

Dr.rer.nat. Bastian Schlich



Publikationen

[BSK+15]

[PDFBIB](#)

Biallas, S., Simon, H., Kowalewski, S., Hauck-Stattelmann, S., and Schlich, B., "Automatische Testfallgenerierung für SPS-Programme mittels Zeilenüberdeckung"Düsseldorf: VDI, 2015, vol. 2258,2, pp. 95-106.

Automatische Testfallgenerierung für SPS-Programme mittels Zeilenüberdeckung

Bibtex entry :

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@inbook { BSK+15,
  author = { Biallas, Sebastian and Simon, Hendrik and Kowalewski,
Stefan
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  title = { Automatische Testfallgenerierung f{"u}r SPS-Programme
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  booktitle = { Automation 2015 : benefits of change - the future of
automation ; 16. Branchentreff der Mess- und
Automatisierungstechnik ; Kongresshaus Baden-Baden, 11. und
12. Juni 2015 / VDI/VDE-Gesellschaft Mess- und
Automatisierungstechnik. - Bd. 1 },
  publisher = { VDI },
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Automation 2015, Baden-Baden (Germany), 2015-06-11 -
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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"Springer International Publishing: Cham, 2015, vol. 9109, pp. 585-588.

Analyzing the Restart Behavior of Industrial Control Applications

Bibtex entry :

```
@inbook { HBS+15,
  author = { Hauck-Stattelmann, Stefan and Biallas, Sebastian and
    Schlich, Bastian and Kowalewski, Stefan and Jetley, Raoul },
  title = { Analyzing the Restart Behavior of Industrial Control
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  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 },
  volume = { 9109 },
  series = { Lecture Notes in Computer Science },
  year = { 2015 },
  address = { Springer International Publishing },
  organization = { 20th International Symposium Formal Methods, Oslo
    (Norway),
    2015-06-24 - 2015-06-26 },
  doi = { 10.1007/978-3-319-19249-9_38 },
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  url = { http://publications.rwth-aachen.de/record/541096 },
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[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,  
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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,  
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  Stattelmann,  
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  title = { Efficient Handling of States in Abstract Interpretation  
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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 },
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doi = { 10.3182/20140514-3-FR-4046.00065 },
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}
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[SBS+14]

[PDFBIB](#)

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 },
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Technologies and Factory Automation, Barcelona (Spain),
2014-09-16 - 2014-09-19 },
doi = { 10.1109/ETFA.2014.7005254 },
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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"Düsseldorf: VDI-Verl., 2013, vol. 2209, pp. 75-79.

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

Bibtex entry :

```
@inbook { BKK+13,
  author = { Biallas, Sebastian and Kamin, Volker and Kowalewski,
Stefan
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  booktitle = { Automation 2013 : 14. Branchentreff der Mess- und
Automatisierungstechnik ; Kongresshaus Baden-Baden, 25. und
26. Juni 2013 / VDI/VDE-Gesellschaft Mess- und
Automatisierungstechnik },
  publisher = { VDI-Verl. },
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  series = { VDI-Berichte },
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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,  
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  title = { Automatische Wertebereichsanalyse von SPS-Programmen },  
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              Automatisierungstechnik / VDI/VDE-Gesellschaft Mess- und  
              Automatisierungstechnik ; Kongress 'Automation 2012' ; 13  
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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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  pages = { 68-74 },  
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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,
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  booktitle = { Proceedings of the 11th International Workshop on
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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,
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journal = { Electronic notes in theoretical computer science :  
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volume = { 287 },  
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[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 :

```
@inproceedings { BBK+11,  
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Programs  
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  publisher = { Springer },  
  pages = { 237-245 },  
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[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 :

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@inproceedings { BKS11,
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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 :

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@article { RHS+11,
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[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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[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,
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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.) },
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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,  
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der  
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  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,  
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[BNS10]

[PDFBIB](#)

Brauer, J., Noll, T., and Schlich, B., "Interval Analysis of Microcontroller Code using Abstract Interpretation of Hardware and Software", in *Proc. SCOPES '10 Proceedings of the 13th International Workshop on Software & Compilers for Embedded Systems : St. Goar, Germany - June 29-30, 2010*, New York, NY, 2010 in ACM Digital Library, ACM.

Interval Analysis of Microcontroller Code using Abstract Interpretation of Hardware and Software

Bibtex entry :

```
@inproceedings { BNS10,  
  author = { Brauer, J{"o}rg and Noll, Thomas and Schlich, Bastian  
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Workshop on
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[GSB+10]

[PDFBIB](#)

Gückel, D., Schlich, B., Brauer, J., and Kowalewski, S., "Synthesizing Simulators for Model Checking Microcontroller Binary", in *Proc. Proceedings of the 13th IEEE Symposium on Design and Diagnostics of Electronic Circuits and Systems : April 14-16, 2010, Vienna, Austria / Sponsored by IEEE Computer Society, Test Technology Techn. Council, In coop. with Dept. of Computer Engineering, Fac. of Informatics, Vienna Univ. of Techn., Piscataway, NJ, 2010, IEEE*, pp. 313-316.

