



**Privatdozent Dr. (rer. nat.) Stefan Josef Edelkamp**

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**PERSONAL INFORMATION** *Date of birth: July 28<sup>th</sup>, 1969; Nationality: German*  
*Children: Maximilian Theodor (born June 2003), Justus Franz Bernhard (born July 2005)*

**RESEARCH EXPERIENCES** Bremen University, *Researcher and Lecturer* at Technologie-Zentrum Informatik, Department of Computer Science. Dec. 2008 – today.

Dortmund University of Technology, *Researcher and Lecturer* at Chair for Programming Systems and Compiler Construction, Faculty of Computer Science. June 2008 – Nov. 2008.

Dortmund University of Technology, *Junior Research Group Leader* at Chair for Programming Systems and Compiler Construction, Computer Science Department. March 2003 – May 2008.

University of Freiburg, *Assistant Professor* at Chair for Algorithms and Data Structures, Institute for Computer Science. Nov. 1998 – Feb. 2003.

University of Freiburg, *Research Assistant* at Chair for Algorithms and Data Structures, Institute for Computer Science. Oct. 1998.

University of California Los Angeles, *Visiting Researcher* at Chair for Artificial Intelligence, Computer Science Department. Aug. - Sep. 1997.

University of Freiburg, *Ph.D. Student* in Graduate Program *Human and Machine Intelligence* at Chair for Algorithms and Data Structures, Institute for Computer Science. April 1996 – Sep. 1998.

**EDUCATION** *Postdoctoral Lecture Qualification.* University of Bremen, June 2009. Evaluation Committee: Otthein Herzog, Kerstin Schill. *Venia Legendi.*

*Postdoctoral Lecture Qualification.* University of Freiburg, Feb. 2003. Evaluation Committee: Sven Koenig, Bernhard Nebel, Luc DeReadt. Graduated with *Venia Legendi*.

*Doctor of Philosophy in Computer Science.* University of Freiburg, Sep. 1998. Evaluation Committee: Thomas Ottmann, Bernhard Nebel. Final grade: Sehr Gut.

*Erasmus Exchange.* University College Dublin, Ireland. June 1994. Average of Final Grades: 71,6%.

*Diploma in Computer Science.* Dortmund University of Technology. Dec. 1997. Evaluation Committee: Ingo Wegener, Martin Dietzfelbinger. Final grade: *Summa Cum Laude*.

*High School Diploma.* Friedensschule Münster, June 1988. Science Group with Electives: Physics and Mathematics. Average of Final Grades: 1.4.

MILITARY SERVICE *Air Force.* Budel and Cuxhaven, July 1988 - Sep. 1989.

SCIENTIFIC  
TEACHING

**Department of Computer Science, Dortmund University of Technology.**

1. *Supervisor* of the project group *FIDIUS* (SS 2009-10/SS 2011).
2. *Lecturer* of the course *Algorithm Engineering* (SS 2009)
3. *Supervisor* of the seminar *Game Playing* (SS 2009)

**Faculty of Computer Science, Dortmund University of Technology.**

1. *Lecturer* of the course *Algorithm Design on Modern Hardware* (WS 2008/09).
2. *Lecturer* of the course *Game Playing* (SS 2008).
3. *Lecturer* of the course *Action Planning* (WS 2007/2008).
4. *Lecturer* of the course *Directed Model Checking* (SS 2007).
5. *Lecturer* of the course *Advanced Search Algorithms* (WS 2006/07).
6. *Supervisor* of the seminar *External Exploration* (SS 2006).
7. *Lecturer* of the course *Artificial Intelligence* (WS 2005/06).
8. *Lecturer* of the course *Directed Model Checking* (SS 2005).
9. *Lecturer* of the course *Artificial Intelligence* (WS 2004/05).
10. *Lecturer* of the course *Action Planning* (SS 2004).
11. *Lecturer* of the course *Heuristic Search* (WS 2003/04).

**Faculty of Computer Science, Dortmund University of Technology.**

1. *Supervisor* of the project group *Bug-Finder* (WS 2005/06 – SS 2006).
2. *Supervisor* of the project group *Mod-Plan* (WS 2004/05 – SS 2005).
3. *Supervisor* of the project group *GPS-Route* (SS 2004 – WS 2004/05).

**Computer Science Department, University of Freiburg.**

1. *Teaching Assistant* of the course *Computational Biology* (SS 2002).
2. *Teaching Assistant* of the course *Parallel Algorithms and Applications* (SS 2002).
3. *Teaching Assistant* of the course *Applied Computer Science* (WS 2001/02).
4. *Teaching Assistant* of the course *Algorithm Theory* (WS 1999/00).
5. *Teaching Assistant* of the course *Theory of Computation* (WS 2000/01).
6. *Teaching Assistant* of the course *Data Structures and Algorithms* (SS 2000).

7. *Teaching Assistant* of the course *Programming* (WS 2000/01).
8. *Teaching Assistant* of the course *Computational Geometry* (SS 1999).
9. *Teaching Assistant* of the course *Data Structures and Algorithms* (SS 1999).
10. *Teaching Assistant* of the course *Programming* (WS 1998/99).

**University of Cooperative Education, Berufsakademie Lörrach.**

1. *Lecturer* for the course *Automata and Complexity Theory* (WS 2001/02).
2. *Lecturer* for the course *Theoretical Computer Science* (WS 1997/98).
3. *Lecturer* for the course *Theoretical Computer Science* (WS 1996/97).

