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Office: Room 2320 (Building H)

Office Hour

On Appointment

Teaching

Semester	Titel	Art
Wintersemester 18/19	Cyber-Physische Systeme in Medizintechnik und Mobilität	S
	Modellbasiertes Testen & Analyse eingebetteter Software	S
	Formale und semiformale Methoden für eingebettete Software	S
	Proseminar: Grundlagen eingebetteter Systeme	S
	Praktikum Systemprogrammierung (Versuch 1)	P
Sommersemester 18	Entwicklung NXT gesteuerter LEGO-Fahrzeuge mit Java	P
	Formale und semiformale Methoden für eingebettete Software	S
	Praktikum Systemprogrammierung (Versuch 1)	P

Publications

[BBZ+23]

[PDFBIB](#)

Behery, M. A. A., Brauner, P., Zhou, H. A., Uysal, M. S., Samsonov, V., Bellgardt, M., Brillowski, F. S., Brockhoff, T., Farhang Ghahfarokhi, A., Gleim, L. C., Gorißen, L. M., Grochowski, M., Henn, T., Iacomini, E., Kaster, T., Koren, I., Liebenberg, M. R., Reinsch, L. N., Tirpitz, L., Trinh, M., Posada Moreno, A. F., Liehner, G. L. V., Schemmer, T., Vervier, L. S., Völker, M., Walderich, P., Zhang, S., Brecher, C., Schmitt, R. H., Decker, S. J., Gries, T., Häfner, C. L., Herty, M., Jarke, M., Kowalewski, S., Kuhlen, T., Schleifenbaum, J. H., Trimpe, J. S., van der Aalst, W. M. P., Ziefle, M., and

Lakemeyer, G., "Actionable Artificial Intelligence for the Future of Production" Cham: Springer International Publishing, 2023, pp. 1-46.

Actionable Artificial Intelligence for the Future of Production

Bibtex entry :

```
@inbook { BBZ+23,  
  author = { Behery, Mohamed Anwar Abdellatif and Brauner, Philipp  
and  
  Zhou, Hans Aoyang and Uysal, Merih Seran and Samsonov,  
Vladimir and Bellgardt, Martin and Brillowski, Florian  
Sascha and Brockhoff, Tobias and Farhang Ghahfarokhi,  
Anahita and Gleim, Lars Christoph and Gori{\ss}en, Leon  
Michel and Grochowski, Marco and Henn, Thomas and Iacomini,  
Elisa and Kaster, Thomas and Koren, István and Liebenberg,  
Martin Roland and Reinsch, Leon Niwes and Tirpitz, Liam and  
Trinh, Minh and Posada Moreno, Andres Felipe and Liehner,  
Gian Luca Valentin and Schemmer, Thomas and Vervier, Luisa  
Sophie and V{"o}lker, Marcus and Walderich, Philipp and  
Zhang, Song and Brecher, Christian and Schmitt, Robert H.  
and Decker, Stefan Josef and Gries, Thomas and H{"a}fner,  
Constantin Leon and Herty, Michael and Jarke, Matthias and  
Kowalewski, Stefan and Kuhlen, Torsten and Schleifenbaum,  
Johannes Henrich and Trimpe, Johann Sebastian and van der  
Aalst, Wil M. P. and Ziefle, Martina and Lakemeyer, Gerhard },  
  title = { Actionable Artificial Intelligence for the Future of  
Production },  
  booktitle = { Internet of production : fundamentals, applications  
and  
  proceedings / editors: Christian Brecher, G{"u"}nther Schuh,  
Wil van der Aalst, Matthias Jarke, Frank T. Piller, Melanie  
Padberg },  
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,  
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http://publications.rwth-aachen.de/record/958415/files/958415.pdf },
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[GVK22]

[PDFBIB](#)

Grochowski, M., Völker, M., and Kowalewski, S., "Test Suite Augmentation for Reconfigurable PLC Software in the Internet of Production", in *Proc. Formal Methods for Industrial Critical Systems : 27th International Conference, FMICS 2022, Warsaw, Poland, September 14-15, 2022, Proceedings / edited by Jan Friso Groote, Marieke Huisman*, Cham, 2022 in Lecture notes in computer science, Springer, pp. 137-154.

Test Suite Augmentation for Reconfigurable PLC Software in the Internet of Production

Bibtex entry :

