

Kloock, M. M., Scheffe, P., Botz, L., Maczijewski, J., Alrifaae, B., and Kowalewski, S., "Networked Model Predictive Vehicle Race Control", in *Proc. The 2019 IEEE Intelligent Transportation Systems Conference - ITSC : Auckland, New Zealand, 27-30 October 2019 / IEEE, IEEE-ITSC 2019, ITSS - IEEE Intelligent Transportation Systems Society, Piscataway, NJ, 2019, IEEE*, pp. 1552-1557.

Networked Model Predictive Vehicle Race Control

Bibtex entry :

```
@inproceedings { KSB+19,  
author = { Kloock, Maximilian Martin and Scheffe, Patrick and Botz,  
Lukas and Maczijewski, Janis and Alrifaae, Bassam and  
Kowalewski, Stefan },  
title = { Networked Model Predictive Vehicle Race Control },  
booktitle = { The 2019 IEEE Intelligent Transportation Systems  
Conference  
- ITSC : Auckland, New Zealand, 27-30 October 2019 / IEEE,  
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[KSM+19]

[PDFBIB](#)

Kloock, M. M., Scheffe, P., Marquardt, S., Maczijekowski, J., Alrifaae, B., and Kowalewski, S., "Distributed Model Predictive Intersection Control of Multiple Vehicles", in *Proc. The 2019 IEEE Intelligent Transportation Systems Conference - ITSC : Auckland, New Zealand, 27-30 October 2019 / IEEE, IEEE-ITSC 2019, ITSS - IEEE Intelligent Transportation Systems Society*, Piscataway, NJ, 2019, IEEE, p. 8917117, 1735-1740.

Distributed Model Predictive Intersection Control of Multiple Vehicles

Bibtex entry :

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@inproceedings { KSM+19,
  author = { Kloock, Maximilian Martin and Scheffe, Patrick and
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[VKR+19]

[PDFBIB](#)

Völker, M., Kloock, M. M., Rabanus, L., Alrifaae, B., and Kowalewski, S., "Verification of Cooperative Vehicle Behavior using Temporal Logic", *IFAC-PapersOnLine*, vol. 52, iss. 8, pp. 99-104, 2019

Verification of Cooperative Vehicle Behavior using

Temporal Logic

Bibtex entry :

```
@article { VKR+19,  
  author = { V{"o}lker, Marcus and Kloock, Maximilian Martin and  
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