PH.D STUDENTS

1. Pavel Simecek (Visiting Researcher). Topic: *External and Parallel LTL Model Checking*, University of Brno, 2007 – today.
2. Peter Kissmann, Topic: *Generalized Game Playing in Planning and Model Checking*, Dortmund University of Technology, March 2007 – today
3. Damian Sulewski, Topic: *Implicit Graph Search Engineering*, Dortmund University of Technology, Dec. 2007 – today
4. Shahid Jabbar. Thesis *External Memory Algorithms for State Space Exploration in Model Checking and Planning*. Apr. 2004 – June 2008, Dortmund University of Technology. Graduated with Distinction.
5. Anton Wijs (Committee Member). Ph.D. Thesis *What to Do Next? Analyzing and Optimizing System Behavior in Time*. 2007, Centrum voor Wiskunde en Informatica (CWI) Amsterdam, Netherlands.
6. Kairong Qian (Committee Member). Ph.D. Thesis *Formal Verification using Heuristic Search and Abstraction Techniques*. 2006, University of Southern Wales, Australia.
7. Tilman Mehler. Thesis *Challenges and Applications of Assembly-Level Software Model Checking* Oct. 2002 – Sep. 2005, Dortmund University of Technology.
8. Alberto Lluch-Lafuente. Thesis *Directed Search for the Verification of Communication Protocols* Aug. 1999 – June 2003, University of Freiburg.

MASTER'S STUDENTS

1. Malte Helmert, *Implementing a Planner for the Symbolic Exploration with Binary Decision Diagrams* (with Bernhard Nebel), 1999.
2. Thorsten Kreuzer, *Pattern Databases for Solving Chess Endgames* (with Thomas Ottmann), 2001.
3. Danyal Kurban, *New Methods for Computing Shortest Paths* (with Thomas Ottmann), 2002.
4. Tilman Mehler, *Directed Java Program Verification* (with Stefan Leue), 2002.
5. Shahid Jabbar, *GPS-based Navigation in Static and Dynamic Environments* (with Thomas Ottmann), 2003
6. Mohammed Nazih, *Efficient Action Planning in PDDL3* (with Katharina Morik), 2006
7. Björn Scholz, *Automatic Inference of Road Maps based on GPS Traces* (with Petra Mutzel), 2006
8. Kenneth Kahl, *Machine Learning Algorithms for the Strategic Game Hex* (with Lars Hildebrand), 2007
9. Peter Kissmann, *External Multiple Sequence Alignment* (with Thomas Hofmeister), 2007
10. Maxim Zaks, *Efficient Algorithms for the Analysis of Graph Transformation Systems* (with Barbara König), 2007

11. Björn Borowsky, *Optimal Metric Planning with Presburger Automata* (with Thomas Schwentick), 2007
12. Damian Sulewski, *Parallel Software Model Checking in StEAM* (with Bernhard Steffen), 2007
13. Mark Kellershoff, *Abstraction and Planning for Program Model Checking* (with Bernhard Steffen), 2007
14. Cengizhan Yücel, *Solving Single and Two-Player Games on the Graphics Card with Perfect Hash Functions* (with Jan Vahrenhold), 2009

## PUBLICATIONS

### Books / Theses

1. Stefan Edelkamp and Stefan Schrödl. *Search: Theory and Practice*. Morgan Kaufmann. To appear.
2. Dragan Bosnacki and Stefan Edelkamp (Eds.). *Model Checking Software (SPIN)*. Springer, Lecture Notes in Computer Science, volume 4595, 2007.
3. Stefan Edelkamp and Alessio Lomuscio (Eds.). *Model Checking and Artificial Intelligence (MOCHART)*. Springer, Lecture Notes in Artificial Intelligence, volume 4428, 2007.
4. Stefan Edelkamp. *Heuristic Search*. Habilitation Thesis. Computer Science Department, University of Freiburg, 2003.
5. Stefan Edelkamp. *Data Structures and Learning Algorithms in State Space Search*. Ph.D. Thesis. Infix, Volume 201, 1999.
6. Stefan Edelkamp. *Weak-Heapsort, a Fast Sorting Algorithm*. Master's Thesis. Computer Science Department, Dortmund University of Technology, 1996.

### Bookchapters

1. Stefan Edelkamp, Francisco C. Pereira, Damian Sulewski, and Hugo Costa. *Collaborative Map Generation - Survey and Architecture Proposal*. In *Urbanism on Track - Application of Tracking Technologies in Urbanism*. J. Van Schaick, S.C. Van Der Spek (Eds.), IOS Press, 2008.
2. Stefan Edelkamp. *Symbolic Search*. In *Encyclopedia of Artificial Intelligence*. Juan R. Rabunal, Julian Dorado and Alejandro Pazos (Eds.), Information Science Reference, 2008.
3. Stefan Edelkamp and Shahid Jabbar. *Disk-based Search*. In *Encyclopedia of Artificial Intelligence*. Juan R. Rabunal, Julian Dorado and Alejandro Pazos (Eds.), Information Science Reference, 2008.
4. Stefan Edelkamp and Stefan Schrödl. *Route Planning and Map Inference with Global Positioning Traces*. In *Computer Science in Perspective*, Rolf Klein, Hans-Werner Six, and Lutz Wegner (Eds.), Lecture Notes in Computer Science, Springer, Volume 2598, pages 128-151, 2003.
5. Stefan Edelkamp. *Memory Limitation in Artificial Intelligence*. In *Memory Hierarchies*. Peter Sanders, Ulrich Meyer, and Jop Sibeyn (Eds.), Lecture Notes in Computer Science, Springer Volume 2625, pages 233-250, 2003.
6. Stefan Edelkamp. Contributor to *Dictionary of Computer Science, Engineering and Technology*. Phillip A. Laplante (Ed.), CRC Press, 2001.
7. Stefan Edelkamp. *Neue Wege in der Exploration*. In *Informatik 2000*, Kurt Mehlhorn and Georg Snelting (Eds.), GI Informatik Aktuell, Springer, pages 65-77, 2000.

### Journal Articles

1. Stefan Edelkamp and Peter Kissmann. *Symbolic Exploration for General Game Playing in PDDL*. *Inteligencia Artificial, Revista Iberoamericana de Inteligencia Artificial (Articulo)*. Revised, 2008.

