

# Dr.-Ing. Thomas Gerlitz

Research Assistant

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

Phone: +49 241 80 21156

Fax: +49 241 80 22150

Address: Ahornstr. 55, 52074 Aachen

Office: Room 2319 (Gebäude H)

## Field of research

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

In line with my research there are always new topics for theses. If you are interested in one of the following topics please contact me via e-Mail or come to my office when my door is open. A request via e-Mail for further topics that are not listed is possible as well.

### Open bachelor thesis

-

### Open Master thesis

-

## Teaching

Semester	Titel	Art
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SS 15	<a href="#">Praktikum Systemprogrammierung</a>	P
WS 14/15	<a href="#">Praktikum Systemprogrammierung</a>	P
SS 14	<a href="#">Praktikum Systemprogrammierung</a>	P
	<a href="#">SPOS xt: Exploring embedded applications</a>	P
WS 13/14	<a href="#">Praktikum Systemprogrammierung</a>	P
Summer term 13	<a href="#">Praktikum Systemprogrammierung</a>	P
	<a href="#">Konsistenzsicherung in der modellbasierten eingebetteten Softwareentwicklung</a>	S
Winter term 12/13	<a href="#">Praktikum Systemprogrammierung</a>	P

## Office Hours

Office hours by appointment

## Publications

[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 = { Achener Informatik Berichte },  
  year = { 2017 },  
  address = { Aachen },  
  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 },
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[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 – Wolfenbüttel, DE), Matthias Riebisch
    (Universität Hamburg, DE), Bernhard Schätz (fortiss
    GmbH – München, DE)] },
  publisher = { fortiss Technischer Bericht },
  pages = { 13-22 },
  year = { 2016 },
  organization = { Modellbasierte Entwicklung eingebetteter Systeme,
    Dagstuhl
    (Germany), 2016-03-30 - 2016-04-01 },
  typ = { PUB:(DE-HGF)8 },
  reportid = { RWTH-CONV-207908 },
  cin = { 122810 / 120000 },
  url = { http://publications.rwth-aachen.de/record/573828 },
}
```

[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 },  
  publisher = { IEEE },  
  pages = { 307-310 },  
  year = { 2016 },  
  address = { Piscataway, NJ },  
  organization = { 13. Working IEEE/IFIP Conference on Software  
Architecture,  
  Venice (Italy), 2016-04-05 - 2016-04-08 },  
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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 :

```
@inproceedings { GK16a,  
  author = { Gerlitz, Thomas and Kowalewski, Stefan },  
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  booktitle = { WICSA 2016 : 2016 13th Working IEEE/IFIP Conference  
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  Software Architecture : proceedings / Henry Muccini and K.  
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  pages = { 307-310 },  
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organization = { 13. Working IEEE/IFIP Conference on Software
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url = { http://publications.rwth-aachen.de/record/682945 },
}
```

[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 },
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Architecture,
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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,  
Thomas  
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  title = { Static Value Range Analysis for Matlab/Simulink-Models },  
  booktitle = { Informatik 2015 : Tagung vom 28. September – 02.  
Oktober  
  2015 in Cottbus / Douglas W. Cunningham ... (Hrsg.) },  
  publisher = { Ges. f{\\"u}r Informatik },  
  pages = { 1649-1660 },  
  series = { GI-Edition : lecture notes in informatics },  
  year = { 2015 },  
  address = { [Bonn] },  
  organization = { 45. Jahrestagung der Gesellschaft f{\\"u}r  
Informatik,  
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  typ = { PUB:(DE-HGF)8 },  
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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,  
Stefan },  
  title = { Duplikatserkennung und Refactoring in  
  Matlab/Simulink-Modellen },  
  booktitle = { Tagungsband Dagstuhl-Workshop MBEES: Modelbasierte  
  Entwicklungeingebetteter Systeme XI / Matthias Riebisch,  
  Michaela Huhn, Jan Philipps, Bernhard Sch{\\"a}tz },  
  pages = { 17-27 },  
  year = { 2015 },  
  organization = { Dagstuhl-Workshop MBEES, Dagstuhl (Germany),
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2015-03-22 -
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    cin = { 122810 / 120000 },
    url = { http://publications.embedded.rwth-aachen.de/file/60 },
}

```

[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,
Christian },
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MATLAB/Simulink
    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
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}

```

[GKS+13]

[PDFBIB](#)

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.
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  Franke, Dominik and Kowalewski, Stefan },
  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 },
  publisher = { ACM },
  pages = { 108-117 },
  series = { ACM Digital Library },
  year = { 2013 },
  address = { New York, NY },
  organization = { Java-Technologien f{"u}r Echtzeit- und
eingebettete
  Systeme, Karlsruhe (Germany), 2013-10-09 - 2013-10-10 },
  doi = { 10.1145/2512989.2512999 },
  typ = { PUB:(DE-HGF)8 },
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  cin = { 120000 / 122810 },
  url = { http://publications.rwth-aachen.de/record/224782 },
}
```

[SGK13]

[PDFBIB](#)

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 },
```



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title = { Load and Quality Cooperation for Distributed Embedded
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booktitle = { Proceedings of the 7th Junior Researcher Workshop on
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pages = { 45-48 },
year = { 2013 },
address = { Sophia Antipolis, France },
organization = { 7. Junior Researcher Workshop on Real-Time
Computing, Sophia
                 Antipolis (France), 2013-10-16 - 2013-10-18 },
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reportid = { RWTH-CONV-204855 },
cin = { 120000 / 122810 },
url = { http://jrwrtc.science.uva.nl/JRWRTC13_proceedings.pdf },
}

```

[WGM+13]

[PDFBIB](#)

Wiechowski, N., Gerlitz, T., Merschen, D., and Kowalewski, S., "Ein Ansatz zum merkmalsbasierten Konsistenzmanagement in der Produktlinienentwicklung", in *Proc. Informatiktage 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 :

```

@inproceedings { WGM+13,
  author = { Wiechowski, Norbert and Gerlitz, Thomas and Merschen,
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  title = { Ein Ansatz zum merkmalsbasierten Konsistenzmanagement in
            der
            Produktlinienentwicklung },
  booktitle = { Informatiktage 2013 : smart life - dank Informatik ;
                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 },
  series = { GI-Edition : lecture notes in informatics },
  year = { 2013 },
  address = { Bonn },
  organization = { fachwissenschaftlicher Informatik-Kongress : smart
life -

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dank Informatik, Bonn (Germany), 2013-03-22 - 2013-03-23 },
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cin = { 120000 / 122810 },
url = { http://publications.rwth-aachen.de/record/226820 },
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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 :

```
@inproceedings { MWF+11,
  author = { Mitsching, Ralf and Weise, Carsten and Franke, Dominik
and
  Gerlitz, Thomas and Kowalewski, Stefan },
  title = { Coping with Complexity of Testing Models for Real-Time
Embedded Systems },
  booktitle = { 2011 Fifth International Conference on Secure
Software
Integration and Reliability Improvement – Companion :
SSIRI-C 2011 ; 27-29 June 2011, Jeju Island, Korea },
  publisher = { IEEE },
  pages = { 128-135 },
  year = { 2011 },
  address = { Los Alamitos },
  organization = { 2011 Fifth International Conference on Secure
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Integration and Reliability Improvement – Companion, Jeju
Island (South Korea), 2011-06-27 - 2011-06-29 },
  doi = { 10.1109/SSIRI-C.2011.27 },
  typ = { PUB:(DE-HGF)8 },
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Permanent link:

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

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