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Forschungsgebiet

Meine Forschung ist im Bereich der Analyse modellbasierter eingebetteter Softwareartefakte angesiedelt. Ein Artefakt stellt dabei ein Dokument oder Modell dar, welches während des Softwareentwicklungsprozess erstellt und genutzt wird. Dies können beispielsweise Anforderungsdokumente, Testspezifikationen, Programmcode oder Verhaltensmodelle sein. Dabei beschäftige ich mich mit der Problemstellung wie die Evolution dieser Artefakte über den gesamten Entwicklungsprozess hin verfolgt sowie Querbeziehungen und Qualität der Artefakte hinsichtlich von Softwarequalitätskriterien erfasst werden können. Die Ergebnisse dieser Arbeit werden innerhalb des artshop Modellrepository Framework realisiert. Genauere Informationen zu diesem Framework sind [hier](#) zu finden.

Abschlussarbeiten

Im Rahmen meiner Forschungstätigkeit ergeben sich kontinuierlich Themen für Abschlussarbeiten. Bei Interesse an einem der folgenden Themen bitte ich um Kontaktaufnahme per E-Mail oder schaut bei mir im Büro vorbei wenn meine Tür offen steht. Eine Nachfrage per E-Mail nach weiteren noch nicht gelisteten Themen ist ebenfalls möglich.

Offene Bachelorarbeiten

-

Offene Masterarbeiten

-

Lehre

Set dem Wintersemester 15/16 bin ich nicht mehr für die Organisation des Praktikums Systemprogrammierung zuständig. Bitte kontaktieren Sie die aktuellen Betreuer des Praktikums unter [psp\[at\]embedded\[dot\]rwth-aachen\[dot\]de](mailto:psp[at]embedded[dot]rwth-aachen[dot]de).

Semester	Titel	Art
SS 15	Praktikum Systemprogrammierung	P
WS 14/15	Praktikum Systemprogrammierung	P
SS 14	Praktikum Systemprogrammierung	P
	SPOS xt: Exploring embedded applications	P
WS 13/14	Praktikum Systemprogrammierung	P
SS 13	Praktikum Systemprogrammierung	P
	Konsistenzsicherung in der modellbasierten eingebetteten Softwareentwicklung	S
WS 12/13	Praktikum Systemprogrammierung	P

Sprechstunde

Nach Vereinbarung

Veröffentlichungen

[Ger17]

[PDFBIB](#)

Gerlitz, T., "Incremental Integration and Static Analysis of Model-Based Automotive Software Artifacts", PhD Thesis, Aachen, 2017.

Incremental Integration and Static Analysis of Model-Based Automotive Software Artifacts

Bibtex entry :

```
@phdthesis { Ger17,  
  author = { Gerlitz, Thomas },  
  othercontributors = { Kowalewski, Stefan and Schaefer, Ina },  
  title = { Incremental Integration and Static Analysis of Model-  
Based  
Automotive Software Artifacts },  
  publisher = { RWTH Aachen University, Department of Computer  
Science },  
  school = { RWTH Aachen University },  
  pages = { 1 Online-Ressource (xv, 191 Seiten) : Diagramme },  
  series = { Aachener Informatik Berichte },  
  year = { 2017 },  
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doi = { 10.18154/RWTH-2017-08881 },
typ = { PUB:(DE-HGF)11 },
reportid = { RWTH-2017-08881 },
cin = { 120000 / 122810 },
url = {
http://publications.rwth-aachen.de/record/706814/files/706814.pdf },
}
```

[GHD+16]

[PDFBIB](#)

Gerlitz, T., Hansen, N., Dernehl, C., and Kowalewski, S., "Artshop: A Continuous Integration and Quality Assessment Framework for Model-Based Software Artifacts", in *Proc. [12. Dagstuhl-Workshop Modelbasierte Entwicklung eingebetteter Systeme (MBEES) / Michaela Huhn (Ostfalia Hochschule – Wolfenbüttel, DE), Matthias Riebisch (Universität Hamburg, DE), Bernhard Schätz (fortiss GmbH – München, DE)]*, 2016, fortiss Technischer Bericht, pp. 13-22.

