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Kontakt

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Fax: +49 241 80 22150

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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.

Laufend

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Abgeschlossen

- A GPS-aided Inertial Navigation System for Pedelecs
- Enhanced Pedelec Odometry supported by Acceleration Measurement
- Concept and Implementation of a Real-Time Lane Position Estimation System with Side Cameras using Deep Learning Algorithms for Autonomous Vehicles
- Balance Point dependent Vehicle Dynamics Control
- Tethering semi-autonomous Vehicles by relative Positioning

- Enhanced GPS positioning using a smartphone IMU and odometer
- Development of a communication unit to control a pedelec
- Ground surface pattern recognition for enhanced positioning

Lehre

SS2017

- Cyber-Physische Systeme in Medizintechnik und Mobilität (S)

WS2017/18:

- Dynamic Systems for Computer Scientists (V)
- Cyber-Physische Systeme in Medizintechnik und Mobilität (S)

SS2017

- Eingebettete Software in Medizintechnik & eMobilität (S)

WS2016/17:

- Dynamic Systems for Computer Scientists (V)
- Eingebettete Software in Medizintechnik & eMobilität (S)

SS2016:

- Eingebettete Software in Medizintechnik & eMobilität (S)

WS2015/16:

- Dynamic Systems for Computer Scientists (V)
- Eingebettete Signalverarbeitung in Medizintechnik & eMobilität (S)

SS2015:

- Eingebettete Signalverarbeitung in Medizintechnik & eMobilität (S)

WS2014/15:

- Dynamic Systems for Computer Scientists (V)
- Entwicklung von Fahrerinformationssystemen mit Android und OpenXC (P)
- Ausgesuchte Themen zur Eingebetteten Software (S)

SS2014:

- NXT-Programmierung mit Java (P)

Projekte und Ausschüsse

- Projektingenieur der Fordglobal Mobility chalange 2016

- Projektingenieur Echtzeit Demonstrator 2015
- Mitarbeit im Projekt Velocity Aachen 2015-2016
- Betreuer des Carolo-Cup Teams 2015-2017
- Mitarbeit im Profilbereich Mobility & Transport Engineering 2014-2015
- Mitarbeit im Projekt Future Mobility Lab 2014-2017
- Mitglied im Prüfungsausschus Automatisierungstechnik 2013-2017

Patente

- Elektrisch angetriebene Transportvorrichtung für wenigstens eine Person sowie Steuerungsverfahren hierfür (102016217804.0, 16.09.2016)
- Transportsystem mit automatischer Folgefunktion sowie Steuerungsverfahren (102016217805.9, 16.09.2016)
- Verfahren zur Vortriebssteuerung eines dreispurigen Fahrzeugs sowie Fahrzeug (102016221367.9, 28.10.2016)
- Fahrzeug mit elektromotorisch angetriebenen Rädern und Verfahren zum Lenken desselben (102016221366.0, 28.10.2016)
- Tethering of a Semi-Autonomous Vehicle (83866252, 03.08.2017)
- Conveying System with an Automatic Tethering Function (FMC 8418 PUSA, 14.09.2017)

Publikationen

[Sch21]
PDFBIB
Schweigler, M., "Ground surface pattern recognition for enhanced navigation", PhD Thesis, Aachen, 2021.

Ground surface pattern recognition for enhanced navigation

Bibtex entry :

```
@phdthesis {  Sch21,
    author = { Schweigler, Martin },
    othercontributors = { Kowalewski, Stefan and Abel, Dirk },
    title = { Ground surface pattern recognition for enhanced
navigation },
    publisher = { RWTH Aachen University },
    school = { RWTH Aachen University },
    pages = { 1 Online-Ressource : Illustrationen, Diagramme, Karten },
    series = { Aachener Informatik-Berichte },
    year = { 2021 },
    address = { Aachen },
    doi = { 10.18154/RWTH-2021-05828 },
    typ = { PUB:(DE-HGF)11 },
    reportid = { RWTH-2021-05828 },
    cin = { 122810 / 120000 },
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    url = {
http://publications.rwth-aachen.de/record/820793/files/820793.pdf },
}
```

[GSA+18]
PDFBIB

Grochowski, M., Schweigler, M., Alrifaee, B., and Kowalewski, S., "A GPS-aided Inertial Navigation System for Vehicular Navigation using a Smartphone", *IFAC-PapersOnLine*, vol. 51, iss. 10, pp. 121-126, 2018

A GPS-aided Inertial Navigation System for Vehicular Navigation using a Smartphone

