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Wissenschaftlicher Mitarbeiter

## Kontakt

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Büro: Raum 2322 (Gebäude H)

## Sprechstunde

Nach Vereinbarung

## Lehre

Semester	Titel	Art
Sommersemester 17	<a href="#">Entwicklung NXT gesteuerter LEGO-Fahrzeuge mit Java</a>	P
Wintersemester 17/18	<a href="#">Praktikum Systemprogrammierung</a>	P
	<a href="#">Modellbasiertes Testen &amp; Analyse eingebetteter Software</a>	S
Sommersemester 18	<a href="#">Praktikum Systemprogrammierung</a>	P
	<a href="#">Modellbasiertes Testen &amp; Analyse eingebetteter Software</a>	S

## Offene Abschlussarbeiten

## Laufende Abschlussarbeiten

## Betreute Abschlussarbeiten

- Formalisierung von Technical Assumptions und Safety Goals
  - Eingabeunterstützung für kontrollierte Sprachen
  - Evaluation von kontrollierten Sprachen
- Import und semi-automatische Übersetzung von alten Gefährdungsanalysen
  - Implementierung kontrollierter Sprachen im Grammatical Framework
  - Methoden und Algorithmen zur Identifikation von Widersprüchen

- Goal Structuring Notation Editor
  - Datenbankbasierte Eingabeunterstützung für Gefährdungsanalysen
- Semantische Interpretation einer kontrollierten Sprache mit mathematischer Logik
  - Evaluation kontrollierter Sprachen für die Gefährdungsanalyse
- Lexikalische Analyse kontrollierter Sprachen und die Entwicklung eines Werkzeugs zur Eingabeunterstützung
- Klassifikation von Begründungen zur Gefährdungseinstufung durch maschinelle Lernverfahren
  - Word Embedding für semantische Textvergleiche in Gefährdungsanalysen

## Publikationen

[SRT+20]

[PDFBIB](#)

Smieschek, M., Rakel, S., Thönnessen, D., Derks, A., Stollenwerk, A., and Kowalewski, S., "A Remote Test Environment for a Large-Scale Microcontroller Laboratory Course", in *Proc. Cyber physical systems : model-based design : 9th international workshop, CyPhy 2019 and 15th international workshop, WESE 2019, New York City, NY, USA, October 17-18, 2019 : revised selected papers / Roger Chamberlain, Martin Edin Grimheden, Walid Taha (eds.)*, Cham, 2020 in *Lecture Notes in Computer Science*, Springer, pp. 231-246.

### A Remote Test Environment for a Large-Scale Microcontroller Laboratory Course

#### Bibtex entry :

```
@inproceedings { SRT+20,
  author = { Smieschek, Manfred and Rakel, Stefan and Th{"o}nnessen,
    David and Derks, Andreas and Stollenwerk, Andr{e} and
    Kowalewski, Stefan },
  title = { A Remote Test Environment for a Large-Scale
Microcontroller
  Laboratory Course },
  booktitle = { Cyber physical systems : model-based design : 9th
international workshop, CyPhy 2019 and 15th international
workshop, WESE 2019, New York City, NY, USA, October 17-18,
2019 : revised selected papers / Roger Chamberlain, Martin
Edin Grimheden, Walid Taha (eds.) },
  publisher = { Springer },
  pages = { 231-246 },
  series = { Lecture Notes in Computer Science },
  year = { 2020 },
  address = { Cham },
  organization = { Workshop on Embedded Systems and Cyber-Physical
Systems
  Education, New York (USA), 2019-10-17 - 2019-10-18 },
  doi = { 10.1007/978-3-030-41131-2_11 },
  typ = { PUB:(DE-HGF)7 },
  reportid = { RWTH-2020-02344 },
```

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cin = { 122810 / 120000 },
url = {
http://publications.rwth-aachen.de/record/783169/files/Remote%20Pool%20
Final.pdf },
}

```

[TRR+18]

[PDFBIB](#)

Thönnessen, D., Reinker, N., Rakel, S., and Kowalewski, S., "A concept for PLC hardware-in-the-loop testing using an extension of structured text", in *Proc. 2017 22nd IEEE International Conference on Emerging Technologies and Factory Automation : September 12-15, 2017, Limassol, Cyprus / ABB, IEEE, IES, University of Cyprus*, [Piscataway, NJ], 2018 in IEEE International Conference on Emerging Technologies and Factory Automation-ETFA, IEEE, p. 8.

## A concept for PLC hardware-in-the-loop testing using an extension of structured text

### Bibtex entry :