2. Stefan Edelkamp, Shahid Jabbar and Damian Sulewski. *Distributed Verification of Multi-threaded C++ Programs*. Electronic Notes in Theoretical Computer Science. Volume 198, number 1, pages 33-46, 2008.
3. Stefan Edelkamp, Shahid Jabbar, Dino Midzic, Daniel Rikowski, and Damian Sulewski. *External Memory Search for Verification of Multi-threaded C++ Programs*. Künstliche Intelligenz. Volume 2, pages 44-50, 2008.
4. Stefan Edelkamp. *From Blocksworld to Pipesworld*. Künstliche Intelligenz. Volume 1, pages 23-25, 2007.
5. Stefan Edelkamp. *Automated Planning: Theory and Practice*. Künstliche Intelligenz. Volume 1, pages 42-43, 2007.
6. Jörg Hoffmann, Stefan Edelkamp, Roman Englert, Frederico Liporace, Sylvie Thiebaux, and Sebastian Trüg. *Engineering Benchmarks for Planning: The Domains used in the Deterministic Part of IPC-4*. Journal of Artificial Intelligence Research. Volume 26, pages 453-541, 2006.
7. Jörg Hoffmann and Stefan Edelkamp. *The Deterministic Part of IPC-4: An Overview*. Journal of Artificial Intelligence Research. Volume 24, pages 519-579, 2005.
8. Tilman Mehler and Stefan Edelkamp. *Dynamic Incremental Hashing in Program Model Checking*. Electronic Notes in Theoretical Computer Science. Volume 149, number 2, pages 51-69, 2006.
9. Stefan Edelkamp and Shahid Jabbar. *Directed Model Checking Petri Nets*. Electronic Notes in Theoretical Computer Science. Volume 149, number 2, pages 3-18, 2006.
10. Stefan Edelkamp, Alberto Lluch Lafuente, and Stefan Leue. *Trail-Directed Model Checking*. Electronic Notes on Theoretical Computer Science. Volume 55, number 3, pages 343-356, 2001.
11. Stefan Edelkamp, Shahid Jabbar, and Thomas Willhalm. *Geometric Travel Planning*. IEEE Transactions on Intelligent Transportation Systems. Volume 6, Number 1, pages 5 - 16, 2005.
12. Stefan Edelkamp, Alberto Lluch-Lafuente, and Stefan Leue. *Partial Order Reduction and Trail Improvement in Directed Model Checking*. International Journal on Software Tools for Technology Transfer. Volume 6, Number 4, pages 277 - 301, 2004.
13. Stefan Edelkamp, Alberto Lluch-Lafuente, and Stefan Leue. *Directed Explicit-State Model Checking in the Validation of Communication Protocols*. International Journal on Software Tools for Technology Transfer. Volume 5, Number 2-3, pages 247 - 267, 2004.
14. Stefan Edelkamp. *Taming Numbers and Duration in the Model Checking Integrated Planning System*. Journal of Artificial Intelligence Research. Volume 20, pages 195-238, 2003.
15. Stefan Edelkamp and Patrick Stiegeler. *Implementing HEAPSORT with  $n \log n - 0.9n$  and QUICKSORT with  $n \log n + 0.2n$  Comparisons*. ACM Journal of Experimental Algorithmics. Volume 7, 2002.
16. Richard E. Korf, Michael Reid, and Stefan Edelkamp. *Time Complexity of Iterative-Deepening-A\**. Journal of Artificial Intelligence. Volume 129, Number 1-2, pages 199-218, 2001.
17. Stefan Edelkamp and Malte Helmert. *The Model Checking Integrated Planning System*. AI-Magazine, pages 67-71, 2001.
18. Stefan Edelkamp. *Data Structures and Learning Algorithms in State Space Search*. Künstliche Intelligenz. Volume 3, pages 49-51, 1999.

### Conference Papers

1. Peter Kissmann and Stefan Edelkamp. *Solving Fully-Observable Non-Deterministic Planning Problems via Translation into a General Game*. German Conference on Artificial Intelligence (KI). Paderborn, 2009.