```
@inproceedings { GVK22,
  author = { Grochowski, Marco and V{"o}lker, Marcus and Kowalewski,
    Stefan },
  title = { Test Suite Augmentation for Reconfigurable PLC Software
in
    the Internet of Production },
  booktitle = { Formal Methods for Industrial Critical Systems : 27th
    International Conference, FMICS 2022, Warsaw, Poland,
    September 14-15, 2022, Proceedings / edited by Jan Friso
    Groote, Marieke Huisman },
  publisher = { Springer },
  pages = { 137-154 },
  series = { Lecture notes in computer science },
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  address = { Cham },
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Industrial
    Critical Systems, Warsaw (Poland), 2022-09-14 - 2022-09-15 },
  doi = { 10.1007/978-3-031-15008-1_10 },
  typ = { PUB:(DE-HGF)7 },
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}
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[GVK22a]

[PDFBIB](#)

Grochowski, M., Völker, M., and Kowalewski, S., "Automatic Test Suite Generation for PLC Software in the Internet of Production", in *Proc. 2022 27th IEEE International Conference on Emerging Technologies and Factory Automation (ETFA) : 6-9 Sept. 2022 / [IEEE Industrial Electronics Society, IEEE]*, Piscataway, NJ, 2022, IEEE, p. 8.

Automatic Test Suite Generation for PLC Software in the Internet of Production

Bibtex entry :

```
@inproceedings { GVK22a,
  author = { Grochowski, Marco and V{"o"}lker, Marcus and Kowalewski,
    Stefan },
  title = { Automatic Test Suite Generation for PLC Software in the
    Internet of Production },
  booktitle = { 2022 27th IEEE International Conference on Emerging
    Technologies and Factory Automation (ETFA) : 6-9 Sept. 2022
    / [IEEE Industrial Electronics Society, IEEE] },
  publisher = { IEEE },
  pages = { 8 Seiten },
  year = { 2022 },
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    Technologies and
      Factory Automation, Stuttgart (Germany), 2022-09-06 -
      2022-09-09 },
  doi = { 10.1109/ETFA52439.2022.9921726 },
  typ = { PUB:(DE-HGF)7 },
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  illkey = { WS-A.III - Functional Perspective (X080067-WS-A.III) },
}
```

[BBG+20]

[PDFBIB](#)

Buchsbaum, M. S. K., Brecher, C., Grochowski, M., and Kowalewski, S., "Identifikation von Informationen zur Beschreibung der Systemgrenzen eines sicheren, cyber-physischen Automatisierungssystems", in *Proc. Entwurf komplexer Automatisierungssysteme : Beschreibungsmittel, Methoden, Werkzeuge und Anwendungen : 16. Fachtagung EKA 2020 / Ulrich Jumar, Christian Diedrich (Hrsg.)*, Magdeburg, 2020, Institut für Automation und Kommunikation e.V., An-Institut der Otto-von-Guericke-Universität Magdeburg, p. 10.

Identifikation von Informationen zur Beschreibung der Systemgrenzen eines sicheren, cyber-physischen Automatisierungssystems

Bibtex entry :

```
@inproceedings { BBG+20,
  author = { Buchsbaum, Melanie Sarah Katharina and Brecher,
    Christian
      and Grochowski, Marco and Kowalewski, Stefan },
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title = { Identifikation von Informationen zur Beschreibung der
Systemgrenzen eines sicheren, cyber-physischen
Automatisierungssystems },
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Beschreibungsmittel, Methoden, Werkzeuge und Anwendungen :
16. Fachtagung EKA 2020 / Ulrich Jumar, Christian Diedrich
(Hrsg.) },
publisher = { Institut für Automation und Kommunikation e.V.,
An-Institut der Otto-von-Guericke-Universität Magdeburg },
pages = { 10 Seiten },
year = { 2020 },
address = { Magdeburg },
organization = { 16. Fachtagung EKA-Entwurf komplexer
Automatisierungssysteme, cancelled },
typ = { PUB:(DE-HGF)7 },
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url = { http://publications.rwth-aachen.de/record/792285 },
illkey = { DFG project 390621612 - EXC 2023: Internet of Production
(IoP) (390621612) },
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[GKB+20]

[PDFBIB](#)

Grochowski, M., Kowalewski, S., Buchsbaum, M. S. K., and Brecher, C., "Befähigung der Testautomatisierung für ein cyber-physisches Produktionssystem", in *Proc. Entwurf komplexer Automatisierungssysteme : Beschreibungsmittel, Methoden, Werkzeuge und Anwendungen : 16. Fachtagung EKA 2020 / Ulrich Jumar, Christian Diedrich (Hrsg.)*, Magdeburg, 2020, Institut für Automation und Kommunikation e.V. - An-Institut der Otto-von-Guericke-Universität Magdeburg, p. 10.

Befähigung der Testautomatisierung für ein cyber-physisches Produktionssystem

Bibtex entry :

