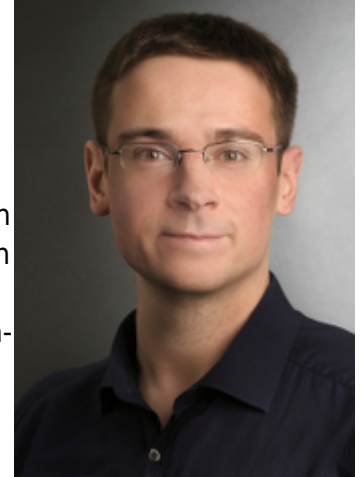


Dr. rer. nat. Sebastian Biallas

Über mich

Ich bin nach Berlin gezogen.

Am Lehrstuhl habe ich das DFG Projekt „Verifikation von SPS-Programmen mittels Model-Checking und statischer Analyse“ bearbeitet. Speicherprogrammierbare Steuerungen (SPSen) sind Steuerungscomputer zur Automatisierung, Regelung und Steuerung von großtechnischen Anlagen und Maschinen. In diesem Projekt geht es darum, mittels formaler Methoden Fehler in SPS-Programmen zu finden oder zu beweisen, dass sie ihre Spezifikation erfüllen. Insbesondere ist es dazu nötig, geeignete Abstraktionstechniken zu entwickeln, die es erlauben, Berechnungsschritte auf einer großen Menge von Werten gleichzeitig auszuführen. Erst so ist es möglich, die Analysen auf größere SPS-Programme anzuwenden.



Ich bin weiterhin unter [biallas\[at\]embedded\[dot\]rwth-aachen\[dot\]de](mailto:biallas@embedded.rwth-aachen.de) erreichbar.

Publikationen

[Bia16]

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

Biallas, S., "Verification of programmable logic controller code using model checking and static analysis", PhD Thesis, Aachen, 2016.

Verification of programmable logic controller code using model checking and static analysis

Bibtex entry :

```
@phdthesis { Bia16,
  author = { Biallas, Sebastian },
  othercontributors = { Kowalewski, Stefan and Fay, Alexander },
  title = { Verification of programmable logic controller code using
    model checking and static analysis },
  publisher = { Shaker Verlag },
  school = { RWTH Aachen University },
  pages = { 1 Online-Ressource (x, 153 Seiten) : Illustrationen,
    Diagramme },
  series = { Aachener Informatik Berichte },
  year = { 2016 },
  address = { Aachen },
  isbn = { 978-3-8440-4711-0 },
  typ = { PUB:(DE-HGF)29 },
```

```
reportid = { RWTH-2016-06614 },
cin = { 122810 / 120000 },
url = {
http://publications.rwth-aachen.de/record/668156/files/668156.pdf },
}
```

[BFS+15]

[PDFBIB](#)

Biallas, S., Friedrich, N., Simon, H., and Kowalewski, S., "Automatic Error Cause Localization of Faulty PLC Programs", *IFAC-PapersOnLine*, vol. 48, iss. 7, pp. 79-84, 2015

Automatic Error Cause Localization of Faulty PLC Programs

Bibtex entry :

```
@article { BFS+15,
  author = { Biallas, Sebastian and Friedrich, Nico and Simon,
Hendrik
  and Kowalewski, Stefan },
  title = { Automatic Error Cause Localization of Faulty PLC Programs
},
  journal = { IFAC-PapersOnLine },
  publisher = { IFAC },
  pages = { 79-84 },
  volume = { 48 },
  number = { 7 },
  year = { 2015 },
  address = { Laxenburg },
  issn = { 2405-8963 },
  organization = { 5. IFAC International Workshop on Dependable
Control of
  Discrete Systems, Cancun (Mexico), 2015-05-27 - 2015-05-29 },
  doi = { 10.1016/j.ifacol.2015.06.476 },
  typ = { PUB:(DE-HGF)16 },
  reportid = { RWTH-2016-03746 },
  cin = { 122810 / 120000 },
  url = { http://publications.rwth-aachen.de/record/573801 },
}
```