2. Martin Dietzfelbinger and Stefan Edelkamp. *Perfect Hashing for State Spaces in BDD Representation*. German Conference on Artificial Intelligence (KI). Paderborn, 2009.
3. Dragan Bosnacki, Stefan Edelkamp and Damian Sulewski. *Efficient Probabilistic Model Checking on General Purpose Graphics Processors*, Model Checking Software (SPIN), Grenoble, 2009.
4. Stefan Edelkamp and Peter Kissmann. *Optimal Symbolic Planning with Action Costs and Preferences*. International Joint Conference on Artificial Intelligence (IJCAI), Pasadena, 2009.
5. Jiri Barnat, Lubos Brim, Stefan Edelkamp, Damian Sulewski, and Pavel Simecek. Can Flash Memory Help In Model Checking? Formal Methods for Industrial Critical Systems (FMICS), L'Aquila, pages 159–174, 2008.
6. Stefan Edelkamp and Damian Sulewski. *Flash-Efficient LTL Model Checking with Minimal Counterexamples*. Software Engineering and Formal Methods (SEFM), Cape Town, 2008.
7. Stefan Edelkamp, Viktor Schuppan, Dragan Bosnacki, Anton Wijs, Ansgar Fehnker, and Husain Aljazzar. *Survey on Directed Model Checking*. Model Checking and Artificial Intelligence (MOCHART). Patras, pages 65-89, 2008.
8. Stefan Edelkamp and Peter Kissmann. *Limits and Possibilities of BDDs in State Space Search*. German Conference on Artificial Intelligence (KI). Kaiserslautern, pages 46–53, 2008.
9. Stefan Edelkamp and Peter Kissmann. *Partial Symbolic Pattern Databases for Optimal Sequential Planning*. German Conference on Artificial Intelligence (KI). Kaiserslautern, pages 193–200, 2008.
10. Stefan Edelkamp and Peter Kissmann. *Symbolic Classification of General Two-Player Games*. German Conference on Artificial Intelligence (KI). Kaiserslautern, pages 185–192, 2008. Outstanding Paper Award.
11. Stefan Edelkamp and Mark Kellershoff. *Action Planning for Automated Program Verification*. International Conference on Automated Planning and Scheduling (ICAPS). Sydney, 2008.
12. Stefan Edelkamp, Peter Sanders, and Pavel Simecek. *Semi-External LTL Model Checking*. Conference on Computer Aided Verification (CAV). Princeton, pages 530–542, 2008.
13. Björn Borowsky and Stefan Edelkamp. *Optimal Metric Planning with State Sets in Automata Representation*. National Conference on Artificial Intelligence (AAAI). Chicago, pages, 874–879, 2008.
14. Stefan Edelkamp and Peter Kissmann. *Limits and Possibilities of BDDs in State Space Search*. National Conference on Artificial Intelligence (AAAI). Chicago, pages 1452–1453, 2008.
15. Stefan Edelkamp and Peter Kissmann. *Symbolic Classification of General Multi-Player Games*. European Conference on Artificial Intelligence (ECAI). Patras, 2008.
16. Stefan Edelkamp, Shahid Jabbar and Peter Kissmann. *Scaling Search with Symbolic Abstraction Pattern Databases*. Model Checking and Artificial Intelligence (MOCHART). Patras, pages 49-65, 2008.
17. Marco Bakera, Stefan Edelkamp, Peter Kissmann, and Clemens D. Renner. *Solving  $\mu$ -calculus Parity Games via Symbolic Planning*. Model Checking and Artificial Intelligence (MOCHART) Patras, pages 15-33, 2008.
18. Maik Drodzynski, Stefan Edelkamp, Andreas Gaubatz, Shahid Jabbar, and Miguel Liebe. *On Constructing a Base Map for Collaborative Map Generation and its Application in Urban Mobility Planning*. International IEEE Conference on Intelligent Transportation Systems (ITSC). Seattle, 2007.
19. Stefan Edelkamp, Shahid Jabbar, and Damian Sulewski. *Distributed Verification of Multi-threaded C++ Programs*. Parallel and Distributed Methods in Verification (PDMC). Berlin, pages 33-48, 2007.

20. Stefan Edelkamp, Shahid Jabbar, and Blai Bonet. *External Memory Value Iteration*. International Conference on Automated Planning and Scheduling (ICAPS). Providence, pages 128-135, 2007.
21. Kenneth Kahl, Stefan Edelkamp, and Lars Hildebrand. *Learning how to Play Hex*. German Conference on Artificial Intelligence (KI). Osnabrück, LNCS 4467, pages 382-396, 2007.
22. Stefan Edelkamp and Peter Kissmann. *Externalizing the Multiple Sequence Alignment Problem with Affine Gap Costs*. German Conference on Artificial Intelligence (KI). Osnabrück, LNCS 4467, pages 444-447, 2007.
23. Stefan Edelkamp and Shahid Jabbar. *Real-Time Model Checking on Secondary Storage*. Model Checking and Artificial Intelligence (MOCHART). Riva Del Garda, LNCS 4428, pages 68-84, 2007.
24. Stefan Edelkamp. *Automated Creation of Pattern Database Search Heuristics*. Model Checking and Artificial Intelligence (MOCHART). Riva Del Garda, LNCS 4428, pages 36-51, 2007.
25. Stefan Edelkamp, Shahid Jabbar, and Alberto Lluch-Lafuente. *Heuristic Search for the Analysis of Graph Transition Systems*. International Conference on Graph Transformation (ICGT). Natal, LNCS 4178, pages 414-429, 2006.
26. Stefan Edelkamp and Shahid Jabbar. *Cost-Optimal External Planning*. National Conference on Artificial Intelligence (AAAI). Boston, AAAI Press, pages 821-826, 2006.
27. Stefan Edelkamp. *Cost-Optimal Symbolic Planning with State Trajectory and Preference Constraints*. European Conference on Artificial Intelligence (ECAI). Riva Del Garda, IOS Press, pages 841-842, 2006.
28. Stefan Edelkamp. *On the Compilation of Plan Constraints and Preferences*. International Conference on Automated Planning and Scheduling (ICAPS). The English Lake District, AAAI Press, pages 374-377, 2006.
29. Stefan Edelkamp and Shahid Jabbar. *Large-Scale Directed Model Checking LTL*. Model Checking Software (SPIN). Vienna, LNCS 3925, pages 1-18, 2006.
30. Shahid Jabbar and Stefan Edelkamp. *Parallel External Directed Model Checking With Linear I/O*. Verification, Model Checking and Abstract Interpretation (VMCAI). Charleston, LNCS 2855, pages 237-251, 2006.
31. Stefan Edelkamp, Shahid Jabbar, and Alberto Lluch-Lafuente. *Cost-Algebraic Heuristic Search*. National Conference on Artificial Intelligence (AAAI). Pittsburgh, AAAI Press, pages 1362-1367, 2005.
32. Rene Brüntrup, Stefan Edelkamp, Shahid Jabbar, and Björn Scholz. *Incremental Map Generation with GPS Traces*. International IEEE Conference on Intelligent Transportation Systems (ITSC). Vienna, IEEE, 2005.
33. Stefan Edelkamp. *External Symbolic Heuristic Search with Pattern Databases*. International Conference on Automated Planning and Scheduling (ICAPS). Monterey, AAAI Press, pages 51-60, 2005.
34. Stefan Edelkamp and Tilman Mehler. *Incremental Hashing for Pattern Databases*. International Conference on Automated Planning and Scheduling (ICAPS). Monterey, AAAI Press, pages 17-20, 2005.
35. Tilman Mehler and Stefan Edelkamp. *Dynamic Incremental Hashing in Program Model Checking*. Model Checking and Artificial Intelligence (MOCHART). San Francisco, 2005.
36. Stefan Edelkamp and Shahid Jabbar. *Directed Model Checking Petri Nets*. Model Checking and Artificial Intelligence (MOCHART). San Francisco, 2005.
37. Stefan Edelkamp, Shahid Jabbar, and Alberto Lluch-Lafuente. *Action Planning for Graph Transition Systems*. Verification and Validation of Model-Based Planning and Scheduling Systems (VVPS). Monterey, AAAI Press, pages 58-66, 2005.

