

Dr.rer.nat. Bastian Schlich



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

Personal

I worked at the Embedded Software Laboratory from April 2004 until February 2010, first as a PhD student and then as a postdoc. As a postdoc, I was leading the Formal Verification group. My main research interest was in formal verification of software for embedded systems. The group applies different formal verification techniques such as static analysis, abstract interpretation, and model checking to embedded software.

The group develops a tool for the analysis of assembly code for microcontrollers and instruction list programs for PLCs. The tool is called [\[mc\]square](#). In the tool, different formal methods such as model checking, abstract interpretation, and static analysis are applied and adapted to the specifics of embedded systems software. The main focus is the application of theoretical results to real problems. The tool should be user-friendly and easy to handle and should not require changes of the program to be analyzed.

In a second project, a static analyzer for C code is developed, which aims at supporting the development of embedded software according to the upcoming ISO 26262. It will be implemented as a plugin for the Eclipse development platform. Later, it will be implemented as a plugin for the Microsoft Visual Studio development platform.

I received my Doctoral degree in June 2008 from the RWTH Aachen University. The title of my Dissertation thesis is "Model Checking of Software for Microcontrollers". I wrote my Diploma thesis at the chair of Software-Technology, University of Dortmund. The topic of the thesis is "Konzeption und Realisierung eines Werkzeugs zur Unterstützung des Test-Driven-Developments".

Publications

[BSK+15]

PDFBIB

Biallas, S., Simon, H., Kowalewski, S., Hauck-Stattelmann, S., and Schlich, B., "Automatische Testfallgenerierung für SPS-Programme mittels Zeilenüberdeckung", in *Proc. Automation 2015 : 16. Branchentreff der Mess- und Automatisierungstechnik, 11. und 12. Juni 2015, Baden-Baden / VDI/VDE-Gesellschaft Mess- und Automatisierungstechnik*, Düsseldorf, 2015 in VDI-Berichte, VDI-Verl., pp. 95-106.

Automatische Testfallgenerierung für SPS-Programme mittels Zeilenüberdeckung

Bibtex entry :

```
@inproceedings { BSK+15,  
  author = { Biallas, Sebastian and Simon, Hendrik and Kowalewski,  
Stefan  
  and Hauck-Stattelmann, Stefan and Schlich, Bastian },  
  title = { Automatische Testfallgenerierung f{"u}r SPS-Programme  
mittels Zeilen{"u}berdeckung },  
  booktitle = { Automation 2015 : 16. Branchentreff der Mess- und  
Automatisierungstechnik, 11. und 12. Juni 2015, Baden-Baden  
/ VDI/VDE-Gesellschaft Mess- und Automatisierungstechnik },  
  publisher = { VDI-Verl. },  
  pages = { 95-106 },  
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  year = { 2015 },  
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  organization = { AUTOMATION 2015, Baden Baden (Germany), 2015-06-11  
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  2015-06-12 },  
  typ = { PUB:(DE-HGF)7 },  
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}
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[HBS+15]

PDFBIB

Hauck-Stattelmann, S., Biallas, S., Schlich, B., Kowalewski, S., and Jetley, R., "Analyzing the Restart Behavior of Industrial Control Applications", in *Proc. FM 2015: formal methods : 20th international symposium, Oslo, Norway, June 24 - 26, 2015 ; proceedings / Nikolaj Bjørner; Frank de Boer (eds.)*, Springer International Publishing, 2015 in Lecture Notes in Computer Science, Cham, pp. 585-588.

Analyzing the Restart Behavior of Industrial Control Applications

Bibtex entry :

```
@inproceedings { HBS+15,
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```

