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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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  title = { Analysis of Simulink Models Using Databases and Model
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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 },
publisher = { Springer },
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series = { Lecture Notes in Computer Science },
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                Software : 8. International Workshop, Essen (Germany),
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doi = { 10.1007/978-3-642-38209-3_5 },
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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.

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@inproceedings { WGM+13,
  author = { Wiechowski, Norbert and Gerlitz, Thomas and Merschen,
            Daniel
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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] },
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[MDH+12]

[PDFBIB](#)

Merschen, D., Duhr, Y., Hedenetz, B., and Kowalewski, S., "Evolutionsunterstützung für komplexe, modellbasierte Software-Produktlinien", in *Proc. Tagungsband - Embedded Software Engineering Kongress 2012 : 3. bis 7. Dezember 2012, Sindelfingen*, Würzburg, 2012, Elektronikpraxis, Vogel Business Media GmbH & Co. KG - München \: MicroConsult Microelectronics Consulting & Training GmbH, pp. 65-71.

Evolutionsunterstützung für komplexe, modellbasierte Software-Produktlinien

Bibtex entry :

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@inproceedings { MDH+12,
  author = { Merschen, Daniel and Duhr, Yves and Hedenetz, Bernd and
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    Software-Produktlinien },
  booktitle = { Tagungsband - Embedded Software Engineering Kongress
2012 :
    3. bis 7. Dezember 2012, Sindelfingen },
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    M{\u}nchen \: MicroConsult Microelectronics Consulting &
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  reportid = { RWTH-CONV-236316 },
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  url = { http://publications.rwth-aachen.de/record/752298 },
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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 / Jähnich, 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

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  author = { Merschen, Daniel and Duhr, Yves and Ringler, Thomas and
    Hedenetz, Bernd and Kowalewski, Stefan },
  title = { Model-Based Analysis of Design Artefacts Applying an
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    Fachtagung des
      GI-Fachbereichs Softwaretechnik : 27. Februar - 2. März
      2012 in Berlin / Jähnich, Stefan [Hrsg.] ; Küpper,
      Axel [Hrsg.] ; Albayrak, Sahin [Hrsg.] },
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  pages = { 169-180 },
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  organization = { 198 Software Engineering 2012 - Fachtagung des
    GI-Fachbereichs Softwaretechnik, Berlin (Germany),
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  url = {
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[MPK12]

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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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},
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    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 },
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  organization = { IEEE 36. Annual Computer Software and Applications
    Conference workshops, Izmir (Turkey), 2012-07-16 -
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[MPB+11]

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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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  pages = { 141-150 },
  year = { 2011 },
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address = { New York, NY },
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[PMB+11]

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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

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  author = { Polzer, Andreas and Merschen, Daniel and Botterweck,
    G{\o}tz and Pleuss, Andreas and Thomas, Jacques and
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[PMT+10]

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@inproceedings { PMT+10,  
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  pages = { 37-44 },  
  year = { 2010 },  
  address = { New York, NY },  
  organization = { 7. International Workshop on Model-based  
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