

# Dr. rer. nat. Daniel Merschen

## Kontakt

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## Forschungsschwerpunkt

In der Forschung beschäftige ich mich mit modellbasierten Techniken zur Analyse variantenreicher modellbasierter Produktlinien eingebetteter Software. Insbesondere benutze ich existierende Frameworks des Eclipse-Frameworks, um Matlab/Simulink-Modelle hinsichtlich verschiedener Problemstellungen zu analysieren. Diese Problemstellungen beziehen sich auf Komplexität solcher Modelle, die u.a. durch Variantenvielfalt und historisches Wachstum begründet sind. Um solche Komplexität zu handhaben, erstelle ich logische Sichten auf Simulinkmodelle und verknüpfe verschiedene Softwareentwicklungsprozessartefakte (d.h. Implementierung, Anforderungen und Tests) sowie Features. Details zum Forschungsthema befinden sich [hier](#)

## Lehre

- Wintersemester 08/09:
  1. [Einführung in die Technische Informatik](#)
- Wintersemester 09/10:
  1. [Komponentenbasierte Softwareentwicklung am Beispiel von Android](#)
  2. [Hardwarenahe Programmierung](#) (Betreuung eines Versuchs)
- Wintersemester 10/11:
  1. [Modellbasierte Analyse von Simulink-Modellen](#)
  2. [Hardwarenahe Programmierung](#) (Betreuung eines Versuchs)
- Wintersemester 11/12:
  1. [Modellbasierte Analysemethoden für eingebettete Software-Produktlinien](#)
  2. [Praktikum Systemprogrammierung](#) (Betreuung eines Versuchs)

## Abschlussarbeiten

Im Rahmen meiner Forschungstätigkeit ergeben sich kontinuierlich Themen für Abschlussarbeiten. Bei Interesse bitte ich um Kontaktaufnahme per E-Mail.

## Veröffentlichungen

[Mer14]

[PDFBIB](#)

Merschen, D., "Integration und Analyse von Artefakten in der modellbasierten Entwicklung eingebetteter Software", PhD Thesis, Aachen, 2014.

## Integration und Analyse von Artefakten in der modellbasierten Entwicklung eingebetteter Software

### Bibtex entry :

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@phdthesis { Mer14,  
  author = { Merschen, Daniel },  
  othercontributors = { Kowalewski, Stefan },  
  title = { Integration und Analyse von Artefakten in der  
    modellbasierten Entwicklung eingebetteter Software },  
  publisher = { Shaker },  
  pages = { XIV, 136 S. : graph. Darst. },  
  series = { Aachener Informatik-Berichte },  
  year = { 2014 },  
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[MGP+13]

[PDFBIB](#)

Merschen, D., Gleis, R., Pott, J., and Kowalewski, S., "Analysis of Simulink Models Using Databases and Model Transformations", in *Proc. Model-Based Methodologies for Pervasive and Embedded Software : 8th International Workshop, MOMPES 2012, Essen, Germany, September 4, 2012. Revised Papers / edited by Ricardo J. Machado, Rita Suzana P. Maciel, Julia Rubin, Goetz Botterweck*, Berlin, Heidelberg, 2013 in Lecture Notes in Computer Science, Springer, pp. 69-84.

## Analysis of Simulink Models Using Databases and Model Transformations

### Bibtex entry :

```
@inproceedings { MGP+13,  
  author = { Merschen, Daniel and Gleis, Robert and Pott, Julian and  
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booktitle = { Model-Based Methodologies for Pervasive and Embedded
              Software : 8th International Workshop, MOMPES 2012, Essen,
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              Ricardo J. Machado, Rita Suzana P. Maciel, Julia Rubin,
              Goetz Botterweck },
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year = { 2013 },
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[WGM+13]

[PDFBIB](#)

Wiechowski, N., Gerlitz, T., Merschen, D., and Kowalewski, S., "Ein Ansatz zum merkmalsbasierten Konsistenzmanagement in der Produktlinienentwicklung"Bonn: Gesellschaft für Informatik e.V., 2013, vol. 12, pp. 2502-2516.

## Ein Ansatz zum merkmalsbasierten Konsistenzmanagement in der Produktlinienentwicklung

### Bibtex entry :

```

@inbook { WGM+13,
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                M{"a"}rz 2013 B-IT Bonn-Aachen International Center for
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                Informatik (Hrsg.). [Red.: Ludger Porada] },
  publisher = { Gesellschaft f{"u"}r Informatik e.V. },
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[MDH+12]

[PDFBIB](#)

Merschen, D., Duhr, Y., Hedenetz, B., and Kowalewski, S., "Evolutionsunterstützung für komplexe, modellbasierte Software-Produktlinien", in *Proc. Embedded-Software-Engineering-Kongress (ESE)*, 2012, ELEKTRONIKPRAXIS und MicroConsult, pp. 65-71.