```

@inproceedings { GKB+20,
author = { Grochowski, Marco and Kowalewski, Stefan and Buchsbaum,
Melanie Sarah Katharina and Brecher, Christian },
title = { Befähigung der Testautomatisierung für ein
cyber-physisches Produktionssystem },
booktitle = { Entwurf komplexer Automatisierungssysteme :
Beschreibungsmittel, Methoden, Werkzeuge und Anwendungen :
16. Fachtagung EKA 2020 / Ulrich Jumar, Christian Diedrich
(Hrsg.) },
publisher = { Institut für Automation und Kommunikation e.V. -
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[GSB+20]

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Grochowski, M., Simon, H., Bohlender, D., Kowalewski, S., Löcklin, A., Müller, T., Jazdi, N., Zeller, A., and Weyrich, M., "Formale Methoden für rekonfigurierbare cyber-physische Systeme in der Produktion", *Automatisierungstechnik*, vol. 68, iss. 1, pp. 3-14, 2020

Formale Methoden für rekonfigurierbare cyber-physische Systeme in der Produktion

Bibtex entry :

```
@article { GSB+20,
  author = { Grochowski, Marco and Simon, Hendrik and Bohlender,
Dimitri
    and Kowalewski, Stefan and L{"o}cklin, Andreas and
M{"u"}ller, Timo and Jazdi, Nasser and Zeller, Andreas and
Weyrich, Michael },
  title = { Formale Methoden f{"u"}r rekonfigurierbare cyber-
physische
    Systeme in der Produktion },
  journal = { Automatisierungstechnik },
  publisher = { De Gruyter },
  pages = { 3-14 },
  volume = { 68 },
  number = { 1 },
  year = { 2020 },
  address = { Berlin },
  issn = { 2196-677X },
  doi = { 10.1515/auto-2019-0115 },
  typ = { PUB:(DE-HGF)16 },
  reportid = { RWTH-2019-12214 },
  cin = { 122810 / 120000 },
}
```

[KGE+20]

PDFBIB

König, G., Grochowski, M., Eckert, M., Jakobczak, F., Stollenwerk, J., Kowalewski, S., and Loosen, P., "Apparat zur automatisierten Justage optischer Systeme", *DGaO-Proceedings*, vol. 2020, 2020

Apparat zur automatisierten Justage optischer Systeme

Bibtex entry :

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@article { KGE+20,
  author = { K{"o}nig, Georg and Grochowski, Marco and Eckert,
Marvin
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  title = { Apparat zur automatisierten Justage optischer Systeme },
  journal = { DGaO-Proceedings },
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  address = { Erlangen-N{"u}rnberg: Dt. Gesellschaft f{"u}r
angewandte
          Optik },
  issn = { 1614-8436 },
  organization = { 121. Jahrestagung der deutschen Gesellschaft
f{"u}r
          angewandte Optik, Bremen (Germany), 2020-06-02 - 2020-06-06 },
  typ = { PUB:(DE-HGF)16 },
  reportid = { RWTH-2020-08983 },
  cin = { 418910 / 080067 / 122810 / 120000 },
  url = { http://www.dgao-proceedings.de },
  illkey = { WS-C.II - Enablers and Tools (X080067-WS-C.II) },
}
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[GKB+19]

[PDFBIB](#)

Grochowski, M., Kowalewski, S., Buchsbaum, M. S. K., and Brecher, C., "Applying Runtime Monitoring to the Industrial Internet of Things", in *Proc. 2019 24th IEEE International Conference on Emerging Technologies and Factory Automation (ETFA) : Paraninfo Building, University of Zaragoza, Zaragoza, Spain, 10-13 September, 2019 : proceedings / organized by: University of Zaragoza, Spain ; sponsored by: the Institute of Electrical and Electronics Engineers (IEEE), IEEE Industrial Electronics Society (IES), Aragón Institute for Engineering Research (I3A), Spain, Piscataway, NJ, 2019, IEEE.*

