

Marc Förster, M.Sc.

Research Assistant

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Research

I am interested in the early, design-phase support of the development of reusable and dependable software-controlled systems and software for programmable logic controllers (PLC), covering the aspects

- virtual, model-based engineering,
- component-based semantic models,
- formal specification and analysis (Markov chains, fault trees, model checking),
- quantitative specification assessment,
- visualisation of dependability properties and quality indicators,
- analysis with incomplete information,
- model evolution and reuse.

Available topics for students' theses

- On request

Supervised theses

- [A conceptual framework and tool for ISO 26262 compliance](#)

Teaching

Term	Title	Type
Winter 14/15	Ausgesuchte Themen zur Eingebetteten Software (Subtopic: Model-driven development of control software for distributed automation)	Seminar
	Praktikum Systemprogrammierung (Assignment 5, Shared memory)	P
Summer 14	Safety & reliability of software-controlled systems (SRES)	V/Ü
Winter 13/14	State/event-based software specification & analysis	Seminar
	Praktikum Systemprogrammierung (Assignment 5, Shared memory)	P
Summer 13	Safety and dependability of software-controlled systems	V/Ü
Winter 12/13	Praktikum Systemprogrammierung (Assignment 1, Introductory)	P
Summer 12	Sicherheit und Zuverlässigkeit softwaregesteuerter Systeme	V/Ü
Winter 11/12	Praktikum Systemprogrammierung (Assignment 1, Introductory)	P
Summer 11	Sicherheit und Zuverlässigkeit softwaregesteuerter Systeme	V/Ü

Consultation hours

On appointment

Publications

[FAK+14]

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

Förster, M., Auerswald, M., Keldenich, P., and Kowalewski, S., "Semantic interfaces for automotive software components: exemplary development & validation of a practical specification language", 2014.

Semantic interfaces for automotive software components: exemplary development & validation of a practical specification language

Bibtex entry :

```
@techreport { FAK+14,
  author = { F{"o"}rster, Marc and Auerswald, Marko and Keldenich,
    Phillip and Kowalewski, Stefan },
  title = { Semantic interfaces for automotive software components:
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    exemplary development & validation of a practical
    specification language },
  pages = { 1-100 },
  year = { 2014 },
  typ = { PUB:(DE-HGF)29 },
  reportid = { RWTH-CONV-236315 },
  cin = { 122810 / 120000 },
  url = { http://publications.rwth-aachen.de/record/752291 },
}

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[For14]

[PDFBIB](#)

Förster, M., "Evaluating Embedded-Software Specifications -- Quantitative and Structured Assessment of Declarative Interface Descriptions", in *Proc. IEEE International Symposium on Software Reliability Engineering workshops (ISSREW), 2014 : 3 - 6 Nov. 2014, Naples, Italy ; proceedings*, Piscataway, NJ, 2014, IEEE, pp. 142-143.

Evaluating Embedded-Software Specifications -- Quantitative and Structured Assessment of Declarative Interface Descriptions

Bibtex entry :

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@inproceedings { For14,
  author = { F{"o}rster, Marc },
  title = { Evaluating Embedded-Software Specifications --
Quantitative
    and Structured Assessment of Declarative Interface
    Descriptions },
  booktitle = { IEEE International Symposium on Software Reliability
    Engineering workshops (ISSREW), 2014 : 3 - 6 Nov. 2014,
    Naples, Italy ; proceedings },
  publisher = { IEEE },
  pages = { 142-143 },
  year = { 2014 },
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  organization = { 2014 IEEE International Symposium on Software
Reliability
    Engineering Workshops, Naples (Italy), 2014-11-03 -
    2014-11-06 },
  doi = { 10.1109/ISSREW.2014.74 },
  typ = { PUB:(DE-HGF)7 },
  reportid = { RWTH-2015-00716 },
  cin = { 122810 / 120000 },
  url = { http://publications.rwth-aachen.de/record/462802 },
}

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[For13]

[PDFBIB](#)

Förster, M., "Conditional software specification & assurance : A practical assessment of

contract-based approaches", in *Proc. 2013 IEEE International Symposium on Software Reliability Engineering workshops (ISSREW 2013) : Pasadena, California, USA, 4 - 7 November 2013*, Piscataway, NJ, 2013, IEEE, pp. 36-36.

Conditional software specification & assurance : A practical assessment of contract-based approaches

Bibtex entry :

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@inproceedings { For13,  
  author = { F{"o}rster, Marc },  
  title = { Conditional software specification & assurance : A  
practical  
  assessment of contract-based approaches },  
  booktitle = { 2013 IEEE International Symposium on Software  
Reliability  
Engineering workshops (ISSREW 2013) : Pasadena, California,  
USA, 4 - 7 November 2013 },  
  publisher = { IEEE },  
  pages = { 36-36 },  
  year = { 2013 },  
  address = { Piscataway, NJ },  
  organization = { IEEE International Symposium on Software  
Reliability  
Engineering workshops, Pasadena (USA), 04-11-2013 -  
07-11-2013 },  
  doi = { 10.1109/ISSREW.2013.6688860 },  
  typ = { PUB:(DE-HGF)8 },  
  reportid = { RWTH-CONV-202934 },  
  cin = { 120000 / 122810 },  
  url = { http://publications.rwth-aachen.de/record/225271 },  
}
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[For12]

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

Förster, M., "Dependable reuse & guarded integration of automotive software components - approaches to conditional specification & assurance", 2012.

Dependable reuse & guarded integration of automotive software components - approaches to conditional specification & assurance

Bibtex entry :

```
@techreport { For12,  
  author = { F{"o}rster, Marc },  
  title = { Dependable reuse & guarded integration of automotive  
software components - approaches to conditional
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    specification & assurance },
    pages = { 1-78 },
    year = { 2012 },
    typ = { PUB:(DE-HGF)29 },
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    cin = { 122810 / 120000 },
    url = { http://publications.rwth-aachen.de/record/752295 },
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