38. Shahid Jabbar and Stefan Edelkamp. *I/O Efficient Directed Model Checking*. Verification, Model Checking and Abstract Interpretation (VMCAI). Paris, pages 313-329, 2005.
39. Peter Leven, Tilman Mehler, and Stefan Edelkamp. *Directed Error Detection in C++ with the Assembly-Level Model Checker StEAM*. Model Checking Software (SPIN). Barcelona, pages 39-56, 2004.
40. Stefan Edelkamp, Shahid Jabbar, and Stefan Schrödl. *External A\**. German Conference on Artificial Intelligence (KI). Ulm, pages 226-240, 2004.
41. Stefan Edelkamp. *Generalizing the Relaxed Planning Heuristic to Non-Linear Tasks*. German Conference on Artificial Intelligence (KI). Ulm, pages 198-212, 2004.
42. Tilman Mehler and Stefan Edelkamp. *Planning in Concurrent Multiagent Systems with the Assembly Model Checker StEAM*. German Conference on Artificial Intelligence (KI). Ulm, pages 16-30, 2004.
43. Stefan Edelkamp. *Promela Planning*. Model Checking Software (SPIN). Portland, pages 197-212, 2003.
44. Stefan Edelkamp, Shahid Jabbar, and Thomas Willhalm. *Geometric Travel Planning*. International IEEE Conference on Intelligent Transportation Systems (ITSC). Shanghai, Volume 2, pages 12-15, 2003.
45. Stefan Edelkamp and Tilman Mehler. *Byte Code Distance Heuristics and Trail Direction for Model Checking Java Programs*. Model Checking and Artificial Intelligence (MOCHART). Acapulco, pages 69-76, 2003.
46. Alberto Lluch Lafuente, Stefan Edelkamp, and Stefan Leue. *Partial Order Reduction in Directed Model Checking*. Model Checking Software (SPIN). Grenoble, pages 112-127, 2002.
47. Stefan Edelkamp. *Symbolic Pattern Databases in Heuristic Search Planning*. International Conference on AI Planning and Scheduling (AIPS). Toulouse, pages 274-293, 2002.
48. Stefan Edelkamp and Peter Leven. *Directed Automated Theorem Proving*. Logic for Programming Artificial Intelligence and Reasoning (LPAR). Tbilissi, pages 145-159, 2002.
49. Stefan Edelkamp, Alberto Lluch Lafuente, and Stefan Leue. *Trail-Directed Model Checking*. Software Model Checking (SoftMC). Paris. 2001.
50. Stefan Edelkamp, Alberto Lluch-Lafuente, and Stefan Leue. *Directed Explicit Model Checking with HSF-SPIN*. Model Checking Software (SPIN). Toronto, pages 57-79, 2001.
51. Stefan Edelkamp. *Prediction of Regular Search Tree Growth by Spectral Analysis*. German Conference on Artificial Intelligence (KI). Vienna, pages 154-168, 2001.
52. Stefan Edelkamp and Ulrich Meyer. *Theory and Practice of Time-Space Trade-Offs in Memory Limited Search*. German Conference on Artificial Intelligence (KI). Vienna, pages 169-184, 2001.
53. Falk Hüffner, Stefan Edelkamp, Henning Fernau, and Rolf Niedermeier. *Finding Optimal Solutions to Atomix*. German Conference on Artificial Intelligence (KI). Vienna, pages 229-243, 2001.
54. Stefan Edelkamp. *Planning with Pattern Databases*. European Conference on Planning (ECP). Toledo, pages 13-34, 2001.
55. Stefan Edelkamp and Ingo Wegener. *On the Performance of Weak-Heapsort*. Symposium on Theoretical Aspects of Computer Science (STACS). Lille, pages 254-265, 2000.
56. Stefan Edelkamp and Stefan Schrödl. *Localizing A\**. National Conference on Artificial Intelligence (AAAI). Austin, Texas, pages 885-890, 2000.
57. Stefan Edelkamp and Patrick Stiegeler. *Pushing the Limits in Sequential Sorting*. Algorithm Engineering (WAE). Saarbrücken, pages 39-50, 2000.

58. Stefan Edelkamp and Malte Helmert. *Exhibiting Knowledge in Planning Problems to Minimize State Encoding Length*. European Conference on Planning (ECP). Durham, pages 135-147, 1999.
59. Frank Reffel and Stefan Edelkamp. *Error Detection with Directed Symbolic Model Checking*. World Congress on Formal Methods (FM). Toulouse, pages 195-211, 1999.
60. Stefan Schrödl and Stefan Edelkamp. *Inferring Flow of Control in Program Synthesis by Example*. German Conference on Artificial Intelligence (KI). Bonn, pages 171-182, 1999.
61. Stefan Edelkamp and Frank Reffel. *Deterministic State Space Planning with BDDs*. European Conference on Planning (ECP). Durham, pages 381-382, 1999.
62. Stefan Edelkamp and Frank Reffel. *OBDDs in Heuristic Search*. German Conference on Artificial Intelligence (KI). Bremen, pages 81-92, 1998.
63. Stefan Edelkamp. *Updating Shortest Paths*. European Conference on Artificial Intelligence (ECAI). Brighton, pages 655-659, 1998.
64. Stefan Edelkamp and Richard E. Korf. *The Branching Factor of Regular Search Spaces*. National Conference on Artificial Intelligence (AAAI). Madison, pages 299-304, 1998.
65. Stefan Edelkamp. *Suffix Tree Automata in State Space Search*. German Conference on Artificial Intelligence (KI). Freiburg, pages 381-385, 1997.