Applying Runtime Monitoring to the Industrial Internet of Things

Bibtex entry :

```
@inproceedings { GKB+19,
  author = { Grochowski, Marco and Kowalewski, Stefan and Buchsbaum,
Melanie Sarah Katharina and Brecher, Christian },
  title = { Applying Runtime Monitoring to the Industrial Internet of
Things },
  booktitle = { 2019 24th IEEE International Conference on Emerging
Technologies and Factory Automation (ETFA) : Paraninfo
Building, University of Zaragoza, Zaragoza, Spain, 10-13
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September, 2019 : proceedings / organized by: University of
Zaragoza, Spain ; sponsored by: the Institute of Electrical
and Electronics Engineers (IEEE), IEEE Industrial
Electronics Society (IES), Aragón Institute for Engineering
Research (I3A), Spain },
publisher = { IEEE },
year = { 2019 },
address = { Piscataway, NJ },
organization = { 24. IEEE International Conference on Emerging
Technologies
and Factory Automation, Zaragoza (Spain), 2019-09-10 -
2019-09-13 },
doi = { 10.1109/ETFA.2019.8869447 },
typ = { PUB:(DE-HGF)7 },
reportid = { RWTH-2019-09795 },
cin = { 122810 / 080067 / 417200 / 120000 / 417310 },
url = {
http://publications.rwth-aachen.de/record/770889/files/770889.pdf },
illkey = { WS-A.III - Functional Perspective (X080067-WS-A.III) },
}
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[GKB+19a]

[PDFBIB](#)

Grochowski, M., Kowalewski, S., Buchsbaum, M. S. K., and Brecher, C., "Applying Passive Testing to an Industrial Internet of Things Plant", in *Proc. VALID 2019 : the Eleventh International Conference on Advances in System Testing and Validation Lifecycle : November 24-28, 2019, Valencia, Spain / IARIA ; VALID 2019 editors: Jos van Rooyen (Identify - Software Quality Services, the Netherlands), Samuele Buro (University of Verona, Italy), Marco Campion (University of Verona, Italy), Michele Pasqua (University of Verona, Italy)*, [Wilmington, DE, USA], 2019, IARIA, pp. 31-37.

Applying Passive Testing to an Industrial Internet of Things Plant

Bibtex entry :

```
@inproceedings { GKB+19a,
  author = { Grochowski, Marco and Kowalewski, Stefan and Buchsbaum,
    Melanie Sarah Katharina and Brecher, Christian },
  title = { Applying Passive Testing to an Industrial Internet of
    Things
    Plant },
  booktitle = { VALID 2019 : the Eleventh International Conference on
    Advances in System Testing and Validation Lifecycle :
    November 24-28, 2019, Valencia, Spain / IARIA ; VALID 2019
    editors: Jos van Rooyen (Identify - Software Quality
    Services, the Netherlands), Samuele Buro (University of
    Verona, Italy), Marco Campion (University of Verona, Italy),
    Michele Pasqua (University of Verona, Italy) },
  publisher = { IARIA },
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pages = { 31-37 },
year = { 2019 },
address = { [Wilmington, DE, USA] },
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    Advances in System Testing and Validation Lifecycle,
    Valencia (Spain), 2019-11-24 - 2019-11-28 },
typ = { PUB:(DE-HGF)7 },
reportid = { RWTH-2019-11004 },
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url = {
http://thinkmind.org/index.php?view=article&articleid=valid_2019_2_30_4
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}

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[GSA+18]

[PDFBIB](#)

Grochowski, M., Schweigler, M., Alrifaaee, 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 :

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@article { GSA+18,
  author = { Grochowski, Marco and Schweigler, Martin and Alrifaaee,
    Bassam and Kowalewski, Stefan },
  title = { A GPS-aided Inertial Navigation System for Vehicular
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  volume = { 51 },
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  organization = { 3. 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 },
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}

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[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,
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  title = { Ground Surface Pattern Recognition with Hidden Markov
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  booktitle = { 8th International Conference on Pattern Recognition
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  year = { 2018 },
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  typ = { PUB:(DE-HGF)7 },
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  url = { http://publications.rwth-aachen.de/record/752258 },
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Permanent link:

<https://embedded.rwth-aachen.de/doku.php?id=en:lehrstuhl:mitarbeiter:grochowski>

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