

Dirk Beyer

Curriculum Vitae

2016-07-13

Coordinates

Affiliation:	Universität Passau Lehrstuhl für Softwaresysteme Innstraße 33 D-94032 Passau Germany	Web:	http://www.sosy-lab.org/~dbeyer
		Office:	+49 (851) 509-3090
		Home:	+49 (851) 210-3345
Citizenship:	German	Year of birth:	1972
Town of birth:	Finsterwalde, Germany	Marital status:	Married, three children

Research Interests

My research focuses on models, algorithms, and tools for the construction and analysis of reliable software systems, in particular (tools in whose development I was involved are given in parentheses):

- Software model checking and static analysis (CPACHECKER, BLAST, CSISAT)
- Structural analysis and comprehension of large software systems (CROCO PAT, CCVISU)
- Interfaces for component-based design (CHIC)
- Formal verification of real-time systems (RABBIT)

The conceptional basis of my work is in software engineering, programming languages, data structures and efficient algorithms, and mathematical logic. My goal is not only to develop new concepts, but also to provide efficient tool implementations derived from the research results.

Education

1998 – 2002	Academic degree Dr. rer. nat. “magna cum laude” Brandenburgische Technische Universität Cottbus, Germany
1994 – 1998	Academic degree Diplom-Informatiker “with distinction” Brandenburgische Technische Universität Cottbus, Germany University award 1998 for Master’s thesis

Academic Employment

since 2009	Professor (W3) Universität Passau, Germany
2011 – 2014	Adjunct Professor Simon Fraser University, B.C., Canada
2010 – 2011	Associate Professor Simon Fraser University, B.C., Canada
2006 – 2010	Assistant Professor Simon Fraser University, B.C., Canada
2004 – 2006	Postdoctoral Researcher, Host: Prof. Thomas A. Henzinger EPFL, Lausanne, Switzerland
2003 – 2004	Postdoctoral Researcher, Host: Prof. Thomas A. Henzinger University of California, Berkeley, U.S.A.
1998 – 2003	Research and Teaching Assistant, Advisor: Prof. Claus Lewerentz Brandenburgische Technische Universität Cottbus, Germany

Industrial Employment

1998 – 1998	Software Engineer Siemens AG, Business Services Dresden, Dept. Major Projects
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Software (Copyrighted as free software.)

1. **BENCHEXEC: Reliable Benchmarking and Resource Measurement.**
Contributor.
<https://github.com/dbeyer/BenchExec>
2. **BLAST: Model Checking of Software.**
Contributor, conceptual extensions, implementation, and maintenance.
<http://www.sosy-lab.org/~dbeyer/Blast>
3. **CCVISU: Visual Clustering and Software-Structure Assessment.**
Principal designer and implementer.
<http://www.sosy-lab.org/~dbeyer/CCVisu>
4. **CHECKDEP: Tracking Software Dependencies.**
Principal designer, architect, and maintenance.
<http://www.sosy-lab.org/~dbeyer/CheckDep>
5. **CHIC: Checking Interface Compatibility.**
Contributor, new formalism, and verification algorithm.
<http://www.sosy-lab.org/~dbeyer/Chic>
6. **CPACHECKER: Configurable Software Verification.**
Principal designer, architect, implementation, and maintenance.
<http://www.sosy-lab.org/~dbeyer/CPAchecker>
7. **CROCOPAT: Relational Programming (for Software-Structure Analysis).**
Principal designer and implementer.
<http://www.sosy-lab.org/~dbeyer/CrocoPat>
8. **CSISAT: Interpolation for LA+EUF.**
Contributor and designer.
<http://www.sosy-lab.org/~dbeyer/CSIsat>
9. **DEPDIGGER: Detecting Complex Low-Level Dependencies.**
Principal designer, architect, and maintenance.
<http://www.sosy-lab.org/~dbeyer/DepDigger>
10. **JAVASMT: A Unified Interface for SMT Solvers in Java.**
Contributor.
<https://github.com/sosy-lab/java-smt>
11. **RABBIT: Verification of Real-Time Systems.**
Principal designer and implementer.
<http://www.sosy-lab.org/~dbeyer/Rabbit>

Publications

Electronic versions are available at <http://www.sosy-lab.org/~dbeyer/Publications>.

Books

1. Dirk Beyer and Michele Boreale, editors. *Proceedings of the 2013 IFIP Joint International Conference on Formal Techniques for Distributed Systems (33rd FORTE / 15th FMOODS)*, LNCS 7892. Springer-Verlag, Heidelberg, 2013.
2. Dirk Beyer, Arie van Deursen, and Michael W. Godfrey, editors. *Proceedings of the 20th IEEE International Conference on Program Comprehension*. IEEE, 2012.
3. Dirk Beyer. *Formale Verifikation von Realzeit-Systemen mittels Cottbus Timed Automata*. Mensch & Buch Verlag, Berlin, 2002. Also: Dissertation, Brandenburgische Technische Universität Cottbus, 2002.

Journal Papers

1. Dirk Beyer and Andreas Stahlbauer. BDD-based software verification: Applications to event-condition-action systems. *STTT*, 16(5):507–518, 2014.
2. Falk Howar, Malte Isberner, Maik Merten, Bernhard Steffen, Dirk Beyer, and Corina S. Pasareanu. Rigorous examination of reactive systems: The RERS challenges 2012 and 2013. *STTT*, 16(5):457–464, 2014.
3. Dirk Beyer, Thomas A. Henzinger, Ranjit Jhala, and Rupak Majumdar. The software model checker BLAST: Applications to software engineering. *International Journal on Software Tools*

for *Technology Transfer (STTT)*, 9(5-6):505–525, 2007. Invited to special issue of selected papers from FASE 2004/05.

4. Dirk Beyer, Andreas Noack, and Claus Lewerentz. Efficient relational calculation for software analysis. *IEEE Transactions on Software Engineering (TSE)*, 31(2):137–149, 2005. Invited to special issue of selected papers from WCRE 2003.

Conference Papers (with published proceedings)

1. Dirk Beyer, Matthias Dangl, Daniel Dietsch, Matthias Heizmann, and Andreas Stahlbauer. Witness validation and stepwise testification across software verifiers. In E. Di Nitto, M. Harman, and P. Heymans, editors, *Proceedings of the 2015 10th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on Foundations of Software Engineering (ESEC/FSE 2015, Bergamo, Italy, August 31 - September 4)*, pages 721–733. ACM, New York, 2015.
2. Dirk Beyer, Stefan Löwe, and Philipp Wendler. Refinement selection. In B. Fischer and J. Geldenhuys, editors, *Proceedings of the 22nd International Symposium on Model Checking of Software (SPIN 2015, Stellenbosch, South Africa, August 24-26)*, LNCS 9232, pages 20–38. Springer-Verlag, Heidelberg, 2015.
3. Dirk Beyer, Stefan Löwe, and Philipp Wendler. Benchmarking and resource measurement. In B. Fischer and J. Geldenhuys, editors, *Proceedings of the 22nd International Symposium on Model Checking of Software (SPIN 2015, Stellenbosch, South Africa, August 24-26)*, LNCS 9232, pages 160–178. Springer-Verlag, Heidelberg, 2015.
4. Dirk Beyer, Matthias Dangl, and Philipp Wendler. Boosting k-induction with continuously-refined invariants. In D. Kröning and C. S. Pasareanu, editors, *Proceedings of the 27th International Conference on Computer Aided Verification (CAV 2015, San Francisco, CA, USA, July 18-24)*, LNCS 9206, pages 622–640. Springer-Verlag, Heidelberg, 2015.
5. Dirk Beyer, Stefan Löwe, and Philipp Wendler. Sliced path prefixes: An effective method to enable refinement selection. In S. Graf and M. Viswanathan, editors, *Proceedings of the 35th IFIP WG 6.1 International Conference on Formal Techniques for Distributed Objects, Components, and Systems (FORTE 2015, Grenoble, France, June 2-4)*, LNCS 9039, pages 228–243. Springer-Verlag, Heidelberg, 2015.
6. Alexander von Rhein, Alexander Grebhahn, Sven Apel, Norbert Siegmund, Dirk Beyer, and Thorsten Berger. Presence-condition simplification in highly configurable systems. In A. Bertolino, G. Canfora, and S. Elbaum, editors, *Proceedings of the 37th International Conference on Software Engineering (ICSE 2015, Florence, Italy, May 16-24)*, pages 178–188. IEEE, 2015.
7. Johannes Bürdek, Malte Lochau, Stefan Bauregger, Andreas Holzer, Alexander von Rhein, Sven Apel, and Dirk Beyer. Facilitating reuse in multi-goal test-suite generation for software product lines. In A. Egyed and I. Schaefer, editors, *Proceedings of the 18th International Conference on Fundamental Approaches to Software Engineering (FASE 2015, London, UK, April 13-15)*, LNCS 9033, pages 84–99. Springer-Verlag, Heidelberg, 2015.
8. Dirk Beyer. Software verification and verifiable witnesses (report on SV-COMP 2015). In C. Baier and C. Tinelli, editors, *Proceedings of the 21st International Conference on Tools and Algorithms for the Construction and of Analysis Systems (TACAS 2015, London, UK, April 13-17)*, LNCS 9035, pages 401–416. Springer-Verlag, Heidelberg, 2015.
9. Dirk Beyer, Georg Dresler, and Philipp Wendler. Software verification in the Google App-Engine cloud. In A. Biere and R. Bloem, editors, *Proceedings of the 26th International Conference on Computer-Aided Verification (CAV 2014, Vienna, Austria, July 18-22)*, LNCS 8559, pages 327–333. Springer-Verlag, Heidelberg, 2014.
10. Dirk Beyer and Peter Häring. A formal evaluation of DepDegree based on Weyuker’s properties. In A. Begel C. Roy and L. Moonen, editors, *Proceedings of the 22nd International Conference on Program Comprehension (ICPC 2014, Hyderabad, India, June 2-3)*, pages 258–261. ACM, 2014.
11. Dirk Beyer. Status report on software verification (competition summary SV-COMP 2014). In E. Abraham and K. Havelund, editors, *Proceedings of the 20th International Conference on Tools and Algorithms for the Construction and of Analysis Systems (TACAS 2014, Grenoble, France, April 5-13)*, LNCS 8413, pages 373–388. Springer-Verlag, Heidelberg, 2014.
12. Sven Apel, Dirk Beyer, Karlheinz Friedberger, Franco Raimondi, and Alexander von Rhein. Domain types: Abstract-domain selection based on variable usage. In V. Bertacco and A. Legay,