```

@inproceedings { TRR+18,
  author = { Th{"o}nnessen, David and Reinker, Niklas and Rakel,
Stefan
    and Kowalewski, Stefan },
  title = { A concept for PLC hardware-in-the-loop testing using an
extension of structured text },
  booktitle = { 2017 22nd IEEE International Conference on Emerging
Technologies and Factory Automation : September 12-15, 2017,
Limassol, Cyprus / ABB, IEEE, IES, University of Cyprus },
  publisher = { IEEE },
  pages = { 8 Seiten },
  series = { IEEE International Conference on Emerging Technologies
and
    Factory Automation-ETFA },
  year = { 2018 },
  address = { [Piscataway, NJ] },
  organization = { 22nd IEEE International Conference on Emerging
Technologies
    and Factory Automation, Limassol (Cyprus), 2017-09-12 -
2017-09-15 },
  doi = { 10.1109/ETFA.2017.8247580 },
  typ = { PUB:(DE-HGF)7 },
  reportid = { RWTH-2018-223452 },
  cin = { 122810 / 120000 },
  url = { http://publications.rwth-aachen.de/record/722218 },
}

```

[TRR+18a]

[PDFBIB](#)

Thönnessen, D., Rakel, S., Reinker, N., and Kowalewski, S., "Matching Discrete Signals for Hardware-in-the-Loop-Testing of PLCs", *IFAC-PapersOnLine*, vol. 51, iss. 10, pp. 229-234, 2018

## Matching Discrete Signals for Hardware-in-the-Loop-Testing of PLCs

### Bibtex entry :

```
@article { TRR+18a,  
  author = { Th{\"}nnessen, David and Rakel, Stefan and Reinker,  
Niklas  
  and Kowalewski, Stefan },  
  title = { Matching Discrete Signals for Hardware-in-the-Loop-  
Testing  
of PLCs },  
  journal = { IFAC-PapersOnLine },  
  pages = { 229-234 },  
  volume = { 51 },  
  number = { 10 },  
  year = { 2018 },  
  address = { Laxenburg },  
  issn = { 2405-8963 },  
  organization = { 3rd IFAC Conference on Embedded Systems,  
Computational  
Intelligence and Telematics in Control },  
  doi = { 10.1016/j.ifacol.2018.06.267 },  
  typ = { PUB:(DE-HGF)16 },  
  reportid = { RWTH-2018-227582 },  
  cin = { 122810 / 110000 / 120000 },  
  url = { http://publications.rwth-aachen.de/record/731576 },  
}
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[TRR+18b]

[PDFBIB](#)

Thönnessen, D., Reinker, N., Rakel, S., Svetlakov, A., and Kowalewski, S., "Correctness Properties and Exemplified Applicability of a Signal Matching Algorithm with Multidimensional Tolerance Specifications", in *Proc. 2018 IEEE 14th International Conference on Automation Science and Engineering (CASE) : Munich, Germany, August 20-24, 2018*, Piscataway, NJ, 2018, IEEE, pp. 1197-1202.

## Correctness Properties and Exemplified Applicability of a Signal Matching Algorithm with Multidimensional Tolerance Specifications

### Bibtex entry :

```
@inproceedings { TRR+18b,  
  author = { Th{\"}nnessen, David and Reinker, Niklas and Rakel,  
Stefan  
  and Svetlakov, Andrei and Kowalewski, Stefan },  
  title = { Correctness Properties and Exemplified Applicability of a  
Signal Matching Algorithm with Multidimensional Tolerance
```

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Specifications },
booktitle = { 2018 IEEE 14th International Conference on Automation
Science and Engineering (CASE) : Munich, Germany, August
20-24, 2018 },
publisher = { IEEE },
pages = { 1197-1202 },
year = { 2018 },
address = { Piscataway, NJ },
organization = { 2018 IEEE 14th International Conference on
Automation
Science and Engineering, Munich (Germany), 2018-08-20 -
2018-08-24 },
doi = { 10.1109/COASE.2018.8560407 },
typ = { PUB:(DE-HGF)7 },
reportid = { RWTH-2019-00319 },
cin = { 122810 / 120000 },
url = {
http://publications.rwth-aachen.de/record/752982/files/752982.pdf },
}
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