artshop: A Continuous Integration and Quality Assessment Framework for Model-Based Software Artifacts

Bibtex entry :

```
@inproceedings { GHD+16,
  author = { Gerlitz, Thomas and Hansen, Norman and Dernehl,
Christian
and Kowalewski, Stefan },
  title = { artshop: A Continuous Integration and Quality Assessment
Framework for Model-Based Software Artifacts },
  booktitle = { [12. Dagstuhl-Workshop Modelbasierte Entwicklung
eingebetteter Systeme (MBEES) / Michaela Huhn (Ostfalia
Hochschule – Wolfenb{"u"}ttel, DE), Matthias Riebisch
(Universit{"a"}t Hamburg, DE), Bernhard Sch{"a"}tz (fortiss
GmbH – M{"u"}nchen, DE)] },
  publisher = { fortiss Technischer Bericht },
  pages = { 13-22 },
  year = { 2016 },
  organization = { Modellbasierte Entwicklung eingebetteter Systeme,
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(Germany), 2016-03-30 - 2016-04-01 },
  typ = { PUB:(DE-HGF)8 },
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  url = { http://publications.rwth-aachen.de/record/573828 },
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[GK16]

[PDFBIB](#)

Gerlitz, T. and Kowalewski, S., "Architectural Analysis of MATLAB/Simulink Models with art shop", in *Proc. WICSA 2016 : 2016 13th Working IEEE/IFIP Conference on Software Architecture : proceedings / Henry Muccini and K. Eric Harper, WICSA program chairs, Piscataway, NJ*, 2016,

IEEE, pp. 307-310.

Architectural Analysis of MATLAB/Simulink Models with art shop

Bibtex entry :

```
@inproceedings { GK16,  
  author = { Gerlitz, Thomas and Kowalewski, Stefan },  
  title = { Architectural Analysis of MATLAB/Simulink Models with art  
    shop },  
  booktitle = { WICSA 2016 : 2016 13th Working IEEE/IFIP Conference  
on  
    Software Architecture : proceedings / Henry Muccini and K.  
    Eric Harper, WICSA program chairs },  
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  url = { http://publications.rwth-aachen.de/record/573826 },  
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[GK16a]

[PDFBIB](#)

Gerlitz, T. and Kowalewski, S., "Architectural Analysis of MATLAB/Simulink Models with Artshop", in *Proc. WICSA 2016 : 2016 13th Working IEEE/IFIP Conference on Software Architecture : proceedings / Henry Muccini and K. Eric Harper, WICSA program chairs*, Piscataway, NJ, 2016, IEEE, pp. 307-310.

Architectural Analysis of MATLAB/Simulink Models with Artshop

Bibtex entry :

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@inproceedings { GK16a,  
  author = { Gerlitz, Thomas and Kowalewski, Stefan },  
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    Software Architecture : proceedings / Henry Muccini and K.  
    Eric Harper, WICSA program chairs },  
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[GK16b]

[PDFBIB](#)

Gerlitz, T. and Kowalewski, S., "Flow Sensitive Slicing for MATLAB/Simulink Models", in *Proc. WICSA 2016 : 2016 13th Working IEEE/IFIP Conference on Software Architecture : proceedings / Henry Muccini and K. Eric Harper, WICSA program chairs*, Piscataway, NJ, 2016, IEEE, pp. 81-90.

Flow Sensitive Slicing for MATLAB/Simulink Models

Bibtex entry :

```

@inproceedings { GK16b,
  author = { Gerlitz, Thomas and Kowalewski, Stefan },
  title = { Flow Sensitive Slicing for MATLAB/Simulink Models },
  booktitle = { WICSA 2016 : 2016 13th Working IEEE/IFIP Conference
on
    Software Architecture : proceedings / Henry Muccini and K.
    Eric Harper, WICSA program chairs },
  publisher = { IEEE },
  pages = { 81-90 },
  year = { 2016 },
  address = { Piscataway, NJ },
  organization = { 13. Working IEEE/IFIP Conference on Software
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    Venice (Italy), 2016-04-05 - 2016-04-08 },
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```

[DHG+15]

[PDFBIB](#)

Dernehl, C., Hansen, N., Gerlitz, T., and Kowalewski, S., "Static Value Range Analysis for Matlab/Simulink-Models", in *Proc. Informatik 2015 : Tagung vom 28. September - 02. Oktober 2015 in Cottbus / Douglas W. Cunningham ... (Hrsg.)*, [Bonn], 2015 in GI-Edition : lecture notes in informatics, Ges. für Informatik, pp. 1649-1660.

Static Value Range Analysis for Matlab/Simulink-Models

Bibtex entry :