Bibtex entry :

```
@article {  GSA+18,
    author = { Grochowski, Marco and Schweigler, Martin and Alrifaee,
        Bassam and Kowalewski, Stefan },
    title = { A GPS-aided Inertial Navigation System for Vehicular
        Navigation using a Smartphone },
    journal = { IFAC-PapersOnLine },
    pages = { 121-126 },
    volume = { 51 },
    number = { 10 },
    year = { 2018 },
    address = { Laxenburg },
    issn = { 2405-8963 },
    organization = { 3rd IFAC Conference on Embedded Systems,
Computational
        Intelligence and Telematics in Control, Farod (Portugal),
        2018-06-06 - 2018-06-08 },
    doi = { 10.1016/j.ifacol.2018.06.247 },
    typ = { PUB:(DE-HGF)16 },
    reportid = { RWTH-2018-227583 },
    cin = { 122810 / 120000 },
    url = { http://publications.rwth-aachen.de/record/731577 },
}
```

[SGT+18]
PDFBIB

Schweigler, M., Grochowski, M., Tamrakar, S., and Kowalewski, S., "Ground Surface Pattern Recognition with Hidden Markov Models for Low Cost Positioning Improvement", in *Proc. 8th International Conference on Pattern Recognition Systems (ICPRS 2017) : 11-13 July 2017*, [Stevenage], 2018, IET, pp. 1-6.

Ground Surface Pattern Recognition with Hidden Markov Models for Low Cost Positioning Improvement

Bibtex entry :

```
@inproceedings {  SGT+18,
    author = { Schweigler, Martin and Grochowski, Marco and Tamrakar,
Sujan
        and Kowalewski, Stefan },
    title = { Ground Surface Pattern Recognition with Hidden Markov
Models
        for Low Cost Positioning Improvement },
    booktitle = { 8th International Conference on Pattern Recognition
Systems
        (ICPRS 2017) : 11-13 July 2017 },
    publisher = { IET },
    pages = { 1-6 },
    year = { 2018 },
    address = { [Stevenage] },
    organization = { 8th International Conference of Pattern
Recognition Systems,
        Madrid (Spain), 2017-07-11 - 2017-07-13 },
    doi = { 10.1049/cp.2017.0166 },
    typ = { PUB:(DE-HGF)7 },
    reportid = { RWTH-CONV-236283 },
    cin = { 122810 / 120000 },
    url = { http://publications.rwth-aachen.de/record/752258 },
}
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[KBS+17]
PDFBIB

Kühn, J., Brendle, C., Stollenwerk, A., Schweigler, M., Kowalewski, S., Janisch, T., Rossaint, R., Leonhardt, S., Walter, M., and Kopp, R., "Decentralized safety concept for closed-loop controlled intensive care : Supervision of a blood pump during extracorporeal circulation", *Biomedizinische Technik*, vol. 62, iss. 2, pp. 213-224, 2017

Decentralized safety concept for closed-loop controlled intensive care : Supervision of a blood pump during extracorporeal circulation

Bibtex entry :

```
@article {  KBS+17,
    author = { K{\"u}hn, Jan and Brendle, Christian and Stollenwerk,
André
        and Schweigler, Martin and Kowalewski, Stefan and Janisch,
        Thorsten and Rossaint, Rolf and Leonhardt, Steffen and
        Walter, Marian and Kopp, R{\"u}dger },
    title = { Decentralized safety concept for closed-loop controlled
        intensive care : Supervision of a blood pump during
        extracorporeal circulation },
    journal = { Biomedizinische Technik },
    publisher = { de Gruyter },
```

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    pages = { 213-224 },
    volume = { 62 },
    number = { 2 },
    year = { 2017 },
    address = { Berlin [u.a.] },
    issn = { 1862-278X },
    doi = { 10.1515/bmt-2016-0087 },
    typ = { PUB:(DE-HGF)16 },
    reportid = { RWTH-2017-09486 },
    cin = { 611010 / 122810533000-2533000-3 / 120000533000-3533000-2 },
    url = { http://publications.rwth-aachen.de/record/707857 },
}
```

[TSN+16]
PDFBIB

Thönnessen, D., Schweigler, M., Ney, O., and Kugelmeier, M., "Conveying system with an automatic tethering function", 2016.

Conveying system with an automatic tethering function

Bibtex entry :

```
@techreport {  TSN+16,
    author = { Th{\"o}nnessen, David and Schweigler, Martin and Ney,
Oliver
        and Kugelmeier, Mirko },
    title = { Conveying system with an automatic tethering function },
    pages = { 1-7 },
    year = { 2016 },
    typ = { PUB:(DE-HGF)23 },
    reportid = { RWTH-CONV-236287 },
    url = {
https://depatisnet.dpma.de/DepatisNet/depatisnet?action=bibdat&docid=US
020180081372A1 },
}
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