Synthesizing Simulators for Model Checking Microcontroller Binary

Bibtex entry :

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@inproceedings { GSB+10,
  author = { G{"u"}ckel, Dominique and Schlich, Bastian and Brauer,
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  title = { Synthesizing Simulators for Model Checking
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    Society, Test Technology Techn. Council, In coop. with Dept.
    of Computer Engineering, Fac. of Informatics, Vienna Univ.
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  url = { http://publications.rwth-aachen.de/record/119227 },
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  author = { Schlich, Bastian },  
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  journal = { ACM transactions on embedded computing systems : TECS  
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  pages = { 27 S. },  
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  author = { Brauer, J{\\"o}rg and Huuck, Ralf and Schlich, Bastian },  
  title = { Interprocedural pointer analysis in Goanna },  
  journal = { Electronic notes in theoretical computer science :  
ENTCS },  
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  conference on Compilers, architecture, and synthesis for
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booktitle = { SOFSEM 2009: theory and practice of computer science
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January 24 - 30, 2009 ; proceedings / Mogens Nielsen ...
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publisher = { Springer },
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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    Systems (SIES 2009) : Lausanne, Switzerland, 08 - 10 July
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[SKW09]

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url = { http://publications.rwth-aachen.de/record/130980 },  
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  author = { Noll, Thomas and Schlich, Bastian },  
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  series = { Lecture notes in computer science },  
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  author = { Reinbacher, Thomas and Kramer, Michael and Horauer,  
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  booktitle = { 2008 International Symposium on Industrial Embedded  
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url = { http://publications.rwth-aachen.de/record/99569 },  
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  author = { Schlich, Bastian },  
  othercontributors = { Kowalewski, Stefan },  
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[SGK08]

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author = { Schlich, Bastian and G{"u}ckel, Dominique and
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    booktitle = { Formal methods for industrial critical systems : 12th
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    Merino (eds.) },
    publisher = { Springer },
    pages = { 21-37 },
    volume = { 4916 },
    series = { Lecture notes in computer science },
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[SSK07]

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author = { Schlich, Bastian and Salewski, Falk and Kowalewski,
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[SIES'2007] / IEEE / IEEE Computer Society Press },
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[PSK06]

[PDFBIB](#)

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author = { Palczynski, Jacob and Schlich, Bastian and Kowalewski,
Stefan },
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Matlab/Simulink-Modelcheckern },
booktitle = { Informatik 2006 : Informatik f{"u}r Menschen ;
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e.V. (GI) ; 2. bis 6. Oktober 2006 in Dresden / Christian
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pages = { 751-755 },
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url = { http://publications.rwth-aachen.de/record/111754 },  
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[SK06a]

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Schlich, B. and Kowalewski, S., "[mc]square: A model checker for microcontroller code", in *Proc. ISoLA 2006 : Second International Symposium on Leveraging Applications of Formal Methods, Verification and Validation ; 15 - 19 November 2006, Paphos, Cyprus / IEEE Computer Society Leveraging Applications of Formal Methods, Verification and Validation (ISoLA 2006)*, Paphos, Cyprus, 2006, IEEE Computer Society Press, pp. 466-473.

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@inproceedings { SK06a,  
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  ; 15 - 19 November 2006, Paphos, Cyprus / IEEE Computer  
Society Leveraging Applications of Formal Methods,  
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[SRW+06]

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  author = { Schlich, Bastian and Rohrbach, Michael and Weber,  
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  pages = { 33 Bl. : graph. Darst. },
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    volume = { 2006,11 },
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[SK05b]

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  author = { Schlich, Bastian and Kowalewski, Stefan },
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  booktitle = { IEEE/NASA Workshop on Leveraging Applications of
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; proceedings of a workshop held at the Loyola College
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Center. Ed.: Tiziana Margaria ... },
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  number = { NASA/CP-2005-212788 },
  year = { 2005 },
  address = { [S.l.] },
  typ = { PUB:(DE-HGF)8 },
  reportid = { RWTH-CONV-009447 },
  cin = { 120000 / 122810 },
  url = { http://publications.rwth-aachen.de/record/111740 },
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[SK04]

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@inbook { SK04,  
  author = { Schlich, Bastian and Kowalewski, Stefan },  
  title = { C Model Checker: Eine {\\"U}bersicht },  
  year = { 2004 },  
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