#### **Papers on International Workshops, Satellite Events, and Symposia**

1. Peter Kissmann and Stefan Edelkamp. *Instantiating General Games*. Workshop on General Game Playing. International Joint Conference on Artificial Intelligence. Pasadena, 2009.
2. Stefan Edelkamp and Damian Sulewski. *Parallel State Space Search on the GPU*. Symposium on Combinatorial Search, Pasadena, 2009.
3. Stefan Edelkamp and Shahid Jabbar. *MIPS-XXL: Featuring External Shortest Path Search for Sequential Optimal Plans and External Branch-And-Bound for Optimal Net Benefit*. Proceedings of the International Planning Competition. International Conference on Automated Planning and Scheduling. Sydney, 2008.
4. Stefan Edelkamp and Peter Kissmann. *GAMER: Bridging Planning and General Game Playing with Symbolic Search*. Proceedings of the International Planning Competition. International Conference on Automated Planning and Scheduling. Sydney, 2008.
5. Stefan Edelkamp and Peter Kissmann. *Fully-Observable Non-Deterministic Planning via PDDL-Translation into a Game*. Proceedings of the International Planning Competition. International Conference on Automated Planning and Scheduling. Sydney, 2008.
6. Stefan Edelkamp and Arend Rensink. *Graph Transformation and AI Planning*. Proceedings of the International Knowledge Engineering Competition. International Conference on Automated Planning and Scheduling. Providence, 2007.
7. Stefan Edelkamp, Jeremy Frank and Mark Kellershoff. *Knowledge Engineering through Simulation*. Proceedings of the International Knowledge Engineering Competition. International Conference on Automated Planning and Scheduling. Providence, 2007.
8. Stefan Edelkamp. *Symbolic Shortest Path Planning*. Workshop on Heuristics for Domain-independent Planning: Progress, Ideas, Limitations, Challenges. International Conference on Automated Planning and Scheduling. Providence, 2007.
9. Stefan Edelkamp and Peter Kissmann. *Symbolic Exploration for Generalized Game Playing in PDDL*. Workshop on Planning and Games (PG), International Conference on Automated Planning and Scheduling. Providence, 2007.
10. Stefan Edelkamp. *Automated Pattern Database Design*. Workshop on Heuristic Search, Memory Based Heuristics and Their Applications. National Conference on Artificial Intelligence (AAAI). Boston, 2006.

11. Stefan Edelkamp, Shahid Jabbar and Mohammed Nazih. *Large-Scale Optimal PDDL3 Planning with MIPS-XXL*. Proceedings of the International Planning Competition. International Conference on Automated Planning and Scheduling. The English Lake District, 2006.
12. Stefan Edelkamp. *Optimal Symbolic PDDL3 Planning with MIPS-BDD*. Proceedings of the International Planning Competition. International Conference on Automated Planning and Scheduling. The English Lake District, 2006.
13. Stefan Edelkamp, Shahid Jabbar and Mohammed Nazih. *Cost-Optimal Planning Planning with Constraints and Preferences in Large State Spaces*. Workshop on Preferences and Soft Constraints in Planning. International Conference on Automated Planning and Scheduling. The English Lake District, 2006.
14. Stefan Edelkamp. *Cost-Optimal Symbolic Pattern Database Planning with State Trajectory and Preference Constraints*. Workshop on Preferences and Soft Constraints in Planning. International Conference on Automated Planning and Scheduling. The English Lake District, 2006.
15. Stefan Edelkamp and Tilman Mehler. *Knowledge Acquisition and Knowledge Engineering in the ModPlan Workbench*. Proceedings of the International Planning Competition. International Conference on Automated Planning and Scheduling. Monterey, pages 26–33, 2005.
16. Stefan Edelkamp, Jörg Hoffmann, Roman Englert, Federico Liporace, Sylvie Thiebaux, and Sebastian Trüg. *Towards Realistic Benchmarks for Planning: The Domains used in the Classical Part of IPC-4*. Proceedings of the International Planning Competition. International Conference on Automated Planning and Scheduling. Whistler, pages 8-15, 2004.
17. Stefan Edelkamp and Jörg Hoffmann. *PDDL 2.1: The Language for the Classical Part of IPC-4*. Proceedings of the International Planning Competition. International Conference on Automated Planning and Scheduling. Whistler, pages 1-7, 2004.
18. Stefan Edelkamp and Alberto Lluch-Lafuente. *Abstraction in Directed Model Checking*. Workshop on Connecting Planning Theory with Practice, International Conference on Automated Planning and Scheduling. Whistler, pages 7-13, 2004.
19. Stefan Edelkamp. *Extended Critical Paths in Temporal Planning*. Workshop on Integrating Planning into Scheduling. International Conference on Automated Planning and Scheduling. Whistler, pages 38-45, 2004.
20. Stefan Edelkamp and Jörg Hoffmann. *Quo Vadis, IPC-4 - Proposal for the Classical Part of the 4th International Planning Competition*. Workshop on the Competition: Impact, Organization, Evaluation, Benchmarks. International Conference on Automated Planning and Scheduling. Trento, pages 1-6, 2003.
21. Stefan Edelkamp. *Limits and Possibilities of PDDL for Model Checking Software*. Workshop on the Competition: Impact Organization, Evaluation, Benchmarks. International Conference on Automated Planning and Scheduling. Trento, pages 53-63, 2003.
22. Stefan Edelkamp. *Mixed Propositional and Numerical Planning in the Model Checking Integrated Planning System*. Workshop on Planning in Temporal Domains. International Conference on AI Planning and Scheduling. Toulouse, pages 47-55, 2002.
23. Stefan Edelkamp. *Symbolic Exploration in Two-Player Games: Preliminary Results*. Workshop on Model Checking. International Conference on AI Planning and Scheduling. Toulouse, pages 40-48, 2002.
24. Stefan Edelkamp, Alberto Lluch-Lafuente, and Stefan Leue. *Protocol Verification with Heuristic Search*. AAI-Spring Symposium on Model-based Validation of Intelligence, Stanford, pages 75-83, 2001.
25. Stefan Edelkamp. *Directed Symbolic Exploration in AI-Planning*. AAI-Spring Symposium on Model-based Validation of Intelligence, Stanford, pages 84-92, 2001.

