Stefan Rakel, M.Sc. RWTH

Wissenschaftlicher Mitarbeiter

Kontakt

rakel[at]embedded[dot]rwth-aachen[dot]de

Tel. +49 241 80 21165
Fax +49 241 80 22150

Adresse: Ahornstr. 55, 52074 Aachen, Germany
Büro: Raum 2322 (Gebäude H)

Sprechstunde

Nach Vereinbarung

Lehre

Semester	Titel	Art
Sommersemester 17	Entwicklung NXT gesteuerter LEGO-Fahrzeuge mit Java	P
Wintersemester 17/18	Praktikum Systemprogrammierung	P
	Modellbasiertes Testen & Analyse eingebetteter Software	S
Sommersemester 18	Praktikum Systemprogrammierung	P
	Modellbasiertes Testen & Analyse eingebetteter Software	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. [Workshop on Embedded Systems and Cyber-Physical Systems Education, WESE 2019, New York, USA]*, 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, André and
        Kowalewski, Stefan },
    title = { A Remote Test Environment for a Large-Scale
Microcontroller
        Laboratory Course },
    booktitle = { [Workshop on Embedded Systems and Cyber-Physical
Systems
        Education, WESE 2019, New York, USA] },
    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 },
    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{\"o}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 },
}
```

[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{\"o}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
        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 },
}
```