author = { Hauck-Stattelmann, Stefan and Biallas, Sebastian and
           Schlich, Bastian and Kowalewski, Stefan and Jetley, Raoul },
title = { Analyzing the Restart Behavior of Industrial Control
          Applications },
booktitle = { FM 2015: formal methods : 20th international
             symposium,
              Oslo, Norway, June 24 - 26, 2015 ; proceedings / Nikolaj
              Bjørner; Frank de Boer (eds.) },
publisher = { Cham },
pages = { 585-588 },
series = { Lecture Notes in Computer Science },
year = { 2015 },
address = { Springer International Publishing },
organization = { 20. International Symposium Formal Methods, Oslo
                (Norway),
                2015-06-24 - 2015-06-26 },
doi = { 10.1007/978-3-319-19249-9_38 },
typ = { PUB:(DE-HGF)7 },
reportid = { RWTH-CONV-207691 },
cin = { 122810 / 120000 },
url = { http://publications.rwth-aachen.de/record/541096 },
}

```

[SFB+15]

[PDFBIB](#)

Simon, H., Friedrich, N., Biallas, S., Hauck-Stattelmann, S., Schlich, B., and Kowalewski, S., "Automatic test case generation for PLC programs using coverage metrics", in *Proc. 2015 IEEE 20th Conference on Emerging Technologies Factory Automation (ETFA) : 8 - 11 Sept. 2015, City of Luxembourg, Luxembourg / co-sponsored by IEEE ...*, Piscataway, NJ, 2015, IEEE, p. 4.

Automatic test case generation for PLC programs using coverage metrics

Bibtex entry :

```

@inproceedings { SFB+15,
  author = { Simon, Hendrik and Friedrich, Nico and Biallas,
            Sebastian
            and Hauck-Stattelmann, Stefan and Schlich, Bastian and
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  title = { Automatic test case generation for PLC programs using
            coverage metrics },
  booktitle = { 2015 IEEE 20th Conference on Emerging Technologies
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                Automation (ETFA) : 8 - 11 Sept. 2015, City of Luxembourg,
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organization = { 2015 IEEE 20th Conference on Emerging Technologies  
Factory  
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doi = { 10.1109/ETFA.2015.7301602 },  
typ = { PUB:(DE-HGF)7 },  
reportid = { RWTH-2015-07849 },  
cin = { 122810 / 120000 },  
url = { http://publications.rwth-aachen.de/record/565382 },  
}
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[BKS+14]

[PDFBIB](#)

Biallas, S., Kowalewski, S., Stattelmann, S., and Schlich, B., "Efficient Handling of States in Abstract Interpretation of Industrial Programmable Logic Controller Code", in *Proc. Discrete Event Systems : [Proc. Proceedings of the 12th International Workshop on Discrete Event Systems, Cachan, France, 2014] / Conference Editor: Lesage, Jean-Jacques, Faure, Jean-Marc, Cury, Jose E. R., Lennartson, Bengt*, Cachan, France, 2014, IFAC, pp. 400-405.

Efficient Handling of States in Abstract Interpretation of Industrial Programmable Logic Controller Code

Bibtex entry :

```
@inproceedings { BKS+14,  
author = { Biallas, Sebastian and Kowalewski, Stefan and  
Stattelmann,  
Stefan and Schlich, Bastian },  
title = { Efficient Handling of States in Abstract Interpretation  
of  
Industrial Programmable Logic Controller Code },  
booktitle = { Discrete Event Systems : [Proc. Proceedings of the  
12th  
International Workshop on Discrete Event Systems, Cachan,  
France, 2014] / Conference Editor: Lesage, Jean-Jacques,  
Faure, Jean-Marc, Cury, Jose E. R., Lennartson, Bengt },  
publisher = { IFAC },  
pages = { 400-405 },  
year = { 2014 },  
address = { Cachan, France },  
organization = { Discrete Event Systems : [12th International  
Workshop on  
Discrete Event Systems], Cachan (France), 2014-05-14 -  
2014-05-16 },  
doi = { 10.3182/20140514-3-FR-4046.00065 },  
typ = { PUB:(DE-HGF)8 },  
reportid = { RWTH-CONV-205968 },  
cin = { 120000 / 122810 },  
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```

[SBS+14]

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Stattelmann, S., Biallas, S., Schlich, B., and Kowalewski, S., "Applying Static Code Analysis on Industrial Controller Code", in *Proc. 2014 IEEE [International Conference on] Emerging Technologies and Factory Automation (ETFA 2014) : Barcelona, Spain, 16 - 19 September 2014 / [co-sponsored by Universitat Politècnica de Catalunya - Barcelona Tech (UPC); IEEE Industrial Electronics Society]*, Piscataway, NJ, 2014, IEEE, p. 4.

Applying Static Code Analysis on Industrial Controller Code

Bibtex entry :