[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 },
  series = { VDI-Berichte },
  year = { 2015 },
  address = { D{"u}sseldorf },
  organization = { AUTOMATION 2015, Baden Baden (Germany), 2015-06-11
-
  2015-06-12 },
  typ = { PUB:(DE-HGF)7 },
  reportid = { RWTH-CONV-207912 },
  cin = { 122810 / 120000 },
  url = { http://publications.embedded.rwth-aachen.de/file/5r },
}
```

[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,
  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
Kowalewski, Stefan },
  title = { Automatic test case generation for PLC programs using
coverage metrics },
  booktitle = { 2015 IEEE 20th Conference on Emerging Technologies
Factory
Automation (ETFA) : 8 - 11 Sept. 2015, City of Luxembourg,
Luxembourg / co-sponsored by IEEE ... },
  publisher = { IEEE },
  pages = { 4 S. },
  year = { 2015 },
  address = { Piscataway, NJ },
  organization = { 2015 IEEE 20th Conference on Emerging Technologies
Factory
Automation, Luxembourg (Luxembourg), 2015-09-08 - 2015-09-11 },
  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 },
}
```

[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 },
  url = { http://publications.rwth-aachen.de/record/443854 },
}
```

[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 },
  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 },
  reportid = { RWTH-CONV-206434 },
  cin = { 120000 / 122810 },
  url = { http://publications.rwth-aachen.de/record/444619 },
}
```

[BBK13]

[PDFBIB](#)

Biallas, S., Bohlender, D., and Kowalewski, S., "Boolean and Modular Abstractions for Programmable Logic Controllers", in *Proc. Dependable Control of Discrete Systems : DCDS13. - Vol. 4, P. 1*, Laxenburg, 2013, IFAC, pp. 97-102.

Boolean and Modular Abstractions for Programmable Logic Controllers

Bibtex entry :

```
@inproceedings { BBK13,
  author = { Biallas, Sebastian and Bohlender, Dimitri and
    Kowalewski,
    Stefan },
  title = { Boolean and Modular Abstractions for Programmable Logic
    Controllers },
  booktitle = { Dependable Control of Discrete Systems : DCDS13. -
    Vol. 4,
    P. 1 },
```

```

publisher = { IFAC },
pages = { 97-102 },
year = { 2013 },
address = { Laxenburg },
organization = { Dependable Control of Discrete Systems },
doi = { 10.3182/20130904-3-UK-4041.00011 },
typ = { PUB:(DE-HGF)8 },
reportid = { RWTH-CONV-203363 },
cin = { 120000 / 122810 },
url = { http://publications.rwth-aachen.de/record/225788 },
}

```

[BGK13]

[PDFBIB](#)

Biallas, S., Giacobbe, M., and Kowalewski, S., "Predicate Abstraction for Programmable Logic Controllers", in *Proc. Formal Methods for Industrial Critical Systems : 18th International Workshop, FMICS 2013, Madrid, Spain, September 23-24, 2013. Proceedings / edited by Charles Pecheur, Michael Dierkes*, Berlin, Heidelberg ; s.l., 2013 in *Lecture notes in computer science*, Springer Berlin Heidelberg ; Imprint: Springer, pp. 123-138.

Predicate Abstraction for Programmable Logic Controllers

Bibtex entry :

```

@inproceedings { BGK13,
  author = { Biallas, Sebastian and Giacobbe, Mirco and Kowalewski,
    Stefan },
  title = { Predicate Abstraction for Programmable Logic Controllers
},
  booktitle = { Formal Methods for Industrial Critical Systems : 18th
    International Workshop, FMICS 2013, Madrid, Spain, September
    23-24, 2013. Proceedings / edited by Charles Pecheur,
    Michael Dierkes },
  publisher = { Springer Berlin Heidelberg ; Imprint: Springer },
  pages = { 123-138 },
  series = { Lecture notes in computer science },
  year = { 2013 },
  address = { Berlin, Heidelberg ; s.l. },
  organization = { Formal Methods for Industrial Critical Systems :
18.
    International Workshop, Madrid (Spain), 2013-09-23 -
    2013-09-24 },
  doi = { 10.1007/978-3-642-41010-9_9 },
  typ = { PUB:(DE-HGF)8 },
  reportid = { RWTH-CONV-203367 },
  cin = { 120000 / 122810 },
  url = { http://publications.rwth-aachen.de/record/225793 },
}

```

[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
    and Schlich, Bastian and Sehestedt, Stephan and Stattelmann,
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 },
  publisher = { VDI-Verl. },
  pages = { 75-79 },
  series = { VDI-Berichte },
  year = { 2013 },
  address = { D{"\u}sseldorf },
  organization = { 14. Branchentreff der Mess- und
Automatisierungstechnik
    (Germany), 2013-06-25 - 2013-06-26 },
  typ = { PUB:(DE-HGF)8 },
  reportid = { RWTH-CONV-203699 },
  cin = { 120000 / 122810 },
  url = { http://publications.rwth-aachen.de/record/226206 },
}
```

[BMC+13]

[PDFBIB](#)

Biallas, S., Mads, C. O., Cassez, F., and Huuck, R., "PtrTracker: Pragmatic pointer analysis", in *Proc. 2013 IEEE 13th International Working Conference on Source Code Analysis and Manipulation (SCAM) : 22 - 23 Sept. 2013, Eindhoven, the Netherlands / sponsors: IEEE Computer Society Technical Council on Software Engineering ... Ed.: Bram Adams ...*, Piscataway, NJ, 2013, IEEE, pp. 69-73.

PtrTracker: Pragmatic pointer analysis

Bibtex entry :