- editors, *Proceedings of the 9th Haifa Verification Conference (HVC 2013, Haifa, Israel, November 5-7)*, LNCS 8244, page 262–278. Springer-Verlag, Heidelberg, 2013.
13. Dirk Beyer, Stefan Löwe, Evgeny Novikov, Andreas Stahlbauer, and Philipp Wendler. Precision reuse for efficient regression verification. In B. Meyer, L. Baresi, and M. Mezini, editors, *Proceedings of the 9th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on Foundations of Software Engineering (ESEC/FSE 2013, St. Petersburg, Russia, August 18-26)*, pages 389–399. ACM, 2013.
 14. Dirk Beyer and Philipp Wendler. Reuse of verification results: Conditional model checking, precision reuse, and verification witnesses. In E. Bartocci and C. R. Ramakrishnan, editors, *Proceedings of the 2013 International Symposium on Model Checking of Software (SPIN 2013, Stony Brook, NY, USA, July 8-9)*, LNCS 7976, pages 1–17. Springer-Verlag, Heidelberg, 2013.
 15. Sven Apel, Alexander von Rhein, Philipp Wendler, Armin Größlinger, and Dirk Beyer. Strategies for product-line verification: Case studies and experiments. In D. Notkin, B. H. C. Cheng, and K. Pohl, editors, *Proceedings of the 35th International Conference on Software Engineering (ICSE 2013, San Francisco, CA, USA, May 18-26)*, pages 482–491. IEEE, 2013.
 16. Dirk Beyer. Second competition on software verification (Summary of SV-COMP 2013). In N. Piterman and S. Smolka, editors, *Proceedings of the 19th International Conference on Tools and Algorithms for the Construction and of Analysis Systems (TACAS 2013, Rome, Italy, March 16-24)*, LNCS 7795, pages 594–609. Springer-Verlag, Heidelberg, 2013.
 17. Dirk Beyer, Andreas Holzer, Michael Tautschnig, and Helmut Veith. Information reuse for multi-goal reachability analyses. In M. Felleisen and P. Gardner, editors, *Proceedings of the 22nd European Symposium on Programming (ESOP 2013, Rome, Italy, March 19-22)*, LNCS 7792, pages 472–491. Springer-Verlag, Heidelberg, 2013.
 18. Dirk Beyer and Stefan Löwe. Explicit-state software model checking based on CEGAR and interpolation. In V. Cortellessa and D. Varro, editors, *Proceedings of the 16th International Conference on Fundamental Approaches to Software Engineering (FASE 2013, Rome, Italy, March 20-22)*, LNCS 7793, pages 146–162. Springer-Verlag, Heidelberg, 2013.
 19. Dirk Beyer, Thomas A. Henzinger, M. Erkan Keremoglu, and Philipp Wendler. Conditional model checking: A technique to pass information between verifiers. In Tevfik Bultan and Martin Robillard, editors, *Proceedings of the 20th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 2012, Cary, NC, November 10-17)*. ACM, 2012.
 20. Dirk Beyer and Philipp Wendler. Algorithms for software model checking: Predicate abstraction vs. IMPACT. In Gianpiero Cabodi and Satnam Singh, editors, *Proceedings of the 12th International Conference on Formal Methods in Computer-Aided Design (FMCAD 2012, Cambridge, UK, October 22-25)*, pages 106–113. FMCAD, 2012.
 21. Dirk Beyer. Competition on software verification (SV-COMP). In C. Flanagan and B. König, editors, *Proceedings of the 18th International Conference on Tools and Algorithms for the Construction and of Analysis Systems (TACAS 2012, Tallinn, Estonia, March 27-30)*, LNCS 7214, pages 504–524. Springer-Verlag, Heidelberg, 2012.
 22. Sven Apel, Hendrik Speidel, Philipp Wendler, Alexander von Rhein, and Dirk Beyer. Detection of feature interactions using feature-aware verification. In *Proceedings of the 26th International Conference on Automated Software Engineering (ASE 2011, Lawrence, KS, November 6-10)*, pages 372–375. IEEE, 2011.
 23. Dirk Beyer and M. Erkan Keremoglu. CPACHECKER: A tool for configurable software verification. In G. Gopalakrishnan and S. Qadeer, editors, *Proceedings of the 23rd International Conference on Computer Aided Verification (CAV 2011, Snowbird, UT, July 14-20)*, LNCS 6806, pages 184–190. Springer-Verlag, Heidelberg, 2011.
 24. Sven Apel and Dirk Beyer. Feature cohesion in software product lines: An exploratory study. In *Proceedings of the 33rd International Conference on Software Engineering (ICSE 2011, Honolulu, HI, May 21-28)*, pages 421–430. ACM Press, New York (NY), 2011.
 25. Dirk Beyer, M. Erkan Keremoglu, and Philipp Wendler. Predicate abstraction with adjustable-block encoding. In *Proceedings of the 10th International Conference on Formal Methods in Computer-Aided Design (FMCAD 2010, Lugano, October 20-23)*, pages 189–197. FMCAD, 2010.
 26. Dirk Beyer and Ashgan Fararooy. CHECKDEP: A tool for tracking software dependencies. In *Proceedings of the 18th IEEE International Conference on Program Comprehension (ICPC 2010, Braga, June 30 - July 2)*, pages 42–43. IEEE Computer Society Press, Los Alamitos (CA), 2010.