```
@inproceedings { SBS+14,
  author = { Stattelmann, Stefan and Biallas, Sebastian and Schlich, Bastian and Kowalewski, Stefan },
  title = { Applying Static Code Analysis on Industrial Controller Code },
  booktitle = { 2014 IEEE [International Conference on] Emerging Technologies and Factory Automation (ETFA 2014) : Barcelona, Spain, 16 - 19 September 2014 / [co-sponsored by Universitat Politècnica de Catalunya - Barcelona Tech (UPC); IEEE Industrial Electronics Society] },
  publisher = { IEEE },
  pages = { 4 Seiten },
  year = { 2014 },
  address = { Piscataway, NJ },
  organization = { 2014 IEEE [International Conference on] Emerging Technologies and Factory Automation, Barcelona (Spain), 2014-09-16 - 2014-09-19 },
  doi = { 10.1109/ETFA.2014.7005254 },
  typ = { PUB:(DE-HGF)7 },
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  cin = { 120000 / 122810 },
  url = { http://publications.rwth-aachen.de/record/444619 },
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[BKK+13]

PDFBIB

Biallas, S., Kamin, V., Kowalewski, S., Schlich, B., Sehestedt, S., and Stattelmann, S., "Verifikation von sicherheitsgerichteten SPS-Programmen mit Hilfe von Safety-Automaten", in *Proc. Automation 2013 : 14. Branchentreff der Mess- und Automatisierungstechnik ; Kongresshaus Baden-Baden, 25. und 26. Juni 2013 / VDI/VDE-Gesellschaft Mess- und Automatisierungstechnik*, Düsseldorf, 2013 in VDI-Berichte, VDI-Verl., pp. 75-79.

Verifikation von sicherheitsgerichteten SPS-Programmen mit Hilfe von Safety-Automaten

Bibtex entry :

```
@inproceedings { BKK+13,  
  author = { Biallas, Sebastian and Kamin, Volker and Kowalewski,  
Stefan  
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Stefan },  
  title = { Verifikation von sicherheitsgerichteten SPS-Programmen  
mit  
  Hilfe von Safety-Automaten },  
  booktitle = { Automation 2013 : 14. Branchentreff der Mess- und  
  Automatisierungstechnik ; Kongresshaus Baden-Baden, 25. und  
  26. Juni 2013 / VDI/VDE-Gesellschaft Mess- und  
  Automatisierungstechnik },  
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  pages = { 75-79 },  
  series = { VDI-Berichte },  
  year = { 2013 },  
  address = { D{"u"}sseldorf },  
  organization = { 14. Branchentreff der Mess- und  
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  url = { http://publications.rwth-aachen.de/record/226206 },  
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[BKS12]

[PDFBIB](#)

Biallas, S., Kowalewski, S., and Schlich, B., "Automatische Wertebereichsanalyse von SPS-Programmen", in *Proc. Automation 2012 : der 13. Branchentreff der Mess- und Automatisierungstechnik / VDI/VDE-Gesellschaft Mess- und Automatisierungstechnik ; Kongress 'Automation 2012' ; 13 (Baden-Baden) ; 2011.06.13-14 Branchentreff der Mess- und Automatisierungstechnik*, Düsseldorf, 2012 in VDI-Berichte, VDI-Verl., pp. 79-83.

Automatische Wertebereichsanalyse von SPS-Programmen

Bibtex entry :

```
@inproceedings { BKS12,  
  author = { Biallas, Sebastian and Kowalewski, Stefan and Schlich,  
Bastian },  
  title = { Automatische Wertebereichsanalyse von SPS-Programmen },  
  booktitle = { Automation 2012 : der 13. Branchentreff der Mess- und  
  Automatisierungstechnik / VDI/VDE-Gesellschaft Mess- und  
  Automatisierungstechnik ; Kongress 'Automation 2012' ; 13  
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publisher = { VDI-Verl. },
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organization = { 13. Branchentreff der Mess- und
Automatisierungstechnik,
Baden-Baden (Germany), 2011-06-13 - 2011-06-14 },
typ = { PUB:(DE-HGF)8 },
reportid = { RWTH-CONV-191631 },
cin = { 122810 / 120000 },
url = { http://publications.rwth-aachen.de/record/120638 },
}

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[BKS12a]

[PDFBIB](#)

Biallas, S., Kowalewski, S., and Schlich, B., "Automatische Wertebereichsanalyse -- Formale Verifikation für SPS-Programme", *Automatisierungstechnische Praxis : atp*, vol. 54, iss. 7/8, pp. 68-74, 2012