```
@inproceedings { BMC+13,
  author = { Biallas, Sebastian and Mads, Chr. Olesen and Cassez,
    Franck
    and Huuck, Ralf },
  title = { PtrTracker: Pragmatic pointer analysis },
  booktitle = { 2013 IEEE 13th International Working Conference on
    Source
    Code Analysis and Manipulation (SCAM) : 22 - 23 Sept. 2013,
    Eindhoven, the Netherlands / sponsors: IEEE Computer Society
    Technical Council on Software Engineering ... Ed.: Bram
    Adams ... },
  publisher = { IEEE },
  pages = { 69-73 },
  year = { 2013 },
  address = { Piscataway, NJ },
  organization = { 2013 IEEE 13th International Working Conference on
    Source
    Code Analysis and Manipulation, Eindhoven (Netherlands),
    2013-09-22 - 2013-09-23 },
  doi = { 10.1109/SCAM.2013.6648186 },
  typ = { PUB:(DE-HGF)7 },
  reportid = { RWTH-CONV-236321 },
  cin = { 122810 / 120000 },
  url = { http://publications.rwth-aachen.de/record/752296 },
}
```

[BBK+12]

[PDFBIB](#)

Biallas, S., Brauer, J., King, A., and Kowalewski, S., "Loop Leaping with Closures", in *Proc. Static Analysis : 19th International Symposium, SAS 2012, Deauville, France, September 11-13, 2012. Proceedings / edited by Antoine Miné, David Schmidt*, Berlin, Heidelberg, 2012 in *Lecture Notes in Computer Science*, Springer, pp. 214-230.

Loop Leaping with Closures

Bibtex entry :

```
@inproceedings { BBK+12,
  author = { Biallas, Sebastian and Brauer, J{"o}rg and King, Andy
    and
    Kowalewski, Stefan },
  title = { Loop Leaping with Closures },
  booktitle = { Static Analysis : 19th International Symposium, SAS
    2012,
    Deauville, France, September 11-13, 2012. Proceedings /
    edited by Antoine Miné, David Schmidt },
  publisher = { Springer },
  pages = { 214-230 },
  series = { Lecture Notes in Computer Science },
```

```
year = { 2012 },
address = { Berlin, Heidelberg },
organization = { Static Analysis : 19. International Symposium,
Deauville
(France), 2012-09-11 - 2012-09-13 },
typ = { PUB:(DE-HGF)7 },
reportid = { RWTH-CONV-236335 },
cin = { 122810 / 120000 },
url = { http://publications.rwth-aachen.de/record/752305 },
}
```

[BBK12]

[PDFBIB](#)

Beckschulze, E., Biallas, S., and Kowalewski, S., "Static Analysis of Lockless Microcontroller C Programs", in *Proc. Proceedings Seventh Conference on Systems Software Verification (SSV 2012) : Sydney, Australia, 28-30 November 2012 / Franck Cassez, Ralf Huuck, Gerwin Klein and Bastian Schlich*, Sydney, Australia, 2012 in *Electronic proceedings in theoretical computer science : EPTCS*, pp. 103-114.

Static Analysis of Lockless Microcontroller C Programs

Bibtex entry :

```
@inproceedings { BBK12,
author = { Beckschulze, Eva and Biallas, Sebastian and Kowalewski,
Stefan },
title = { Static Analysis of Lockless Microcontroller C Programs },
booktitle = { Proceedings Seventh Conference on Systems Software
Verification (SSV 2012) : Sydney, Australia, 28-30 November
2012 / Franck Cassez, Ralf Huuck, Gerwin Klein and Bastian
Schlich },
pages = { 103-114 },
series = { Electronic proceedings in theoretical computer science :
EPTCS },
year = { 2012 },
address = { Sydney, Australia },
organization = { 7. Conference on Systems Software Verification,
Sydney
(Australia), 2012-11-28 - 2012-11-30 },
doi = { 10.4204/EPTCS.102.10 },
typ = { PUB:(DE-HGF)8 },
reportid = { RWTH-CONV-195461 },
cin = { 122810 / 120000 },
url = { http://publications.rwth-aachen.de/record/124829 },
}
```

[BBK12b]

[PDFBIB](#)

Biallas, S., Brauer, J., and Kowalewski, S., "Arcade.PLC : a Verification Platform for Programmable Logic Controllers", in *Proc. 2012 proceedings of the 27th IEEE/ACM International Conference on Automated Software Engineering (ASE 2012) : Essen, Germany, 3 - 7 September*

2012, Piscataway, NJ, 2012, IEEE, pp. 338-341.

Arcade.PLC : a Verification Platform for Programmable Logic Controllers

Bibtex entry :