27. Dirk Beyer and Ashgan Fararooy. DEPDIgger: A tool for detecting complex low-level dependencies. In *Proceedings of the 18th IEEE International Conference on Program Comprehension (ICPC 2010, Braga, June 30 - July 2)*, pages 40–41. IEEE Computer Society Press, Los Alamitos (CA), 2010.
28. Dirk Beyer and Ashgan Fararooy. A simple and effective measure for complex low-level dependencies. In *Proceedings of the 18th IEEE International Conference on Program Comprehension (ICPC 2010, Braga, June 30 - July 2)*, pages 80–83. IEEE Computer Society Press, Los Alamitos (CA), 2010.
29. Dirk Beyer, Thomas A. Henzinger, Grégory Théoduloz, and Damien Zufferey. Shape refinement through explicit heap analysis. In D.S. Rosenblum and G. Taentzer, editors, *Proceedings of the 13th International Conference on Fundamental Approaches to Software Engineering (FASE 2010, Paphos, Cyprus, March 22-26)*, LNCS 6013, pages 263–277. Springer-Verlag, Heidelberg, 2010.
30. Dirk Beyer, Alessandro Cimatti, Alberto Griggio, M. Erkan Keremoglu, and Roberto Sebastiani. Software model checking via large-block encoding. In *Proceedings of the 9th International Conference on Formal Methods in Computer-Aided Design (FMCAD 2009, Austin, TX, November 15-18)*, pages 25–32. IEEE Computer Society Press, Los Alamitos (CA), 2009.
31. Dirk Beyer, Thomas A. Henzinger, and Grégory Théoduloz. Program analysis with dynamic precision adjustment. In *Proceedings of the 23rd IEEE/ACM International Conference on Automated Software Engineering (ASE 2008, L'Aquila, September 15-19)*, pages 29–38. IEEE Computer Society Press, Los Alamitos (CA), 2008.
32. Dirk Beyer, Damien Zufferey, and Rupak Majumdar. CSISAT: Interpolation for LA+EUF. In A. Gupta and S. Malik, editors, *Proceedings of the 20th International Conference on Computer Aided Verification (CAV 2008, Princeton, NY, July 7-14)*, LNCS 5123, pages 304–308. Springer-Verlag, Heidelberg, 2008.
33. Dirk Beyer. CCVISU: Automatic visual software decomposition. In *Proceedings of the 30th ACM/IEEE International Conference on Software Engineering (ICSE 2008, Leipzig, May 10-18)*, pages 967–968. ACM Press, New York (NY), 2008.
34. Dirk Beyer, Arindam Chakrabarti, Thomas A. Henzinger, and Sanjit A. Seshia. An application of web-service interfaces. In *Proceedings of the 2007 IEEE International Conference on Web Services (ICWS 2007, Salt Lake City, UT, July 9-13)*, pages 831–838. IEEE Computer Society Press, Los Alamitos (CA), 2007.
35. Dirk Beyer, Thomas A. Henzinger, and Vasu Singh. Algorithms for interface synthesis. In W. Damm and H. Hermanns, editors, *Proceedings of the 19th International Conference on Computer Aided Verification (CAV 2007, Berlin, July 3-7)*, LNCS 4590, pages 4–19. Springer-Verlag, Heidelberg, 2007.
36. Dirk Beyer, Thomas A. Henzinger, and Grégory Théoduloz. Configurable software verification: Concretizing the convergence of model checking and program analysis. In W. Damm and H. Hermanns, editors, *Proceedings of the 19th International Conference on Computer Aided Verification (CAV 2007, Berlin, July 3-7)*, LNCS 4590, pages 504–518. Springer-Verlag, Heidelberg, 2007.
37. Dirk Beyer, Thomas A. Henzinger, Rupak Majumdar, and Andrey Rybalchenko. Path invariants. In *Proceedings of the 2007 ACM Conference on Programming Language Design and Implementation (PLDI 2007, San Diego, CA, June 10-13)*, pages 300–309. ACM Press, New York (NY), 2007.
38. Dirk Beyer, Thomas A. Henzinger, Rupak Majumdar, and Andrey Rybalchenko. Invariant synthesis for combined theories. In *Proceedings of the Eighth International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI 2007, Nice, January 14-16)*, LNCS 4349, pages 378–394. Springer-Verlag, Heidelberg, 2007.
39. Dirk Beyer and Ahmed E. Hassan. Animated visualization of software history using evolution storyboards. In *Proceedings of the 13th IEEE Working Conference on Reverse Engineering (WCRE 2006, Benevento, October 23-27)*, pages 199–208. IEEE Computer Society Press, Los Alamitos (CA), 2006.
40. Dirk Beyer, Thomas A. Henzinger, and Grégory Théoduloz. Lazy shape analysis. In T. Ball and R.B. Jones, editors, *Proceedings of the 18th International Conference on Computer Aided Verification (CAV 2006, Seattle, WA, August 17-20)*, LNCS 4144, pages 532–546. Springer-Verlag, Heidelberg, 2006.
41. Dirk Beyer and Ahmed E. Hassan. Evolution storyboards: Visualization of software structure dynamics. In *Proceedings of the 14th IEEE International Conference on Program Comprehension*

- (ICPC 2006, Athens, June 14-16), pages 248–251. IEEE Computer Society Press, Los Alamitos (CA), 2006.
42. Dirk Beyer. Relational programming with CROCOPAT. In *Proceedings of the 28th ACM/IEEE International Conference on Software Engineering (ICSE 2006, Shanghai, May 20-28)*, pages 807–810. ACM Press, New York (NY), 2006.
 43. Basil Becker, Dirk Beyer, Holger Giese, Florian Klein, and Daniela Schilling. Symbolic invariant verification for systems with dynamic structural adaptation. In *Proceedings of the 28th ACM/IEEE International Conference on Software Engineering (ICSE 2006, Shanghai, May 20-28)*, pages 72–81. ACM Press, New York (NY), 2006.
 44. Dirk Beyer. Co-change visualization. In *Proceedings of the 21st IEEE International Conference on Software Maintenance (ICSM 2005, Budapest, September 25-30), Industrial and Tool volume*, pages 89–92, Budapest, 2005.
 45. Dirk Beyer and Andreas Noack. Clustering software artifacts based on frequent common changes. In *Proceedings of the 13th IEEE International Workshop on Program Comprehension (IWPC 2005, St. Louis, MO, May 15-16)*, pages 259–268. IEEE Computer Society Press, Los Alamitos (CA), 2005.
 46. Dirk Beyer, Arindam Chakrabarti, and Thomas A. Henzinger. Web service interfaces. In *Proceedings of the 14th ACM International World Wide Web Conference (WWW 2005, Chiba, May 10-14)*, pages 148–159. ACM Press, New York (NY), 2005.
 47. Dirk Beyer, Thomas A. Henzinger, Ranjit Jhala, and Rupak Majumdar. Checking memory safety with BLAST. In M. Cerioli, editor, *Proceedings of the Eighth International Conference on Fundamental Approaches to Software Engineering (FASE 2005, Edinburgh, April 2-10)*, LNCS 3442, pages 2–18. Springer-Verlag, Heidelberg, 2005.
 48. Dirk Beyer, Adam J. Chlipala, Thomas A. Henzinger, Ranjit Jhala, and Rupak Majumdar. The BLAST query language for software verification. In R. Giacobazzi, editor, *Proceedings of the 11th International Static Analysis Symposium (SAS 2004, Verona, August 26-28)*, LNCS 3148, pages 2–18. Springer-Verlag, Heidelberg, 2004.
 49. Dirk Beyer, Thomas A. Henzinger, Ranjit Jhala, and Rupak Majumdar. An Eclipse plug-in for model checking. In *Proceedings of the 12th IEEE International Workshop on Program Comprehension (IWPC 2004, Bari, June 24-26)*, pages 251–255. IEEE Computer Society Press, Los Alamitos (CA), 2004.
 50. Dirk Beyer, Adam J. Chlipala, Thomas A. Henzinger, Ranjit Jhala, and Rupak Majumdar. Generating tests from counterexamples. In *Proceedings of the 26th IEEE International Conference on Software Engineering (ICSE 2004, Edinburgh, May 26-28)*, pages 326–335. IEEE Computer Society Press, Los Alamitos (CA), 2004.
 51. Dirk Beyer, Andreas Noack, and Claus Lewerentz. Simple and efficient relational querying of software structures. In *Proceedings of the Tenth IEEE Working Conference on Reverse Engineering (WCRE 2003, Victoria, BC, November 13-16)*, pages 216–225. IEEE Computer Society Press, Los Alamitos (CA), 2003.
 52. Dirk Beyer and Andreas Noack. Can decision diagrams overcome state space explosion in real-time verification? In H. König, M. Heiner, and A. Wolisz, editors, *Proceedings of the 23rd IFIP International Conference on Formal Techniques for Networked and Distributed Systems (FORTE 2003, Berlin, September 29 - October 2)*, LNCS 2767, pages 193–208. Springer-Verlag, Heidelberg, 2003.
 53. Dirk Beyer, Claus Lewerentz, and Andreas Noack. Rabbit: A tool for BDD-based verification of real-time systems. In W. A. Hunt and F. Somenzi, editors, *Proceedings of the 15th International Conference on Computer Aided Verification (CAV 2003, Boulder, CO, July 8-12)*, LNCS 2725, pages 122–125. Springer-Verlag, Heidelberg, 2003.
 54. Dirk Beyer and Claus Lewerentz. CROCOPAT: Efficient pattern analysis in object-oriented programs. In *Proceedings of the 11th IEEE International Workshop on Program Comprehension (IWPC 2003, Portland, OR, May 10-11)*, pages 294–295. IEEE Computer Society Press, Los Alamitos (CA), 2003.
 55. Dirk Beyer. Efficient reachability analysis and refinement checking of timed automata using BDDs. In T. Margaria and T. F. Melham, editors, *Proceedings of the 11th IFIP Advanced Research Working Conference on Correct Hardware Design and Verification Methods (CHARME 2001, Livingston, September 4-7)*, LNCS 2144, pages 86–91. Springer-Verlag, Heidelberg, 2001.

56. Dirk Beyer. Improvements in BDD-based reachability analysis of timed automata. In J. N. Oliveira and P. Zave, editors, *Proceedings of the Tenth International Symposium of Formal Methods Europe (FME 2001, Berlin, March 12-16): Formal Methods for Increasing Software Productivity*, LNCS 2021, pages 318–343. Springer-Verlag, Heidelberg, 2001.
57. Dirk Beyer, Claus Lewerentz, and Frank Simon. Impact of inheritance on metrics for size, coupling, and cohesion in object oriented systems. In R. Dumke and A. Abran, editors, *Proceedings of the Tenth International Workshop on Software Measurement (IWSM 2000, Berlin, October 4-6): New Approaches in Software Measurement*, LNCS 2006, pages 1–17. Springer-Verlag, Heidelberg, 2001.
58. Dirk Beyer and Heinrich Rust. A tool for modular modelling and verification of hybrid systems. In A. Crespo and J. Vila, editors, *Proceedings of the 25th IFAC/IFIP Workshop on Real-Time Programming (WRTP 2000, Palma, May 17-19)*, pages 169–174. Elsevier Science, Oxford, 2000.