Automatische Wertebereichsanalyse -- Formale Verifikation für SPS-Programme

Bibtex entry :

```

@article { BKS12a,
author = { Biallas, Sebastian and Kowalewski, Stefan and Schlich,
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title = { Automatische Wertebereichsanalyse -- Formale Verifikation
f{"u}r SPS-Programme },
journal = { Automatisierungstechnische Praxis : atp },
publisher = { Oldenbourg Industrieverl. },
pages = { 68-74 },
volume = { 54 },
number = { 7/8 },
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url = { http://publications.rwth-aachen.de/record/133988 },
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[BKS12b]

[PDFBIB](#)

Biallas, S., Kowalewski, S., and Schlich, B., "Range and Value-Set Analysis for Programmable Logic Controllers", in *Proc. Proceedings of the 11th International Workshop on Discrete Event Systems*, Guadalajara, Mexico, 2012, IFAC, pp. 378-383.

Range and Value-Set Analysis for Programmable Logic Controllers

Bibtex entry :

```
@inproceedings { BKS12b,  
  author = { Biallas, Sebastian and Kowalewski, Stefan and Schlich,  
            Bastian },  
  title = { Range and Value-Set Analysis for Programmable Logic  
            Controllers },  
  booktitle = { Proceedings of the 11th International Workshop on  
Discrete  
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  publisher = { IFAC },  
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  url = { http://publications.rwth-aachen.de/record/752302 },  
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[BSK12]

[PDFBIB](#)

Brauer, J., Schlich, B., and Kowalewski, S., "Parallel and distributed invariant checking of microcontroller software", *Electronic notes in theoretical computer science : ENTCS*, vol. 287, pp. 45-63, 2012

Parallel and distributed invariant checking of microcontroller software

Bibtex entry :

```
@article { BSK12,  
  author = { Brauer, J{\\"o}rg and Schlich, Bastian and Kowalewski,  
            Stefan },  
  title = { Parallel and distributed invariant checking of  
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  journal = { Electronic notes in theoretical computer science :  
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  publisher = { Elsevier Science },  
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  volume = { 287 },  
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  address = { Amsterdam [u.a.] },  
  issn = { 1571-0661 },  
  organization = { 4. International Workshop on Numerical and  
Symbolic Abstract
```



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    Domains (France), 10-09-2010 },
    doi = { 10.1016/j.entcs.2009.09.059 },
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    cin = { 122810 / 120000 },
    url = { http://publications.rwth-aachen.de/record/132534 },
}

```

[BBK+11]

[PDFBIB](#)

Biallas, S., Brauer, J., Kowalewski, S., and Schlich, B., "Automatically Deriving Symbolic Invariants for PLC Programs Written in IL", in *Proc. Formal methods for automation and safety in railway and automotive systems : FORMS/FORMAT 2010 ; [8th symposium ; proceedings] / Eckehard Schnieder; Géza Tarnai, eds.*, Heidelberg [u.a.], 2011, Springer, pp. 237-245.

Automatically Deriving Symbolic Invariants for PLC Programs Written in IL

Bibtex entry :

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@inproceedings { BBK+11,
  author = { Biallas, Sebastian and Brauer, J{"o}rg and Kowalewski,
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  title = { Automatically Deriving Symbolic Invariants for PLC
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  booktitle = { Formal methods for automation and safety in railway
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    proceedings] / Eckehard Schnieder; Géza Tarnai, eds. },
  publisher = { Springer },
  pages = { 237-245 },
  year = { 2011 },
  address = { Heidelberg [u.a.] },
  organization = { Formal methods for automation and safety in
    railway and
    automotive systems, 2010 },
  doi = { 10.1007/978-3-642-14261-1 },
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  cin = { 122810 / 120000 },
  url = { http://publications.rwth-aachen.de/record/126461 },
}

```

[BKS11]

[PDFBIB](#)

Biallas, S., Kowalewski, S., and Schlich, B., "Leistungsfähige Verifikation von industriellen SPS-Programmen mittels Model-Checking und statischer Analyse", in *Proc. 'Zukunft verantwortungsvoll gestalten' : Automation 2011 ; der 12. Branchentreff der Mess- und Automatisierungstechnik ; Kongress Baden-Baden, 28. und 29. Juni 2011 / VDI/VDE-Gesellschaft*

Mess- und Automatisierungstechnik. [Kongressleiter: Peter Adolphs ...], Düsseldorf, 2011 in VDI-Berichte, VDI-Verl., pp. 67-72.