```
@inproceedings { BBK12b,  
  author = { Biallas, Sebastian and Brauer, J{"o}rg and Kowalewski,  
            Stefan },  
  title = { Arcade.PLC : a Verification Platform for Programmable  
Logic  
Controllers },  
  booktitle = { 2012 proceedings of the 27th IEEE/ACM International  
Conference on Automated Software Engineering (ASE 2012) :  
Essen, Germany, 3 - 7 September 2012 },  
  publisher = { IEEE },  
  pages = { 338-341 },  
  year = { 2012 },  
  address = { Piscataway, NJ },  
  organization = { 27. IEEE/ACM International Conference on Automated  
Software  
Engineering, Essen (Germany), 2012-09-03 - 2012-09-07 },  
  doi = { 10.1145/2351676.2351741 },  
  typ = { PUB:(DE-HGF)8 },  
  reportid = { RWTH-CONV-170936 },  
  cin = { 120000 / 122810 },  
  url = { http://publications.rwth-aachen.de/record/97761 },  
}
```

[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
(Baden-Baden) ; 2011.06.13-14Branchentreff der Mess- und
Automatisierungstechnik },
publisher = { VDI-Verl. },
pages = { 79-83 },
series = { VDI-Berichte },
year = { 2012 },
address = { D{"u}sseldorf },
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 },
}
```

[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,
Bastian },
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 },
year = { 2012 },
address = { M{"u}nchen },
issn = { 0178-2320 },
typ = { PUB:(DE-HGF)16 },
reportid = { RWTH-CONV-015025 },
cin = { 122810 / 120000 },
url = { http://publications.rwth-aachen.de/record/133988 },
}
```

[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  
            Event Systems },  
  publisher = { IFAC },  
  pages = { 378-383 },  
  year = { 2012 },  
  address = { Guadalajara, Mexico },  
  typ = { PUB:(DE-HGF)7 },  
  reportid = { RWTH-CONV-236327 },  
  cin = { 122810 / 120000 },  
  url = { http://publications.rwth-aachen.de/record/752302 },  
}
```

[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,  
  author = { Biallas, Sebastian and Brauer, J{"o}rg and Kowalewski,  
            Stefan and Schlich, Bastian },  
  title = { Automatically Deriving Symbolic Invariants for PLC  
Programs  
            Written in IL },  
  booktitle = { Formal methods for automation and safety in railway  
and  
            automotive systems : FORMS/FORMAT 2010 ; [8th symposium ;  
            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 },
typ = { PUB:(DE-HGF)8 },
reportid = { RWTH-CONV-196797 },
cin = { 122810 / 120000 },
url = { http://publications.rwth-aachen.de/record/126461 },
}

```

[BBK11]

[PDFBIB](#)

Biallas, S., Brauer, J., and Kowalewski, S., "SAT-Based Abstraction Refinement for Programmable Logic Controllers", in *Proc. 3rd International Workshop on Dependable Control of Discrete Systems 2011, DCDS 2011, Saarbrücken, Germany, 15th-17th June 2011*, Piscataway, NJ, 2011, IEEE, pp. 96-101.

SAT-Based Abstraction Refinement for Programmable Logic Controllers

Bibtex entry :