26. Stefan Edelkamp and Malte Helmert. *On the Implementation of Mips*. Workshop on Decision-Theoretic Planning, International Conference on Artificial Intelligence Planning and Scheduling. Breckenridge, Colorado, pages 18-25, 2000.
27. Stefan Edelkamp and Jürgen Eckerle. *New Strategies in Real-Time Heuristic Search*. Workshop on On-line Search, National Conference on Artificial Intelligence. Providence, Rhode Island, pages 30-35, 1997.

### Edited Journals, Workshops and Symposia

1. Stefan Edelkamp and Dragan Bosnacki (Eds.). International Journal on Software Tools and Technology Transfer (STTT). To appear, 2009.
2. Stefan Edelkamp and Jürgen Sauer (Eds.). Künstliche Intelligenz (KI) 1/07.
3. Jürgen Sauer, Stefan Edelkamp and Bernd Schattenberg (Eds.). *Workshop on New Results in Planning, Scheduling, and Design (PUK)*. University of Kaiserslautern, 2008.
4. Bernd Schattenberg, Stefan Edelkamp and Jürgen Sauer (Eds.). *Workshop on New Results in Planning, Scheduling, and Design (PUK)*. University of Osnabrück, 2007.
5. Stefan Edelkamp and Jeremy Frank (Eds.). *International Knowledge Engineering Competition (ICKEPS)*. International Conference on Automated Planning and Scheduling. AAAI Press, 2007.
6. Stefan Edelkamp, Stefan Leue, and Willem Visser (Eds.). *Directed Model Checking (DMC)*. Dagstuhl On-Line Proceedings. 2007.
7. Stefan Edelkamp and Jürgen Sauer (Eds.). *Workshop on New Results in Planning, Scheduling, and Design (PUK)*. University of Bremen, 2006.
8. Stefan Edelkamp and Benno Stein. *Workshop on New Results in Planning, Scheduling, and Design (PUK)*. University of Ulm, 2004.
9. Stefan Edelkamp, Jörg Hoffmann, Michael Littman, and Hakan Younes. *International Planning Competition (IPC-5)*. International Conference on Automated Planning and Scheduling. JPL, 2004.
10. Stefan Edelkamp and Jörg Hoffmann. *Workshop on the Competition: Impact Organization, Evaluation, Benchmarks*. International Conference on AI Planning and Scheduling. AAAI Press 2003.
11. Stefan Edelkamp, Sabine Hanke, Sven Schuierer and Thomas Ottmann. *Upper Rhine Algorithm Workshop (URAW)*. University of Freiburg, 2000.

### Drafts

1. Stefan Edelkamp, Hartmut Messerschmidt, Damian Sulewski, and Cengizhan Yücel. *Solving Games in Parallel with Linear-Time Perfect Hash Functions*
2. Stefan Edelkamp and Damian Sulewski. *Efficient Explicit-State Model Checking on General Purpose Graphic Processors*.
3. Stefan Edelkamp, Thomas Wagner, and Peter Kissmann. *Cost-Optimal Symbolic Abduction for Improved Security*.
4. Stefan Edelkamp, Carsten Elfers, Mirko Horstmann, Marcus-Sebastian Schröder, Karsten Sohr and Thomas Wagner. *Early Warning and Intrusion Detection based on Combined AI Methods*.

HONOURS  
AWARDS

1. Diploma awarded Summa Cum Laude from Dortmund University.
2. Doctoral and Postdoctoral studies granted by DFG.
3. Distinguished Performance Awards at the 2<sup>nd</sup>, 3<sup>rd</sup> and 5<sup>th</sup> International Planning Competition.
4. Three 1<sup>st</sup> and one 2<sup>nd</sup> Place Performance Awards at the 6<sup>th</sup> International Planning Competition.
5. Outstanding Paper Award at KI 2008.

CONFERENCE  
ACTIVITIES

**Chairing International Seminars, Workshops and Conferences**

1. Dagstuhl Seminar on *Graph Search Engineering*, Nov. 2009. Together with Lubos Brim, Eric Hansen, and Peter Sanders.
2. ICAPS-Workshop on Intelligence, 2009. Together with Mark Boddy.
3. ICAPS-Workshop on the Knowledge Engineering Competition, 2007. Together with Jeremy Frank.
4. Model Checking Software (SPIN-07), Together with Dragan Bosnacki.
5. Seminar on *Directed Model Checking*, Together with Stefan Leue and Willem Visser Apr. 2006.
6. Model Checking and Artificial Intelligence (MOCHART-06). Together with Alessio Lomuscio.
7. ICAPS-Workshop on the Planning Competition, 2003. Together with Joerg Hoffmann.

**Chairing International Competitions**

1. 2<sup>nd</sup> International Knowledge Engineering Competition (ICKEPS). Together with Jeremy Frank.
2. 4<sup>th</sup> International Planning Competition (IPC). Together with, Joerg Hoffmann, Michael Littman and Hakan Younes

**Invited Tutorials:**

1. *Estonian Summer Schools in Computer and Systems Science*, Aug. 2009.
2. ICAPS-Tutorial on *Planning and Petri Nets*, 2009. Together with Blai Bonet, Patrik Haslum, Sarah Hickmott, and Sylvie Thiebaux.
3. ICAPS-Tutorial on *External-Memory Search*, 2008. Together with Eric Hansen, Shahid Jabbar and Rong Zhou.
4. AAI-Tutorial on *External-Memory Search*, 2008. Together with Eric Hansen, Shahid Jabbar and Rong Zhou.
5. SPIN-Tutorial on *Directed Model Checking*, 2006.
6. ICAPS-Tutorial on *Directed Model Checking*, 2005. Together with Tilman Mehler and Shahid Jabbar.