```
@inproceedings { DHG+15,
  author = { Dernehl, Christian and Hansen, Norman and Gerlitz,
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  title = { Static Value Range Analysis for Matlab/Simulink-Models },
  booktitle = { Informatik 2015 : Tagung vom 28. September – 02.
    Oktober
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  publisher = { Ges. f{"u"}r Informatik },
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  series = { GI-Edition : lecture notes in informatics },
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[GSK15]

[PDFBIB](#)

Gerlitz, T., Schake, S., and Kowalewski, S., "Duplikatserkennung und Refactoring in Matlab/Simulink-Modellen", in *Proc. Tagungsband Dagstuhl-Workshop MBEES: Modelbasierte Entwicklungeingebetteter Systeme XI / Matthias Riebisch, Michaela Huhn, Jan Philipps, Bernhard Schätz*, 2015, pp. 17-27.

Duplikatserkennung und Refactoring in Matlab/Simulink-Modellen

Bibtex entry :

```
@inproceedings { GSK15,
  author = { Gerlitz, Thomas and Schake, Stefan and Kowalewski,
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    Entwicklungeingebetteter Systeme XI / Matthias Riebisch,
    Michaela Huhn, Jan Philipps, Bernhard Sch{"a"}tz },
  pages = { 17-27 },
  year = { 2015 },
  organization = { Dagstuhl-Workshop MBEES, Dagstuhl (Germany),
    2015-03-22 -
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    2015-03-25 },
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[GTD15]

[PDFBIB](#)

Gerlitz, T., Tran, Q. M., and Dziobek, C., "Detection and Handling of Model Smells for MATLAB/Simulink Models", in *Proc. Modelling in automotive software engineering : MASE 2015 : proceedings of the International Workshop on Modelling in Automotive Software Engineering, co-located with ACM/IEEE 18th International Conference on Model Driven Engineering Languages and Systems (MODELS 2015) : Ottawa, Canada, September 27, 2015 / edited by Michal Antkiewicz, Joanne Atlee, Juergen Dingel, Ramesh S., Aachen, Germany, 2015* in CEUR Workshop Proceedings, RWTH Aachen, pp. 13-22.

Detection and Handling of Model Smells for MATLAB/Simulink Models

Bibtex entry :

```

@inproceedings { GTD15,
    author = { Gerlitz, Thomas and Tran, Quang Minh and Dziobek,
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Models },
    booktitle = { Modelling in automotive software engineering : MASE
2015 :
proceedings of the International Workshop on Modelling in
Automotive Software Engineering, co-located with ACM/IEEE
18th International Conference on Model Driven Engineering
Languages and Systems (MODELS 2015) : Ottawa, Canada,
September 27, 2015 / edited by Michal Antkiewicz, Joanne
Atlee, Juergen Dingel, Ramesh S. },
    publisher = { RWTH Aachen },
    pages = { 13-22 },
    series = { CEUR Workshop Proceedings },
    year = { 2015 },
    address = { Aachen, Germany },
    organization = { International Workshop on Modelling in Automotive
Software
Engineering, Ottawa (Canada), 2015-09-27 - 2015-09-27 },
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    url = { http://ceur-ws.org/Vol-1487/MASE_2015_paper_13.pdf },
}

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[GKS+13]

[PDF](#)[BIB](#)

Gerlitz, T., Kalkov, I., Schommer, J. F., Franke, D., and Kowalewski, S., "Non-Blocking Garbage Collection for Real-Time Android", in *Proc. 11th International Workshop on Java Technologies for Real-time and Embedded Systems : JTRES 2013 ; 9-10 October 2013, Karlsruhe, Germany*, New York, NY, 2013 in ACM Digital Library, ACM, pp. 108-117.