Leistungsfähige Verifikation von industriellen SPS-Programmen mittels Model-Checking und statischer Analyse

Bibtex entry :

```
@inproceedings { BKS11,  
  author = { Biallas, Sebastian and Kowalewski, Stefan and Schlich,  
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  title = { Leistungsfähige Verifikation von industriellen  
            SPS-Programmen mittels Model-Checking und statischer Analyse },  
  booktitle = { 'Zukunft verantwortungsvoll gestalten' : Automation  
2011 ;  
            der 12. Branchentreff der Mess- und Automatisierungstechnik  
            ; Kongress Baden-Baden, 28. und 29. Juni 2011 /  
            VDI/VDE-Gesellschaft Mess- und Automatisierungstechnik.  
            [Kongressleiter: Peter Adolphs ...] },  
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```

[RHS+11]

[PDFBIB](#)

Reinbacher, T., Horauer, M., Schlich, B., Brauer, J., and Scheuer, F., "Model checking embedded software of an industrial knitting machine", *International journal of information technology, communications and convergence*, vol. 1, iss. 2, pp. 186-205, 2011

Model checking embedded software of an industrial knitting machine

Bibtex entry :

```
@article { RHS+11,  
  author = { Reinbacher, Thomas and Horauer, Martin and Schlich,  
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    and Brauer, J{"o}rg and Scheuer, Florian },
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    machine },
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    publisher = { Inderscience Publishers },
    pages = { 186-205 },
    volume = { 1 },
    number = { 2 },
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    cin = { 122810 / 120000 },
    url = { http://www.inderscience.com/IJITCC },
}
```

[SBK11]

[PDFBIB](#)

Schlich, B., Brauer, J., and Kowalewski, S., "Application of Static Analyses for State-Space Reduction to the Microcontroller Binary Code", *Science of computer programming*, vol. 76, iss. 2, pp. 100-118, 2011

Application of Static Analyses for State-Space Reduction to the Microcontroller Binary Code

Bibtex entry :

```
@article { SBK11,
    author = { Schlich, Bastian and Brauer, J{"o}rg and Kowalewski,
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    pages = { 100-118 },
    volume = { 76 },
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}

[SNB+11]

[PDFBIB](#)

Schlich, B., Noll, T., Brauer, J., and Brutschy, L., "Reduction of Interrupt Handler Executions for Model Checking Embedded Software", in *Proc. Hardware and software: verification and testing : 5th International Haifa Verification Conference, HCV 2009, Haifa, Israel, October 19-22, 2009 : revised selected papers / Kedar Namjoshi ... (eds.)*, Heidelberg [u.a.], 2011 in *Lecture Notes in Computer Science*, Springer.

Reduction of Interrupt Handler Executions for Model Checking Embedded Software

Bibtex entry :

```
@inproceedings { SNB+11,  
  author = { Schlich, Bastian and Noll, Thomas and Brauer, J{"o}rg  
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  title = { Reduction of Interrupt Handler Executions for Model  
Checking  
Embedded Software },  
  booktitle = { Hardware and software: verification and testing : 5th  
International Haifa Verification Conference, HCV 2009,  
Haifa, Israel, October 19-22, 2009 : revised selected papers  
/ Kedar Namjoshi ... (eds.) },  
  publisher = { Springer },  
  series = { Lecture Notes in Computer Science },  
  year = { 2011 },  
  address = { Heidelberg [u.a.] },  
  organization = { 5. International Haifa Verification Conference,  
HCV 2009,  
Haifa (Israel), 2009-10-19 - 2009-10-22 },  
  doi = { 10.1007/978-3-642-19237-1_5 },  
  typ = { PUB:(DE-HGF)8 },  
  reportid = { RWTH-CONV-187757 },  
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[BFK+10]

[PDFBIB](#)

Biallas, S., Frey, G., Kowalewski, S., Schlich, B., and Soliman, D., "Formale Verifikation von Sicherheits-Funktionsbausteinen der PLCopen auf Modell- und Code-Ebene", in *Proc. Entwurf komplexer Automatisierungssysteme : EKA 2010 ; Beschreibungsmittel, Methoden, Werkzeuge und Anwendungen ; 11. Fachtagung mit Tutorium, 25. bis 27. Mai 2010 in Magdeburg, Denkfabrik im Wissenschaftshafen / ifak, Institut für Automation und Kommunikation e.V., Magdeburg; Otto-von-Guericke-Universität Magdeburg, Institut für Automatisierungstechnik. [Hrsg.: Ulrich Jumar, Eckehard Schnieder, Christian Diedrich]*, Magdeburg, 2010, ifak, pp. 49-57.

Formale Verifikation von Sicherheits-Funktionsbausteinen der PLCopen auf Modell- und Code-Ebene

Bibtex entry :