**Reviewing for International Conferences:**

1. International Joint Conference on Artificial Intelligence (IJCAI, last service 2009)
2. National Conference on Artificial Intelligence (AAAI, last service 2008)
3. European Conference on Artificial Intelligence (ECAI, last service 2008)
4. International Conference on Automated Planning and Scheduling (ICAPS, last service 2009)
5. Symposium on Abstraction, Reformulation, and Approximation (SARA, last service 2009)
6. International Conference on Artificial Intelligence: Methodology, Systems, Applications (AIMSA, last service 2008)
7. European Symposium on Algorithms (ESA, last service 2002)
8. German Conference on Artificial Intelligence (KI, last service 2009)

9. International Conference on Tools and Applications for the Construction and Analysis of Systems (TACAS, last service 2008)
10. Conference on Computer-Aided Verification (CAV, last service 2008)
11. International Colloquium on Automata, Languages and Programming (ICALP, last service 2007)
12. Model Checking Software (SPIN, last service 2009)
13. Verification, Model Checking and Abstract Interpretation (VMCAI, last service 2006)
14. Static Analysis Symposium (SAS, last service 2005)
15. IEEE International Parallel & Distributed Processing Symposium (IPDPS, last service 2005)

**Program Committee Member:**

1. International Conference on Automated Planning and Scheduling (ICAPS-05 – ICAPS-09)
2. International Joint Conference on Artificial Intelligence (IJCAI-09)
3. National Conference on Artificial Intelligence (AAAI-05 – AAAI-08)
4. European Conference on Artificial Intelligence (ECAI-06 – ECAI-08)
5. Symposium on Abstraction, Reformulation, and Approximation (SARA-05 – SARA-09)
6. International Conference on Artificial Intelligence: Methodology, Systems, Applications (AIMSA-08)
7. Model Checking Software (SPIN-05 – SPIN-09)
8. Model Checking and Artificial Intelligence (MOCHART-02 – MOCHART-08)
9. Florida Artificial Intelligence Research Society (FLAIRS-04)
10. German Conference on Artificial Intelligence (KI-07 – KI-09)
11. International Planning Competition (IPC-04 – IPC-06)
12. International Knowledge Engineering Competition (ICKEPS-07)
13. Search in Artificial Intelligence and Robotics (SAIR-08)
14. Symposium on Combinatorial Search (SoCS-09)
15. AI Workshop on Games (AIG-08)
16. UK Planning and Scheduling SIG (PlanSIG-07 – PlanSIG-08)
17. Parallel and Distributed Methods in Verification (PDMC-07 – PDMC-09)
18. International Symmetry Conference (ISC-07)

**Steering Committee Member:**

1. Model Checking Software (SPIN), 2007 – today
2. Model Checking and Artificial Intelligence (MOCHART), 2007 – today
3. International Planning Competition Committee (IPCC), 2006 – today

JOURNAL  
ACTIVITIES

**Reviewing for International Journals:**

1. The Computer Journal
2. International Journal of Computer Mathematics
3. Artificial Intelligence Journal
4. Journal of Artificial Intelligence Research
5. Journal of Combinatorial Optimization
6. Journal of Information Sciences
7. Journal of Scheduling
8. Journal Artificial Intelligence Review
9. IEEE Transaction Series, e.g., Transactions on Computers
10. Nordic Journal of Computing
11. International Journal on Software Tools for Technology Transfer
12. Data & Knowledge Engineering Journal
13. Software Testing, Verification and Reliability
14. Information Processing Letters
15. Journal of Computer Science and Technology
16. Journal of Zhejiang University

**Member of Editorial Board:**

1. Journal of Artificial Intelligence Research

MULTIMEDIA  
DOCUMENTS

1. Thomas Ottmann, Alois Heinz, and Stefan Edelkamp. *Algorithmentheorie*. VIROR, 2000.
2. Thomas Ottmann, Sven Schuierer, and Stefan Edelkamp. *Geometrische Algorithmen*. VIROR, 2000.

PROJECTS

1. Joint Leader of BMBF project *Early Warning- and Intrusion Detection System Based upon Combined AI Methods (FIDeS)*. Dec. 2008 – today.
2. Leader of DFG project *Model Checking on SSD and GPU*. June 2009 – today.
3. Leader of DFG project *Planning Algorithms for General Game Playing*, Submitted.
4. Leader of DFG project *External Implicit Graph Search*. June 2007 – Oct. 2009. DFG Priority Program on *Algorithm Engineering* (ED 74/4).
5. 1 Leader of finished DFG Emmy-Noether project *Heuristic Search*. March 2003 – May 2008 (ED 74/3).
6. Leader of finished DFG project *Directed Model Checking with Exploration Algorithms of Artificial Intelligence*. Oct. 2002 - March 2008 (ED 74/2).
7. Leader of finished DFG project *Heuristic Search and its Application to the Validation of Protocols*. Apr. 1998 - Oct. 2003 (Ot 64/13).
8. Member of joint ESA bit on *Advanced Planning and Scheduling Initiative* with SciSys, Universities of Strathclyde and Cork.
9. Member of joint STREP proposal on *YouTrace - Collaborative Map Construction for Optimized Urban Mobility* with Instituto Pedro Nunes, University of Coimbra, Dortmund University of Technology, University of Münster, TU Delft, Transports for London, INNO AG, University of Minho, Imperial College London, and Yellow Map.

EXPERTISES

1. Schweizerischer Nationalfonds zur Förderung der Wissenschaftlichen Forschung (FNSNF)
2. The Netherlands Organisation for Scientific Research (NWO)
3. Tenure Applications

FURTHER  
SCIENTIFIC  
ACTIVITIES

Co-Speaker of German GI Interest Group *Planning and Configuration*, Sep. 2004 – today.