Workshop Papers

1. Dirk Beyer and Stefan Löwe. Interpolation for value analysis. In *Tagungsband Software Engineering 2015, Fachtagung des GI-Fachbereichs Softwaretechnik (17. März - 20. März 2015, Dresden, Deutschland)*, LNI 239, pages 73–74. GI, 2015.
2. Markus Schordan, Welf Löwe, and Dirk Beyer. Evaluation and reproducibility of program analysis (track introduction). In T. Margaria and B. Steffen, editors, *Proceedings of the 6th International Symposium on Leveraging Applications of Formal Methods, Verification, and Validation (ISoLA/2014, Corfu, Greece, October 8-11)*, LNCS 8803, pages 479–481. Springer-Verlag, Heidelberg, 2014.
3. Dirk Beyer, Marieke Huisman, Vladimir Klebanov, and Rosemary Monahan. Evaluating software verification systems: Benchmarks and competitions (dagstuhl reports 14171). *Dagstuhl Reports*, 4(4):1–19, 2014.
4. Dirk Beyer, Andreas Holzer, Michael Tautschnig, and Helmut Veith. Reusing information in multi-goal reachability analyses. In W. Hasselbring and N. C. Ehmke, editors, *Tagungsband Software Engineering 2014, Fachtagung des GI-Fachbereichs Softwaretechnik (25. Februar - 28. Februar 2014, Kiel, Deutschland)*, LNI 227, pages 97–98. GI, 2014.
5. Dirk Beyer, Stefan Löwe, Evgeny Novikov, Andreas Stahlbauer, and Philipp Wendler. Precision reuse in cpcachecker. In W. Hasselbring and N. C. Ehmke, editors, *Tagungsband Software Engineering 2014, Fachtagung des GI-Fachbereichs Softwaretechnik (25. Februar - 28. Februar 2014, Kiel, Deutschland)*, LNI 227, pages 41–42. GI, 2014.
6. Dirk Beyer and Andreas Stahlbauer. BDD-based software model checking with CPACHECKER. In A. Kucera et al., editor, *Proceedings of the Annual Doctoral Workshop on Mathematical and Engineering Methods in Computer Science (MEMICS 2012, Znojmo, Czech Republic, October 26-28)*, LNCS 7721, pages 1–11. Springer-Verlag, Heidelberg, 2013.
7. Dirk Beyer and Alexander K. Petrenko. Linux driver verification. In T. Margaria and B. Steffen, editors, *Proceedings of the 5th International Symposium on Leveraging Applications of Formal Methods, Verification, and Validation (ISoLA 2012, Part II, Heraklion, Crete, October 15-18)*, LNCS 7610, pages 1–6. Springer-Verlag, Heidelberg, 2012.
8. Falk Howar, Malte Isberner, Maik Merten, Bernhard Steffen, and Dirk Beyer. The RERS grey-box challenge 2012: Analysis of event-condition-action systems. In T. Margaria and B. Steffen, editors, *Proceedings of the 5th International Symposium on Leveraging Applications of Formal Methods, Verification, and Validation (ISoLA 2012, Part I, Heraklion, Crete, October 15-18)*, LNCS 7609, pages 608–614. Springer-Verlag, Heidelberg, 2012.
9. Alain Wegmann, Lam-Son Le, Lotfi Hussami, and Dirk Beyer. A tool for verified design using Alloy for specification and CrocoPat for verification. In D. Jackson and P. Zave, editors, *Proceedings of the First Alloy Workshop (ALLOY 2006, Portland, OR, November 6)*, 2006.
10. Dirk Beyer. Co-change visualization applied to PostgreSQL and ArgoUML. In *Proceedings of the Third International Workshop on Mining Software Repositories (MSR 2006, Shanghai, May 22-23)*, pages 165–166. ACM Press, 2006.
11. Dirk Beyer, Arindam Chakrabarti, and Thomas A. Henzinger. An interface formalism for web services. In *Proceedings of the First International Workshop on Foundations of Interface Technologies (FIT 2005, San Francisco, CA, August 21)*, 2005.

12. Dirk Beyer. Rabbit: Verification of real-time systems. In P. Pettersson and S. Yovine, editors, *Proceedings of the Workshop on Real-Time Tools (RT-TOOLS 2001, Aalborg, August 20)*, pages 13–21, Uppsala, 2001.
13. Dirk Beyer and Andreas Noack. Efficient verification of timed automata using BDDs. In S. Gnesi and U. Ultes-Nitsche, editors, *Proceedings of the Sixth International ERCIM Workshop on Formal Methods for Industrial Critical Systems (FMICS 2001, Paris, July 16-17)*, pages 95–113. INRIA, Paris, 2001.
14. Dirk Beyer and Andy Heinig. Different strategies for BDD-based reachability analysis of timed automata. In C. Rattray, M. Sveda, and J. Rozenblit, editors, *Proceedings of the Second IEEE/IFIP Joint Workshop on Formal Specifications of Computer-Based Systems (FSCBS 2001, Washington, D.C., April 20)*, pages 89–98, Stirling, 2001.
15. Dirk Beyer and Heinrich Rust. Cottbus Timed Automata: Formal definition and semantics. In C. Rattray, M. Sveda, and J. Rozenblit, editors, *Proceedings of the Second IEEE/IFIP Joint Workshop on Formal Specifications of Computer-Based Systems (FSCBS 2001, Washington, D.C., April 20)*, pages 75–87, Stirling, 2001.
16. Dirk Beyer and Andreas Noack. BDD-basierte Verifikation von Realzeit-Systemen. In J. Grabowski and S. Heymer, editors, *Tagungsband Formale Beschreibungstechniken für verteilte Systeme (FBT 2000, Lübeck, June 22-23)*, pages 79–89. Shaker Verlag, Aachen, 2000.
17. Dirk Beyer and Heinrich Rust. Modular modelling and verification with Cottbus Timed Automata. In C. Rattray and M. Sveda, editors, *Proceedings of the IEEE/IFIP Joint Workshop on Formal Specifications of Computer-Based Systems (FSCBS 2000, Edinburgh, April 6-7)*, pages 17–24, Stirling, 2000.
18. Dirk Beyer, Claus Lewerentz, and Heinrich Rust. Modelling and analysing a railroad crossing in a modular way. In S. Gnesi, I. Schieferdecker, and A. Rennoch, editors, *Proceedings of the Fifth International ERCIM Workshop on Formal Methods for Industrial Critical Systems (FMICS 2000, Berlin, April 3-4)*, pages 287–303, Berlin, 2000.
19. Dirk Beyer and Heinrich Rust. Concepts of Cottbus Timed Automata. In K. Spies and B. Schätz, editors, *Tagungsband Formale Beschreibungstechniken für verteilte Systeme (FBT 1999, München, June 17-18)*, pages 27–34. Herbert Utz Verlag, München, 1999.
20. Dirk Beyer and Heinrich Rust. Modeling a production cell as a distributed real-time system with Cottbus Timed Automata. In H. König and P. Langendörfer, editors, *Tagungsband Formale Beschreibungstechniken für verteilte Systeme (FBT 1998, Cottbus, June 4-5)*, pages 148–159. Shaker Verlag, Aachen, 1998.

Technical Reports

1. Dirk Beyer, Matthias Dangl, and Philipp Wendler. Combining k-induction with continuously-refined invariants. Technical Report MIP-1503, Department of Computer Science and Mathematics (FIM), University of Passau (PA), January 2015.
2. Dirk Beyer, Stefan Löwe, and Philipp Wendler. Domain-type-guided refinement selection based on sliced path prefixes. Technical Report MIP-1501, Department of Computer Science and Mathematics (FIM), University of Passau (PA), January 2015.
3. Dirk Beyer, Stefan Löwe, Evgeny Novikov, Andreas Stahlbauer, and Philipp Wendler. Reusing precisions for efficient regression verification. Technical Report MIP-1302, Department of Computer Science and Mathematics (FIM), University of Passau (PA), May 2013.
4. Sven Apel, Dirk Beyer, Karlheinz Friedberger, Franco Raimondi, and Alexander von Rhein. Domain types: Selecting abstractions based on variable usage. Technical Report MIP-1303, Department of Computer Science and Mathematics (FIM), University of Passau (PA), May 2013.
5. Dirk Beyer and Stefan Löwe. Explicit-value analysis based on CEGAR and interpolation. Technical Report MIP-1205, Department of Computer Science and Mathematics (FIM), University of Passau (PA), December 2012.
6. Sven Apel, Hendrik Speidel, Philipp Wendler, Alexander von Rhein, and Dirk Beyer. Feature-aware verification. Technical Report MIP-1105, Department of Computer Science and Mathematics (FIM), University of Passau (PA), September 2011.
7. Dirk Beyer, Thomas A. Henzinger, M. Erkan Keremoglu, and Philipp Wendler. Conditional model checking. Technical Report MIP-1107, Department of Computer Science and Mathematics (FIM), University of Passau (PA), September 2011.