## Evolutionsunterstützung für komplexe, modellbasierte Software-Produktlinien

**Bibtex entry :**

```
@inproceedings { MDH+12,
  author = { Merschen, Daniel and Duhr, Yves and Hedenetz, Bernd and
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  booktitle = { Embedded-Software-Engineering-Kongress (ESE) },
  publisher = { ELEKTRONIKPRAXIS und MicroConsult },
  pages = { 65-71 },
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[MDR+12]

[PDFBIB](#)

Merschen, D., Duhr, Y., Ringler, T., Hedenetz, B., and Kowalewski, S., "Model-Based Analysis of Design Artefacts Applying an Annotation Concept", in *Proc. Proceedings 198 Software Engineering 2012 - Fachtagung des GI-Fachbereichs Softwaretechnik : 27. Februar - 2. März 2012 in Berlin / Jähnichen, Stefan [Hrsg.] ; Küpper, Axel [Hrsg.] ; Albayrak, Sahin [Hrsg.]*, Bonn, 2012 in GI-Edition : Proceedings, Gesellschaft für Informatik e.V., pp. 169-180.

## Model-Based Analysis of Design Artefacts Applying an Annotation Concept

**Bibtex entry :**

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@inproceedings { MDR+12,
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booktitle = { Proceedings 198 Software Engineering 2012 -
Fachtagung des
GI-Fachbereichs Softwaretechnik : 27. Februar - 2. M{"a}rz
2012 in Berlin / J{"a}hnichen, Stefan [Hrsg.] ; K{"u}pper,
Axel [Hrsg.] ; Albayrak, Sahin [Hrsg.] },
publisher = { Gesellschaft f{"u}r Informatik e.V. },
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}

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[MPK12]

[PDFBIB](#)

Merschen, D., Pott, J., and Kowalewski, S., "Integration and Analysis of Design Artefacts in Embedded Software Development", in *Proc. IEEE 36th Annual Computer Software and Applications Conference workshops (COMPSACW), 2012 : 16 - 20 July 2012, Izmir, Turkey / sponsored by IEEE; IEEE Computer Society. Ed.: Xiaoying Bai ...*, Piscataway, NJ, 2012, IEEE, pp. 503-508.

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### Bibtex entry :

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@inproceedings { MPK12,
author = { Merschen, Daniel and Pott, Julian and Kowalewski, Stefan
},
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Software Development },
booktitle = { IEEE 36th Annual Computer Software and Applications
Conference workshops (COMPSACW), 2012 : 16 - 20 July 2012,
Izmir, Turkey / sponsored by IEEE; IEEE Computer Society.
Ed.: Xiaoying Bai ... },
publisher = { IEEE },
pages = { 503-508 },
year = { 2012 },
address = { Piscataway, NJ },
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Applications
Conference workshops, Izmir (Turkey), 2012-07-16 -
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[MPB+11]

[PDFBIB](#)

Merschen, D., Polzer, A., Botterweck, G., and Kowalewski, S., "Experiences of Applying Model-based Analysis to Support the Development of Automotive Software Product Lines", in *Proc. VaMoS 11 : fifth International Workshop on Variability Modelling of Software-intensive Systems ; 27 -29 January, 2011, Namur, Belgium ; proceedings / Krzysztof Czarnecki ... (eds.)*, New York, NY, 2011, ACM, pp. 141-150.

## Experiences of Applying Model-based Analysis to Support the Development of Automotive Software Product Lines

### Bibtex entry :

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@inproceedings { MPB+11,
  author = { Merschen, Daniel and Polzer, Andreas and Botterweck,
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  booktitle = { VaMoS 11 : fifth International Workshop on
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[PMB+11]

[PDFBIB](#)

Polzer, A., Merschen, D., Botterweck, G., Pleuss, A., Thomas, J., Hedenetz, B., and Kowalewski, S., "Managing Complexity and Variability of a Model-based Embedded Software Product Line", *Innovations in systems and software engineering*, vol. 2011, pp. 1-15, 2011

# Managing Complexity and Variability of a Model-based Embedded Software Product Line

## Bibtex entry :

```
@article { PMB+11,  
  author = { Polzer, Andreas and Merschen, Daniel and Botterweck,  
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  title = { Managing Complexity and Variability of a Model-based  
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[PMT+10]

[PDFBIB](#)

Polzer, A., Merschen, D., Thomas, J., Hedenetz, B., and Kowalewski, S., "View-Supported Rollout and Evolution of Model-Based ECU Applications", in *Proc. 7th International Workshop on Model-based Methodologies for Pervasive*, New York, NY, 2010, ACM, pp. 37-44.

# View-Supported Rollout and Evolution of Model-Based ECU Applications

## Bibtex entry :

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@inproceedings { PMT+10,  
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