Non-Blocking Garbage Collection for Real-Time Android

Bibtex entry :

```
@inproceedings { GKS+13,
  author = { Gerlitz, Thomas and Kalkov, Igor and Schommer, John F.
and
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  title = { Non-Blocking Garbage Collection for Real-Time Android },
  booktitle = { 11th International Workshop on Java Technologies for
Real-time and Embedded Systems : JTRES 2013 ; 9-10 October
2013, Karlsruhe, Germany },
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  pages = { 108-117 },
  series = { ACM Digital Library },
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  organization = { Java-Technologien f{"u"}r Echtzeit- und
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  Systeme, Karlsruhe (Germany), 2013-10-09 - 2013-10-10 },
  doi = { 10.1145/2512989.2512999 },
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  url = { http://publications.rwth-aachen.de/record/224782 },
}
```

[SGK13]

[PDF](#)[BIB](#)

Schommer, J. F., Gerlitz, T., and Kowalewski, S., "Load and Quality Cooperation for Distributed Embedded Systems Using Different Modes of Operation", in *Proc. Proceedings of the 7th Junior Researcher Workshop on Real-Time Computing : JRWRTC 2013 ; Sophia Antipolis, France, October 16-18, 2013*, Sophia Antipolis, France, 2013, pp. 45-48.

Load and Quality Cooperation for Distributed Embedded Systems Using Different Modes of Operation

Bibtex entry :

```
@inproceedings { SGK13,
  author = { Schommer, John F. and Gerlitz, Thomas and Kowalewski,
Stefan },
  title = { Load and Quality Cooperation for Distributed Embedded
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Systems Using Different Modes of Operation },
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France, October 16-18, 2013 },
pages = { 45-48 },
year = { 2013 },
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Computing, Sophia
Antipolis (France), 2013-10-16 - 2013-10-18 },
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}

```

[WGM+13]

PDFBIB

Wiechowski, N., Gerlitz, T., Merschen, D., and Kowalewski, S., "Ein Ansatz zum merkmalsbasierten Konsistenzmanagement in der Produktlinienentwicklung", in *Proc. Informatiktag 2013 : smart life - dank Informatik ; fachwissenschaftlicher Informatik-Kongress 22. und 23. März 2013 B-IT Bonn-Aachen International Center for Information Technology, Bonn / Gesellschaft für Informatik (Hrsg.). [Red.: Ludger Porada]*, Bonn, 2013 in GI-Edition : lecture notes in informatics, Gesellschaft für Informatik e.V., pp. 2502-2516.

Ein Ansatz zum merkmalsbasierten Konsistenzmanagement in der Produktlinienentwicklung

Bibtex entry :

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@inproceedings { WGM+13,
  author = { Wiechowski, Norbert and Gerlitz, Thomas and Merschen,
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fachwissenschaftlicher Informatik-Kongress 22. und 23.
M{"a"}rz 2013 B-IT Bonn-Aachen International Center for
Information Technology, Bonn / Gesellschaft f{"u"}r
Informatik (Hrsg.). [Red.: Ludger Porada] },
  publisher = { Gesellschaft f{"u"}r Informatik e.V. },
  pages = { 2502-2516 },
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[MWF+11]

[PDFBIB](#)

Mitsching, R., Weise, C., Franke, D., Gerlitz, T., and Kowalewski, S., "Coping with Complexity of Testing Models for Real-Time Embedded Systems", in *Proc. 2011 Fifth International Conference on Secure Software Integration and Reliability Improvement – Companion : SSIRI-C 2011 ; 27-29 June 2011, Jeju Island, Korea, Los Alamitos, 2011, IEEE*, pp. 128-135.

Coping with Complexity of Testing Models for Real-Time Embedded Systems

Bibtex entry :

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@inproceedings { MWF+11,
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    Embedded Systems },
  booktitle = { 2011 Fifth International Conference on Secure
Software
    Integration and Reliability Improvement – Companion :
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  publisher = { IEEE },
  pages = { 128-135 },
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Software
    Integration and Reliability Improvement – Companion, Jeju
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<https://embedded.rwth-aachen.de/doku.php?id=lehrstuhl:mitarbeiter:gerlitz>

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