8. Dirk Beyer, Alessandro Cimatti, Alberto Griggio, M. Erkan Keremoglu, and Roberto Sebastiani. Software model checking via large-block encoding. Technical Report SFU-CS-2009-09, School of Computing Science (CMPT), Simon Fraser University (SFU), April 2009.
9. Dirk Beyer and M. Erkan Keremoglu. CPAchecker: A tool for configurable software verification. Technical Report SFU-CS-2009-02, School of Computing Science (CMPT), Simon Fraser University (SFU), January 2009.
10. Dirk Beyer, Arindam Chakrabarti, and Thomas A. Henzinger. An interface formalism for web services. Technical Report MTC-REPORT-2007-002, School of Computer and Communication Sciences (IC), Ecole Polytechnique Fédérale de Lausanne (EPFL), December 2007.
11. Dirk Beyer, Thomas A. Henzinger, Rupak Majumdar, and Andrey Rybalchenko. Path invariants. Technical Report MTC-REPORT-2006-003, School of Computer and Communication Sciences (IC), Ecole Polytechnique Fédérale de Lausanne (EPFL), December 2006.
12. Dirk Beyer, Thomas A. Henzinger, and Vasu Singh. Three algorithms for interface synthesis: A comparative study. Technical Report MTC-REPORT-2006-001, School of Computer and Communication Sciences (IC), Ecole Polytechnique Fédérale de Lausanne (EPFL), May 2006.
13. Dirk Beyer, Thomas A. Henzinger, and Grégory Théoduloz. Lazy shape analysis. Technical Report MTC-REPORT-2005-006, School of Computer and Communication Sciences (IC), Ecole Polytechnique Fédérale de Lausanne (EPFL), December 2005.
14. Dirk Beyer and Andreas Noack. Mining co-change clusters from version repositories. Technical Report IC/2005/003, School of Computer and Communication Sciences (IC), Ecole Polytechnique Fédérale de Lausanne (EPFL), January 2005.
15. Dirk Beyer and Andreas Noack. CrocoPat 2.1 Introduction and reference manual. Technical Report UCB//CSD-04-1338, Computer Science Division (EECS), University of California, Berkeley, July 2004. Also: The Computing Research Repository (CoRR), cs.PL/0409009, September 2004.
16. Dirk Beyer and Claus Lewerentz. CrocoPat: A tool for efficient pattern recognition in large object-oriented programs. Technical Report I-04/2003, Institute of Computer Science, Brandenburgische Technische Universität Cottbus, January 2003.
17. Dirk Beyer and Andreas Noack. A comparative study of decision diagrams for real-time verification. Technical Report I-03/2003, Institute of Computer Science, Brandenburgische Technische Universität Cottbus, January 2003.
18. Dirk Beyer. Rabbit: Verification of real-time systems. Technical Report I-05/2001, Institute of Computer Science, Brandenburgische Technische Universität Cottbus, March 2001.
19. Dirk Beyer. Reachability analysis and refinement checking for BDD-based model checking of timed automata. Technical Report I-04/2001, Institute of Computer Science, Brandenburgische Technische Universität Cottbus, February 2001.
20. Dirk Beyer and Andreas Noack. Efficient verification of real-time systems using BDDs. Technical Report I-13/2000, Institute of Computer Science, Brandenburgische Technische Universität Cottbus, December 2000.
21. Dirk Beyer, Claus Lewerentz, and Frank Simon. Flattening inheritance structures – or – Getting the right picture of large OO-systems. Technical Report I-12/2000, Institute of Computer Science, Brandenburgische Technische Universität Cottbus, November 2000.
22. Frank Simon and Dirk Beyer. Considering inheritance, overriding, overloading and polymorphism for measuring C++ sources. Technical Report I-04/2000, Institute of Computer Science, Brandenburgische Technische Universität Cottbus, May 2000.
23. Dirk Beyer and Heinrich Rust. A formalism for modular modelling of hybrid systems. Technical Report I-10/1999, Institute of Computer Science, Brandenburgische Technische Universität Cottbus, October 1999.
24. Dirk Beyer and Heinrich Rust. A modular hybrid modelling notation. Technical Report I-03/1999, Institute of Computer Science, Brandenburgische Technische Universität Cottbus, February 1999.

Guest Lectures and Invited Talks

1. *Software Verification and Verifiable Witnesses*. Johannes Kepler Universität Linz, Linz, Austria, 2015-03-12.
2. *CPAchecker: A Flexible Framework for Software Verification*. Siemens Nürnberg, Nürnberg, Germany, 2015-02-16.

3. *Conditional Model Checking*.
ISoLA 2014, Corfu, Greece, 2014-10-11.
4. *Stateful Verificaion*.
University of Freiburg, Freiburg, Germany, 2014-03-27.
5. *CPAchecker: A Flexible Framework for Software Verification*.
Dagstuhl Seminar 14352, Schloss Dagstuhl, Germany, 2014-08-25.
6. *Competition on Software Verification*.
Dagstuhl Seminar 14171, Schloss Dagstuhl, Germany, 2014-04-24.
7. *Automatic Software Verification*.
Dagstuhl Seminar 14171, Schloss Dagstuhl, Germany, 2014-04-23.
8. *Stateful Verification*.
IST Austria, Klosterneuburg, Austria, 2013-11-06.
9. *Reuse of Verification Results: Conditional Model Checking, Precision Reuse, and Verification Witnesses*.
SPIN 2013, Stony Brook, NY, 2013-07-09.
10. *Competition on Software Verification – An Overview*.
Dagstuhl Seminar, Schloss Dagstuhl, 2012-11-15.
11. *Conditional Model Checking: A Technique to Pass Information between Verifiers*.
Dagstuhl Seminar, Schloss Dagstuhl, 2012-11-12.
12. *CPAchecker: The Configurable Software-Verification Platform*.
MEMICS Workshop, Znojmo, 2012-10-26.
13. *Conditional Model Checking*.
University of Paderborn, Paderborn, 2011-10-25.
14. *Zuverlässige Softwaresysteme*.
Alumni Day at BTU Cottbus, Cottbus, 2011-06-17.
15. *Towards a Unified Framework for Software Verification*.
Lecture at Graduate College, TU Munich, Garching, 2011-02-04.
16. *Towards a Unified Framework for Software Verification*.
Alpine Verification Meeting, Lugano, 2010-10-19.
17. *Adjustable-Block Encoding*.
Oxford University, 2010-10-14.
18. *Protocol Interfaces*.
Workshop on Foundations of Interface Technologies, Paris, 2010-08-30.
19. *Adjustable-Block Encoding — Towards a Unified Framework for Software Verification*.
Computer Science Symposium at IST Austria, Klosterneuburg, 2010-05-07.
20. *Program Analysis with Dynamic Change of Precision*.
University of California, Berkeley (CA), 2009-04-16.
21. *Panelist on Talent, University-Industry Cooperation, and Curriculum Development*.
Pacific Northwest Wireless Summit 2009 (PNWS'09), Vancouver, 2009-01-19.
22. *Datenfluss-Analyse mit dynamischer Anpassung der Genauigkeit*.
Brandenburg University of Technology, Cottbus, 2008-11-07.
23. *Predicate Abstraction with Summarization*.
TRESOR Seminar at EPFL, Lausanne, 2008-11-05.
24. *Building Software-Engineering Tools in Academia*.
Second International Workshop on Advanced Software Development Tools and Techniques (WASDeTT'08), Workshop at ICSM'09, Beijing, 2008-10-03.
25. *Struktur-Analyse und Verifikation Großer Software-Systeme*.
University of Passau, Passau, 2008-07-21.
26. *Teaching Software Engineering on Mobile Devices*.
NOKIA University Relations Forum, NOKIA, Burnaby, 2008-06-12.
27. *The Software Model Checker BLAST*.
Guest Lecture in Viktor Kuncak's Verification Course, EPFL-IC-LARA, Lausanne, 2008-05-08.

28. *Structure Analysis of Large Software Systems.*
University of Victoria, Victoria, 2007-09-21.
29. *Path Invariants.*
University of British Columbia, Vancouver, 2007-06-20.
30. *Web Service Interfaces.*
Workshop on Constraints for Composing Web Services, LORIA, Nancy, 2006-06-27.
31. *Combining Model Checking and Shape Analysis.*
Dagstuhl Seminar 06081 "Software Verification", 2006-02-20.
32. *Structure Analysis of Large Software Systems.*
Oxford University, 2006-02-14.
33. *Formal and Semi-Formal Methods in Software Engineering.*
IT University, Göteborg, 2005-12-15.
34. *Combining Data Flow Analysis with Lazy Abstraction Refinement in BLAST.*
Politecnico di Milano, 2005-12-02.
35. *Formale Verifikation von Realzeit-Systemen mittels Cottbus Timed Automata.*
Fraunhofer-Gesellschaft FIRST, Berlin, 2003-04-11.
36. *Efficient BDD Representation for Reachability Analysis of Timed Automata.*
Carnegie Mellon University, Pittsburgh (PA), 2003-01-14.
37. *A Modular Approach for Formal Verification of Real-Time Systems.*
Software Engineering Institute, Pittsburgh (PA), 2003-01-10.
38. *Improvements in BDD-based Reachability Analysis of Timed Automata.*
Naval Research Laboratory, Washington (D.C.), 2001-04-23.
39. *Entwurfsmuster: Eine Einführung.*
PC-Soft GmbH, Senftenberg, 1997-12-16.