```
@inproceedings { BFK+10,
  author = { Biallas, Sebastian and Frey, Georg and Kowalewski,
Stefan
    and Schlich, Bastian and Soliman, Doaa },
  title = { Formale Verifikation von Sicherheits-Funktionsbausteinen
der
    PLCopen auf Modell- und Code-Ebene },
  booktitle = { Entwurf komplexer Automatisierungssysteme : EKA 2010
;
    Beschreibungsmittel, Methoden, Werkzeuge und Anwendungen ;
    11. Fachtagung mit Tutorium, 25. bis 27. Mai 2010 in
    Magdeburg, Denkfabrik im Wissenschaftshafen / ifak, Institut
    f{"u}r Automation und Kommunikation e.V., Magdeburg;
    Otto-von-Guericke-Universit{"a}t Magdeburg, Institut
    f{"u}r Automatisierungstechnik. [Hrsg.: Ulrich Jumar,
    Eckehard Schnieder, Christian Diedrich] },
  publisher = { ifak },
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  year = { 2010 },
  address = { Magdeburg },
  organization = { Entwurf komplexer Automatisierungssysteme :
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Bibtex entry :

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@inproceedings { BNS10,
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Society, Test Technology Techn. Council, In coop. with Dept.
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of Techn. },
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journal = { Electronic notes in theoretical computer science :
ENTCS },
publisher = { Elsevier Science },
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volume = { 254 },
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address = { Amsterdam [u.a.] },
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doi = { 10.1016/j.entcs.2009.09.060 },
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[FHS+09]

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  (eds.) },
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  pages = { 267-278 },
  volume = { 5404 },
  series = { Lecture notes in computer science },
  year = { 2009 },
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  author = { Klein, Gerwin and Huuck, Ralf and Schlich, Bastian },
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  pages = { 114-119 },  
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[HSW+08]

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  author = { Herberich, Gerlind and Schlich, Bastian and Weise,
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  publisher = { Elsevier Science },
  pages = { 133-150 },
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  author = { Reinbacher, Thomas and Kramer, Michael and Horauer,  
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  booktitle = { 2008 IEEE/ASME International Conference on  
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    Embedded Systems and Applications : MESA ; Beijing, China,
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[SGK08]

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    2008, Budapest, Hungary, October 9 - 10, 2008 / Géza Tarnai
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publisher = { L Harmattan },
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[SLK08]

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    author = { Schlich, Bastian and L{"o}ll, Jann and Kowalewski,
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    booktitle = { Formal methods for industrial critical systems : 12th
international workshop, FMICS 2007, Berlin, Germany, July 1
- 2, 2007 ; revised selected papers / Stefan Leue; Pedro
Merino (eds.) },
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    address = { Berlin [u.a.] },
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[SK07d]

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  author = { Schlich, Bastian and Kowalewski, Stefan },  
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  proceedings of Symposium FORMS/FORMAT 2007, Braunschweig,  
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  publisher = { GZVB },  
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  year = { 2007 },  
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Applying model checking to an automotive microcontroller application

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author = { Schlich, Bastian and Salewski, Falk and Kowalewski,
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[PSK06]

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author = { Palczynski, Jacob and Schlich, Bastian and Kowalewski,
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organization = { 36. Jahrestagung der Gesellschaft f{"u}r  
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url = { http://publications.rwth-aachen.de/record/111754 },  
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[SK06a]

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[mc]square: A model checker for microcontroller code

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  pages = { 33 Bl. : graph. Darst. },  
  volume = { 2006,11 },  
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- Summer semester 09: [Applying Formal Verification Methods to Embedded Systems](#) (Seminar)
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- Winter semester 06/07: [Testing Embedded Systems](#) (Seminar)
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- Winter semester 05/06: [Systematic Software Engineering](#) (Lecture)
- Summer semester 05: [Formal Methods for Embedded Systems](#) (Lecture)
- Winter semester 04/05: [Systems Programming](#) (Lecture)
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