```

@inproceedings { BBK11,
  author = { Biallas, Sebastian and Brauer, J{"o}rg and Kowalewski,
Stefan },
  title = { SAT-Based Abstraction Refinement for Programmable Logic
Controllers },
  booktitle = { 3rd International Workshop on Dependable Control of
Discrete
Systems 2011, DCDS 2011, Saarbr{"u}cken, Germany,
15th-17th June 2011 },
  publisher = { IEEE },
  pages = { 96-101 },
  year = { 2011 },
  address = { Piscataway, NJ },
  organization = { 3. International Workshop on Dependable Control of
Discrete
Systems 2011, Saarbr{"u}cken (Germany), 2011-06-15 -
2011-06-17 },
  typ = { PUB:(DE-HGF)8 },
  reportid = { RWTH-CONV-194508 },
  cin = { 122810 / 120000 },
  url = {
http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=05970325 },
}

```

[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, Bastian },
  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 ...] },
  publisher = { VDI-Verl. },
  pages = { 67-72 },
  series = { VDI-Berichte },
  year = { 2011 },
  address = { D\{u}sseldorf },
  organization = { 12. Branchentreff der Mess- und Automatisierungstechnik, Baden-Baden (Germany), 2011-06-28 - 2011-06-29 },
  typ = { PUB:(DE-HGF)8 },
  reportid = { RWTH-CONV-189475 },
  cin = { 122810 / 120000 },
  url = { http://publications.rwth-aachen.de/record/118212 },
}
```

[BBG+10]

PDFBIB

Biallas, S., Brauer, J., Gückel, D., and Kowalewski, S., "On-The-Fly Path Reduction", in *Proc. 4th International Workshop on Harnessing Theories for Tool Support in Software : TTSS'10 ; East China Normal University, Shanghai, China, November 15, 2010 ; Preliminary Proceedings / Eds.: Min Zhang and Volker Stolz*, Macau, 2010 in UNU-IIST Report, UNU-IIST, pp. 108-122.

On-The-Fly Path Reduction

Bibtex entry :

```
@inproceedings { BBG+10,  
  author = { Biallas, Sebastian and Brauer, J{"o}rg and G{"u}ckel,  
    Dominique and Kowalewski, Stefan },  
  title = { On-The-Fly Path Reduction },  
  booktitle = { 4th International Workshop on Harnessing Theories for  
Tool  
  Support in Software : TTSS'10 ; East China Normal  
University, Shanghai, China, November 15, 2010 ; Preliminary  
Proceedings / Eds.: Min Zhang and Volker Stolz },  
  publisher = { UNU-IIST },  
  pages = { 108-122 },  
  series = { UNU-IIST Report },  
  year = { 2010 },  
  address = { Macau },  
  organization = { 4. International Workshop on Harnessing Theories  
for Tool  
  Support in Software, Shanghai (Peoples R China), 2010-11-15  
- 2010-11-15 },  
  typ = { PUB:(DE-HGF)7 },  
  reportid = { RWTH-CONV-190152 },  
  cin = { 122810 / 120000 },  
  url = {  
http://i.unu.edu/unu/u/publication/000/001/286/report444.pdf },  
}
```

[BBK10]

[PDFBIB](#)

Biallas, S., Brauer, J., and Kowalewski, S., "Counterexample-Guided Abstraction Refinement for PLCs", in *Proc. 5th International Workshop on Systems Software Verification (SSV 2010)*, Vancouver, Canada, 2010.

Counterexample-Guided Abstraction Refinement for PLCs

Bibtex entry :

```
@inproceedings { BBK10,  
  author = { Biallas, Sebastian and Brauer, J{"o}rg and Kowalewski,  
    Stefan },  
  title = { Counterexample-Guided Abstraction Refinement for PLCs },  
  booktitle = { 5th International Workshop on Systems Software  
Verification  
(SSV 2010), Vancouver, Canada },  
  year = { 2010 },  
  organization = { 5. International Workshop on Systems Software  
Verification,  
  Vancouver (Canada) },  
  typ = { PUB:(DE-HGF)8 },
```



```

reportid = { RWTH-CONV-189856 },
cin = { 122810 / 120000 },
url = {
http://www.embedded.rwth-aachen.de/lib/exe/fetch.php?media=bib:bbk10.pdf
},
}

```

[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 },
  pages = { 49-57 },
  year = { 2010 },
  address = { Magdeburg },
  organization = { Entwurf komplexer Automatisierungssysteme :
  Beschreibungsmittel, Methoden, Werkzeuge und Anwendungen,
  Magdeburg (Germany), 2010-05-25 - 2010-05-27 },
  typ = { PUB:(DE-HGF)8 },
  reportid = { RWTH-CONV-190099 },
  cin = { 122810 / 120000 },
  url = { http://publications.rwth-aachen.de/record/118924 },

```

}

From:

<https://embedded.rwth-aachen.de/> - **Informatik 11 - Embedded Software**

Permanent link:

<https://embedded.rwth-aachen.de/doku.php?id=lehrstuhl:mitarbeiter:biallas>

Last update: **2016/12/02 10:30**