Conference and Other Presentations

1. *Software Verification and Verifiable Witnesses.*
21st International Conference on Tools and Algorithms for the Construction and of Analysis Systems
TACAS 2015, London, UK, 2015-04-16.
2. *Status Report on Software Verification.*
20th International Conference on Tools and Algorithms for the Construction and of Analysis Systems
TACAS 2014, Grenoble, France, 2014-04-10.
3. *Second Competition on Software Verification.*
19th International Conference on Tools and Algorithms for the Construction and of Analysis Systems
TACAS 2013, Rome, 2013-03-21.
4. *Competition on Software Verification.*
18th International Conference on Tools and Algorithms for the Construction and of Analysis Systems
TACAS 2012, Tallinn, 2012-03-29.
5. *CPAchecker: A Tool for Configurable Software Verification.*
23rd International Conference on Computer Aided Verification
CAV 2011, Snowbird (UT), 2011-07-19.
6. *CPAchecker: A Tool for Configurable Software Verification.*
15th Biennial Workshop on Programmiersprachen und Grundlagen der Programmierung
KPS 2009, Maria Taferl, 2009-10-14.
7. *Evolution Storyboards: Visualization of Software Structure Dynamics.*
14th International Conference on Program Comprehension
ICPC 2006, Athens, 2006-06-16.
8. *Co-change Visualization Applied to PostgreSQL and ArgoUML.*
3rd International Workshop on Mining Software Repositories
MSR 2006, Shanghai, 2006-05-23.

9. *Co-Change Visualization*.
21st IEEE International Conference on Software Maintenance
ICSM 2005, Budapest, 2005-09-26.
10. *Clustering Software Artifacts Based on Frequent Common Changes*.
13th IEEE International Workshop on Program Comprehension
IWPC 2005, St. Louis, 2005-05-16.
11. *CrocoPat: An Efficient Calculator for Relational Programs*.
TRESOR seminar, EPFL, Lausanne, 2005-04-14.
12. *An Introduction to Binary Decision Diagrams*.
CAV lecture, EPFL, Lausanne, 2004-11-18.
13. *An Eclipse Plug-in for Model Checking*.
12th IEEE International Workshop on Program Comprehension
IWPC 2004, Bari, 2004-06-26.
14. *Generating Tests from Counterexamples*.
26th International Conference on Software Engineering
ICSE 2004, Edinburgh, 2004-05-27.
15. *Generating Tests from Counterexamples*.
EPFL, Lausanne, 2004-05-18.
16. *Simple and Efficient Relational Querying*.
OSQ seminar, University of California, Berkeley (CA), 2004-02-02.
17. *How to Make Model Checking of Timed Automata Efficient*.
University of California, Berkeley (CA), 2003-10-29.
18. *Rabbit: A Tool for BDD-based Verification of Real-Time Systems*.
15th International Conference on Computer Aided Verification
CAV 2003, Boulder (CO), 2003-07-09.
19. *CrocoPat: Efficient Pattern Analysis in Object-Oriented Programs*.
11th IEEE International Workshop on Program Comprehension
IWPC 2003, Portland (OR), 2003-05-11.
20. *Formale Verifikation von Realzeit-Systemen mittels Cottbus Timed Automata*.
Dissertation, Cottbus, 2002-11-26.
21. *Efficient Reachability Analysis and Refinement Checking of Timed Automata using BDDs*.
11th IFIP Working Conference on Correct Hardware Design and Verification Methods
CHARME 2001, Livingston, 2001-09-04.
22. *Verification of Real-Time Systems*.
Workshop on Real-Time Tools
RT-TOOLS 2001, Aalborg, 2001-08-20.
23. *Efficient Verification of Timed Automata using BDDs*.
6th International ERCIM Workshop on Formal Methods for Industrial Critical Systems
FMICS 2001, Paris, 2001-07-16.
24. *Different Strategies for BDD-based Reachability Analysis of Timed Automata*.
2nd IEEE/IFIP Joint Workshop on Formal Specifications of Computer-Based Systems
FSCBS 2001, Washington (D.C.), 2001-04-20.
25. *Cottbus Timed Automata: Formal Definition and Semantics*.
2nd IEEE/IFIP Joint Workshop on Formal Specifications of Computer-Based Systems
FSCBS 2001, Washington (D.C.), 2001-04-20.
26. *Improvements in BDD-based Reachability Analysis of Timed Automata*.
10th International Symposium of Formal Methods Europe
FME 2001, Berlin, 2001-03-15.
27. *A Tool for Modular Modelling and Verification of Hybrid Systems*.
25th IFAC/IFIP Workshop on Real-Time Programming
WRTP 2000, Palma, 2000-05-19.
28. *Modular Modelling and Verification with Cottbus Timed Automata*.
IEEE/IFIP Joint Workshop on Formal Specifications of Computer-Based Systems
FSCBS 2000, Edinburgh, 2000-04-06.

29. *Modelling and Analysing a Railroad Crossing in a Modular Way.*
5th International ERCIM Workshop on Formal Methods for Industrial Critical Systems
FMICS 2000, Berlin, 2000-04-04.
30. *Concepts of Cottbus Timed Automata.*
Workshop Formale Beschreibungstechniken für verteilte Systeme
FBT 1999, München, 1999-06-17.
31. *Ein Analysewerkzeug für zeitbehaftete Automaten.*
Diplomarbeit, Cottbus, 1998-06-30.
32. *Modeling a Production Cell as a Distributed Real-Time System with Cottbus Timed Automata.*
Workshop Formale Beschreibungstechniken für verteilte Systeme
FBT 1998, Cottbus, 1998-06-04.

University Activities

Instruction at University of Passau

Undergraduate courses:

Foundations of Computer Science, 5100
Winter 2010/11

Algorithms and Data Structures, 5200
Summer 2010

Software Engineering, 5300
Winter 2009/10, Winter 2012/13, Winter 2013/14, Winter 2014/15

Theoretische Informatik I, 5306
Winter 2015/16

Theoretische Informatik II, 5308
Winter 2015/16

Spezifikation und Verifikation von Eingebetteten Systemen, 5463
Winter 2014/15, Winter 2015/16

Software Engineering Praktikum, 5500
Summer 2014

Graduate courses:

Software Analysis, 5840
Winter 2009/10, Winter 2011/12

Software Verification, 5843
Winter 2012/13, Winter 2013/14, Winter 2014/15, Winter 2015/16

Object-Oriented Programming, 5620
Summer 2010

Principles of Compiler Design, 5790
Summer 2012, Summer 2013, Summer 2014

Academic and Scientific Methods, 5844
Summer 2012, Summer 2014

Graduate seminars:

Seminar Seminar Entwurf und Analyse von Softwaresystemen, 5846/5847
Winter 2009/10, Winter 2010/11, Winter 2011/12, Summer 2012, Winter 2013/14, Summer 2014,
Winter 2014/15, Winter 2015/16

Seminar Software Testing and Analysis, 5848
Summer 2010, Winter 2012/13

Events for High-School Students:

Sommercamp Informatik, 5900
Summer 2010, Summer 2011, Summer 2012, Summer 2013, Summer 2014, Summer 2015

Instruction at SFU

Undergraduate courses:

Principles of Compiler Design, CMPT 379
Spring 2008, Spring 2009

Software Engineering II, CMPT 475
Spring 2007, Spring 2008, Fall 2008

Graduate courses:

Software Engineering, CMPT 745
Fall 2007, Fall 2008

Special Topics in CS - Program Analysis, CMPT 880
Spring 2007

Graduate seminars:

Software Verification, CMPT 894
Spring 2008, Spring 2009

Teaching Assistant at EPFL and BTU

Undergraduate courses:

Theoretical Computer Science, Prof. Henzinger
Winter 2005/06

Introduction to Computer Science, Prof. Bachmann
Winter 2002/03

Introduction to Data Structures and Efficient Algorithms, Prof. Heiner
Winter 2000/01, Winter 1998/99

Introduction to Software Engineering, Prof. Lewerentz
Summer 2000, Summer 1999

Introduction to Software Engineering (for teachers from high schools), Prof. Lewerentz
Summer 2000

Introduction to Software Engineering (for engineers from industry), Prof. Lewerentz
Summer 2002, Summer 1999

Introduction to Software Engineering (for students of engineering), Prof. Lewerentz
Summer 2001

Computer Science (for students of environmental and resource management), Dr. Rust
Winter 2000/01, Winter 1999/2000

Software Project, Prof. Lewerentz
Winter 2002/03, Summer 2002, Winter 2001/02, Summer 2001, Winter 2000/01, Summer 1999

Graduate courses:

Computer-Aided Verification, Prof. Henzinger
Winter 2004/05

Software Engineering I, Prof. Lewerentz
Winter 2001/02

Software Engineering II, Prof. Lewerentz
Sommer 2003, Summer 2002, Summer 2001

Software Project Management, Prof. Lewerentz
Winter 2001/02

Graduate seminars:

Thrust in Reliable Software (TRESOR)
Winter 2004/05, Summer 2005, Winter 2005/06

Complexity and Software
Winter 2002/03

Advising

Current students:

Matthias Dangl, PhD program;
Stefan Löwe, PhD program;
Andreas Stahlbauer, PhD program;
Philipp Wendler, PhD program;

PhD thesis supervisor:

Erkan Keremoglu (now at Microsoft, Redmond, USA);

Master's thesis supervisor:

Karlheinz Friedberger, Uni Passau, 2015,
Block-Abstraction Memoization as an Approach to Verify Recursive Procedures

Matthias Dangl, Uni Passau, 2013,
Light-Weight Invariant Generation for Software Verification with CPAchecker

Christopher Jahn, Uni Passau, 2012,
Graph Drawing for Abstract Reachability Graphs

Andreas Stahlbauer, Uni Passau, 2012,
Block-Encoding Strategies for Predicate Analysis: An Experimental Study

Peter Häring, Uni Passau, 2012,
A Comparative Study of Software Measures as Problem-Predictors

Andra-Maria Babau, Uni Passau, 2011,
Modeling and Verification of Airport Security Processes using BPMN and Protocol Interfaces — A Case Study

Dmitry Balzer, Uni Passau, 2010,
Werkzeugunterstützung für Verstehen und Monitoring von Software-Abhängigkeiten

Alexander von Rhein, Uni Passau, 2010,
Verification Tasks for Software Model Checking

Ashgan Fararooy, SFU, 2010,
Performing Static Structure Analysis using Software Dependencies

Philipp Wendler, Uni Passau, 2010,
Software Verification based on Adjustable Large-Block Encoding,
won the NRW Young Scientist Award 2010 in Dynamic Intelligent Systems,
received for the Faculty Award 2011 for best Master's thesis,
and the yearly award of the industrial association of the region Niederbayern IHK

Damien Zufferey, EPFL, 2009, with Prof. Henzinger

Grégory Théoduloz, EPFL, 2006, with Prof. Henzinger,
Integrating Shape Analysis into the Model Checker BLAST,
won the EPFL Unicible Award 2006 and the ELCA Informatique Prize

Andreas Noack, BTU, 2000, with Prof. Lewerentz,
BDD-basierte Verifikation von Echtzeitsystemen,
won the BTU University Award 2000 for best Master's thesis

Internship students:

Emanuele De Angelis (from University of Chieti-Pescara), Uni Passau, 2013;
Przemyslaw Daca (from TU Denmark), Uni Passau, 2011;
Philipp Wendler (from Uni Passau), SFU, 2009;
Michael Tautschnig (from TU Darmstadt), SFU, 2008;
Andreas Holzer (from TU Darmstadt), SFU, 2008;
Alberto Griggio (from Uni Trento), SFU, 2008;
Damien Zufferey (from EPFL), SFU, 2007;
Sudhanshu Narang (from IIT Delhi), SFU, 2007;

Rajhans Samdani (from IIT Bombay), EPFL, 2006;
Nitesh Kumar (from IIT Kanpur), EPFL, 2005

PhD thesis referee:

Jiri Slaby, Masaryk University, 2014
Andreas Holzer, TU Vienna, 2013

PhD thesis defense chair:

Jan Seedorf, Uni Passau, 2013
Roosbeh Farahbod, SFU, 2009

PhD depth examination chair:

Brian Fraser, SFU, 2007

MSc thesis referee:

Siegfried Rasthofer, Uni Passau, 2013
Stephan Huber, Uni Passau, 2012
Hendrik Speidel, Uni Passau, 2011
Kathrin Hanauer, Uni Passau, 2010
George Ma, SFU, 2007

MSc thesis defence examiner:

Wolfgang Haas, SFU, 2007;
George Ma, SFU, 2007

MSc thesis defense chair:

Kaiyan Jin, SFU, 2009;
Edward Glen, SFU, 2007;
Majid Bagheri, SFU, 2007;
Chiyoko Kawano, SFU, 2006

Departmental and University Committees

Promotionsausschuss FIM, Uni Passau, 2015–2017
Faculty Council, Uni Passau, 2013–2015
Studiengangverantwortlicher MSc Informatik, Uni Passau, seit Jan. 2015
Studienberater Lehramt Informatik, Uni Passau, seit 2011
Promotionsausschuss FIM, Uni Passau, 2013–2015
Berufungskommission W3 “Theoretische Informatik”, Uni Passau, 2014–2015
Berufungskommission W3 “Betriebliche Informationssysteme”, Uni Passau, 2014
Chair Berufungskommission W3 “Complex-Systems Engineering”, Uni Passau, 2012
Berufungskommission W3 “Embedded Systems”, Uni Passau, 2012
Promotionsausschuss FIM, Uni Passau, 2010–2013
Berufungskommission W2 “Medieninformatik”, Uni Passau, 2011
Berufungskommission W3 “Bildverarbeitung”, Uni Passau, 2009–2011
Hardware and Capital Resources Committee, SFU, 2008–2009
Faculty Recruiting Committee, SFU, 2007–2008
Faculty Council, BTU Cottbus, 1998–2000
President of the CS Students’ Organization, BTU Cottbus, 1997–1998

Professional Activities

Conference Organizer

1. Program Co-Chair, 24th International Conference on Tools and Algorithms for the Construction and of Analysis Systems (TACAS), 2018
2. Co-Organizer, Dagstuhl Seminar 14171: Evaluating Software Verification Systems: Benchmarks and Competitions, Schloss Dagstuhl, April 21–25, 2014
3. Program Co-Chair, 32nd IFIP Int. Conference on Formal Techniques for Distributed Systems (FORTE/FMOODS), Florence, Italy, June, 2013
4. Organizer, 2st TACAS 2013 Competition on Software Verification (SV-COMP), Rome, Italy, March 21, 2013
5. Organization Co-Chair, 2nd Int. Workshop on Linux Driver Verification (LDV), Heraklion, Creta, October 15, 2012
6. General Chair, 20th IEEE Int. Conference on Program Comprehension (ICPC), Passau, Bavaria, Germany, June 11–13, 2012
7. Organizer, 7th Alpine Verification Meeting (AVM), Passau, Bavaria, Germany, May 21–22, 2012
8. Organizer, 1st TACAS 2012 Competition on Software Verification (SV-COMP), Tallinn, Estonia, March 29, 2012
9. Organization Chair, 1st Int. Workshop on Linux Driver Verification (LDV), Passau, Germany, February 13–17, 2012
10. Local Organization Chair, 31st IEEE Int. Conference on Software Engineering (ICSE), Vancouver, BC, Canada, May 16–24, 2009
11. Local Organization Chair, 17th IEEE Int. Conference on Program Comprehension (ICPC), Vancouver, BC, Canada, May 17–19, 2009
12. Local Organization Chair, 6th IEEE Working Conference on Mining Software Repositories (MSR), Vancouver, BC, Canada, May 16–17, 2009
13. Proceedings Chair, 25th IEEE International Conference on Software Maintenance (ICSM), Edmonton, AB, Canada, September 20–26, 2009
14. Local Organization Chair, 14th IEEE Working Conference on Reverse Engineering (WCRE), Vancouver, BC, Canada, October 28–31, 2007
15. Founder and Organizer, First Alpine Verification Meeting (AVM'05), Lausanne, Switzerland, October 6, 2005

Member of Conference Steering Committees

1. Int. Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), since 2015
2. IFIP Int. Conference on Formal Techniques for Distributed Objects, Components and Systems (FORTE), 2013–2016
3. IEEE Int. Conference on Program Comprehension (ICPC), 2012–2015

Member of Conference Program Committees

1. 31st IEEE/ACM International Conference on Automated Software Engineering (ASE), 2016
2. 9th Indian Software Engineering Conference (ISEC), 2016
3. 9th Int. Conference on Tests and Proofs (TAP), 2015
4. 7th NASA Formal Methods Symposium (NFM), 2015
5. 31st IEEE Int. Conference on Software Maintenance and Evolution (ICSME), 2015
6. 23rd IEEE Int. Conference on Program Comprehension (ICPC), 2015
7. 5th Int. Workshop on Formal Methods and Analysis in Software Product-Line Engineering (FMSPLE), 2015

