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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

[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. [24th International Intelligent Transportation Systems Conference, ITSC 2021, 2021-09-19 - 2021-09-22, Indianapolis, IN, USA]*, 2021, pp. 244-250.

Trajectory Verification for Networked and Autonomous Vehicles using Temporal Logic and Model Checking

Bibtex entry :

```
@inproceedings { KHK+21,
  author = { Kloock, Maximilian Martin and He, Qingyun and
    Kowalewski,
      Stefan and Alrifaae, Bassam },
  title = { Trajectory Verification for Networked and Autonomous
    Vehicles using Temporal Logic and Model Checking },
  booktitle = { [24th International Intelligent Transportation
    Systems
      Conference, ITSC 2021, 2021-09-19 - 2021-09-22,
        Indianapolis, IN, USA] },
  pages = { 244-250 },
  year = { 2021 },
  organization = { 24th International Intelligent Transportation
    Systems
      Conference, Indianapolis, IN (USA), 2021-09-19 - 2021-09-22 },
  doi = { 10.1109/ITSC48978.2021.9564414 },
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    http://publications.rwth-aachen.de/record/834750/files/834750.pdf },
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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, 2021-06-29 - 2021-07-02, Delft, Netherlands]*, 2021, 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  
    Maczijekwski, Janis and Kampmann, Alexandru and Mokhtarian,  
    Armin and Kowalewski, Stefan and Alrifaae, Bassam },  
  title = { Cyber-Physical Mobility Lab : An Open-Source Platform for  
    Networked and Autonomous Vehicles },  
  booktitle = { [2021 European Control Conference, ECC, 2021-06-29 -  
    2021-07-02, Delft, Netherlands] },  
  pages = { 1937-1944 },  
  year = { 2021 },  
  organization = { 2021 European Control Conference, Delft  
(Netherlands),  
    2021-06-29 - 2021-07-02 },  
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  typ = { PUB:(DE-HGF)7 },  
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[KST+20]

[PDFBIB](#)

Kloock, M. M., Scheffe, P., Tülleners, I., Maczijekwski, 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 Maczijekwski, Janis and  
    Kowalewski, Stefan and Alrifaae, Bassam },  
  title = { Vision-Based Real-Time Indoor Positioning System for  
    Multiple Vehicles },  
  journal = { IFAC-PapersOnLine },  
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  pages = { 15446-15453 },  
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issn = { 2405-8963 },
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typ = { PUB:(DE-HGF)16 },
reportid = { RWTH-2021-03830 },
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url = {
http://publications.rwth-aachen.de/record/817298/files/817298.pdf },
}
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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,
Maximilian Martin and Kampmann, Alexandru and Derks, Andreas
and Kowalewski, Stefan and Alrifaae, Bassam },
title = { Networked and Autonomous Model-scale Vehicles for
Experiments in Research and Education },
journal = { IFAC-PapersOnLine },
publisher = { Elsevier },
pages = { 17332-17337 },
volume = { 53 },
number = { 2 },
year = { 2020 },
address = { Frankfurt },
issn = { 2405-8963 },
organization = { 21th IFAC World Congress, online, 2020-07-11 -
2020-07-17 },
doi = { 10.1016/j.ifacol.2020.12.1821 },
typ = { PUB:(DE-HGF)16 },
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url = {
http://publications.rwth-aachen.de/record/817552/files/817552.pdf },
}
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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, New Jersey], 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, Janis and Alrifaae, Bassam and Kowalewski, Stefan },
  title = { Distributed Model Predictive Pose Control of Multiple Nonholonomic Vehicles },
  booktitle = { IV19 : 30th IEEE Intelligent Vehicles Symposium : 9-12 June 2019, Paris / publisher: IEEE },
  publisher = { IEEE },
  pages = { 1620-1625 },
  year = { 2019 },
  address = { [Piscataway, New Jersey] },
  organization = { 2019 IEEE Intelligent Vehicles Symposium (IV), Paris (France), 2019-06-09 - 2019-06-12 },
  doi = { 10.1109/IVS.2019.8813980 },
  typ = { PUB:(DE-HGF)7 },
  reportid = { RWTH-2019-08197 },
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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
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- ITSC : Auckland, New Zealand, 27-30 October 2019 / IEEE,
  IEEE-ITSC 2019, ITSS - IEEE Intelligent Transportation
  Systems Society },
publisher = { IEEE },
pages = { 1552-1557 },
year = { 2019 },
address = { Piscataway, NJ },
organization = { 22nd IEEE Intelligent Transportation Systems
Conference,
  Auckland (New Zealand), 2019-10-27 - 2019-10-30 },
doi = { 10.1109/ITSC.2019.8917222 },
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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 :

```

@inproceedings { KSM+19,
  author = { Kloock, Maximilian Martin and Scheffe, Patrick and
    Marquardt, Sascha and Maczijekowski, Janis and Alrifaae,
    Bassam and Kowalewski, Stefan },
  title = { Distributed Model Predictive Intersection Control of
    Multiple Vehicles },
  booktitle = { 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 },
publisher = { IEEE },
pages = { 8917117, 1735-1740 },
year = { 2019 },
address = { Piscataway, NJ },
organization = { 22nd IEEE Intelligent Transportation Systems
Conference,
  Auckland (New Zealand), 2019-10-27 - 2019-10-30 },
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reportid = { RWTH-2019-11242 },
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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
    Rabanus, Leon and Alrifaae, Bassam and Kowalewski, Stefan },
  title = { Verification of Cooperative Vehicle Behavior using
    Temporal
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  journal = { IFAC-PapersOnLine },
  publisher = { Elsevier },
  pages = { 99-104 },
  volume = { 52 },
  number = { 8 },
  year = { 2019 },
  address = { Frankfurt ; M{"u"}nchen [u.a.] },
  issn = { 2405-8963 },
  organization = { 10th IFAC Symposium on Intelligent Autonomous
    Vehicles,
      Gdansk (Poland), 2019-07-03 - 2019-07-05 },
  doi = { 10.1016/j.ifacol.2019.08.055 },
  typ = { PUB:(DE-HGF)16 },
  reportid = { RWTH-2019-08318 },
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