8. 14th Int. Conference on Formal Methods in Computer-Aided Design (FMCAD), 2014
9. 6th International Symposium On Leveraging Applications of Formal Methods, Verification and Validation (ISoLA), 2014
10. 36th ACM/IEEE Int. Conference on Software Engineering (ICSE), 2014
11. 34nd IFIP Int. Conference on Formal Techniques for Distributed Objects, Components, and Systems (FORTE), 2014
12. 21st Int. Symposium on Model Checking of Software (SPIN), 2014
13. 22nd IEEE Int. Conference on Program Comprehension (ICPC), 2014
14. 8th Int. Conference on Tests and Proofs (TAP), 2014
15. 18th European Conference on Software Maintenance and Reengineering and 21st Working Conference on Reverse Engineering (CSMR/WCRE), 2014
16. 13th Int. Conference on Formal Methods in Computer-Aided Design (FMCAD), 2013
17. 21st IEEE Int. Conference on Program Comprehension (ICPC), 2013
18. 20th Working Conference on Reverse Engineering (WCRE), 2013
19. 7th Int. Conference on Tests and Proofs (TAP), 2013
20. 23rd Annual International Conference on Computer Science and Software Engineering (CASCON), 2013
21. 4rd Int. Workshop on Formal Methods and Analysis in Software Product-Line Engineering (FMSPLE), 2013
22. 19th Working Conference on Reverse Engineering (WCRE), 2012
23. 5th International Symposium on Leveraging Applications of Formal Methods, Verification and Validation (ISoLA), 2012
24. 3rd Int. Workshop on Formal Methods and Analysis in Software Product-Line Engineering (FMSPLE), 2012
25. 1st Int. Workshop on Comparative Empirical Evaluation of Reasoning Systems (COMPARE), 2012
26. 19th Int. Workshop on Model Checking of Software (SPIN), 2012
27. 6th Int. Conference on Tests and Proofs (TAP), 2012
28. 32nd IFIP Int. Conference on Formal Techniques for Networked and Distributed Systems (FORTE), 2012
29. 28th IEEE Int. Conference on Software Maintenance (ICSM), 2012
30. 6th IEEE Int. Symposium on Theoretical Aspects of Software Engineering (TASE), 2012
31. 18th Working Conference on Reverse Engineering (WCRE), 2011
32. 6th Int. Workshop on Systems Software Verification (SSV), 2011
33. 31st IFIP Int. Conference on Formal Techniques for Networked and Distributed Systems (FORTE), 2011
34. 27th IEEE Int. Conference on Software Maintenance (ICSM), 2011
35. 19th IEEE Int. Conference on Program Comprehension (ICPC), 2011
36. 5th Int. Conference on Tests and Proofs (TAP), 2011
37. 17th Working Conference on Reverse Engineering (WCRE), 2010
38. 26th IEEE Int. Conference on Software Maintenance (ICSM), 2010, Industrial Track
39. 4th IEEE Int. Symposium on Theoretical Aspects of Software Engineering (TASE), 2010
40. 4th Int. Conference on Tests and Proofs (TAP), 2010
41. 18th IEEE Int. Conference on Program Comprehension (ICPC), 2010
42. 19th Annual Int. Conference on Computer Science and Software Engineering (CASCON), 2009
43. 16th Working Conference on Reverse Engineering (WCRE), 2009
44. 17th IEEE Int. Conference on Program Comprehension (ICPC), 2009
45. 18th Annual Int. Conference on Computer Science and Software Engineering (CASCON), 2008
46. 15th Working Conference on Reverse Engineering (WCRE), 2008

47. 24th IEEE Int. Conference on Software Maintenance (ICSM), 2008
48. 19th Int. Conference on Concurrency Theory (CONCUR), 2008
49. 16th IEEE Int. Conference on Program Comprehension (ICPC), 2008
50. 23rd IEEE Int. Conference on Software Maintenance (ICSM), 2007
51. 15th IEEE Int. Conference on Program Comprehension (ICPC), 2007
52. 11th European Conference on Software Maintenance and Reengineering (CSMR), 2007, Doctoral Symposium
53. 22nd IEEE Int. Conference on Software Maintenance (ICSM), 2006

Journal Editor

1. Editorial Board of Journal PeerJ, since 2015

Journal Referee

IEEE Software, IEEE, 2015;
 International Journal on Software Tools for Technology Transfer (STTT), Springer, 2015;
 IEEE Transactions on Software Engineering (TSE), 2014;
 International Journal on Software Tools for Technology Transfer (STTT), Springer, 2014;
 Computer Science Review (COSREV), Elsevier, 2014;
 Formal Methods in System Design (FMSD/FORM), Springer, 2014;
 IEEE Transactions on Software Engineering (TSE), 2013;
 Software and Systems Modeling (SOSYM), Springer, 2013;
 Formal Methods in System Design (FMSD/FORM), Springer, 2013;
 Communications of the ACM, 2012;
 International Journal on Software Tools for Technology Transfer (STTT), Springer, 2012;
 Computing (COMP), Springer, 2012;
 ACM Transactions on Software Engineering and Methodology (TOSEM), 2012;
 International Journal on Software Testing, Verification and Reliability, 2011;
 IEEE Software, 2011;
 ACM Transactions on Software Engineering and Methodology (TOSEM), 2011;
 International Journal on Software Tools for Technology Transfer (STTT), Springer, 2011;
 Science of Computer Programming (SCICO), Elsevier, 2011;
 Empirical Software Engineering (EMSE), Springer, 2011;
 Automated Software Engineering (ASE), Springer, 2011;
 Arabian Journal for Science and Engineering (AJSE), 2011;
 IEEE Transactions on Software Engineering (TSE), 2010;
 ACM Transactions on Software Engineering and Methodology (TOSEM), 2010;
 Software Quality Journal, Special Issue on ICPC'09, 2010;
 Journal for Graph Algorithms and Applications (JGAA), 2010;
 IEEE Software, Special Issue on Software Evolution, 2009;
 Journal of Systems and Software (JSS), 2009;
 Journal on Formal Aspects of Computing (FACJ), 2009;
 International Journal on Software Tools for Technology Transfer (STTT), 2009;
 IEEE Transactions on Software Engineering (TSE), 2009;
 Journal of Software Maintenance and Evolution: Research and Practice (JSME), 2009;
 IEEE Systems Journal, 2008;
 IEEE Transactions on Software Engineering (TSE), 2008;
 ACM Transactions on Design Automation of Electronic Systems (TODAES), 2008;

Simulation Modelling Practice and Theory, 2008;
ACM Transactions on Software Engineering and Methodology (TOSEM), 2007;
IEEE Transactions on Software Engineering (TSE), 2007;
International Journal of Computers and Their Applications (IJCA), 2007;
International Journal on Software Tools for Technology Transfer (STTT), 2006;
ACM Transactions on Software Engineering and Methodology (TOSEM), 2006;
ACM Transactions on Design Automation of Electronic Systems (TODAES), 2005

Conference Referee

Int. Symposium on Formal Methods (FM), 2012;
Int. Conf. on Verification, Model Checking, and Abstract Interpretation (VMCAI), 2012;
Festschrift Manfred Nagl (FMN), 2009;
Int. Conf. on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), 2009;
Int. Conference on Verification, Model Checking and Abstract Interpretation (VMCAI), 2009;
International Conference on Computer-Aided Verification (CAV), 2008;
Joint Eurographics - IEEE TCVG Symposium on Visualization (EUROVIS), 2008;
ACM Symposium on Principles of Programming Languages (POPL), 2007;
ACM Int. Symposium on Principles and Practice of Declarative Programming (PPDP), 2007;
ACM/IEEE International Conference on Software Engineering (ICSE), 2006;
Int. Conf. on Foundations of Software Science and Computation Structures (FOSSACS), 2006;
ACM International Symposium on Component-Based Software Engineering (CBSE), 2006;
International Symposium on Software Composition (SC), 2006;
International Conference on Computer-Aided Verification (CAV), 2005;
International Symposium on Formal Methods (FM), 2005;
ACM International Symposium on Component-Based Software Engineering (CBSE), 2005;
Monterey Workshop: Software Engineering Tools, 2005

Other Referee (Grants/Awards)

Swiss National Science Foundation (SNF), 2013;
South Africa's National Research Foundation (NRF), 2013;
German Science Foundation (DFG), 2012;
Czech Science Foundation (GACR), 2011;
German Science Foundation (DFG), 2011;
ACM Student Research Competition at ICSE (ICSE-SRC), 2011;
The Netherlands Organization for Scientific Research (NWO), 2010;
Austrian Science Fund (FWF), 2009;
The Villum Kann Rasmussen Foundation, 2008;
ACM SIGPLAN 2006 Dissertation Award Committee, 2007;
Natural Sciences and Engineering Research Council of Canada (NSERC), 2007;
The Netherlands Organization for Scientific Research (NWO), 2005;
The Netherlands Organization for Scientific Research (NWO), 2004

Consultant in Industry

Argus Technologies Ltd., Burnaby, 2009
Alpha Technologies Ltd., Burnaby, 2008

Member of Professional Organizations

Association for Computing Machinery (ACM)

IEEE, IEEE Computer Society

Deutscher Hochschulverband (DHV)

References

1. Thomas A. Henzinger, Professor, IST Austria, <http://pub.ist.ac.at/~tah>
2. Claus Lewerentz, Professor, BTU Cottbus, Germany, <http://www-sst.informatik.tu-cottbus.de>
3. Carlo Ghezzi, Professor, Politecnico di Milano, Italy, <http://home.dei.polimi.it/ghezzi>
4. Peter Naumann, Dr., Siemens AG, Business Services Dresden, Germany

Additional references are available on request.