

SHAHID JABBAR

Contact

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Education

Doktor der Naturwissenschaften – Doctor of Natural Sciences (PhD)

Apr. 2004 – June 2008. Chair for Programming Systems, Faculty for Computer Science, *Technische Universität Dortmund*, Germany.

Committee: PD Dr. Stefan Edelkamp, Prof. Dr. Bernhard Steffen, Prof. Dr. Jan Vahrenhold, and Dr. Henrik Björklund. Dissertation submitted on Jan. 29, 2008. Oral defense held on June 6, 2008. Title: External memory algorithms for state space exploration in model checking and action planning. Grade: *Summa cum Laude (mit Auszeichnung)*

Master of Science in Applied Computer Science. Oct. 2001–Dec. 2003

Albert-Ludwigs-Universität Freiburg, Germany.

Evaluators: PD Dr. Stefan Edelkamp and Prof. Dr. Thomas Ottmann.

Thesis grade: 1.3. Final grade: 1.6 (On a scale of 1–4 with 1 being the maximum)

Bachelor of Science in Computer Science. Jan. 1996–Dec. 1999

First 3 years at *University of Karachi* and final year at *Mohammad Ali Jinnah University*, Karachi, Pakistan.

Graduated *cum laude*. Awarded *Gold Medal* for Distinguished Performance.

CGPA: 3.7 (On a scale of 1–4 with 4 being the maximum)

Work Experience

- *Software Engineer*, Mar. 2008 – present. Jeppesen, Boeing. Currently working on airline and train crew scheduling problems. Gothenburg, Sweden.
- *Research Associate* (Wissenschaftlicher Mitarbeiter), Feb. 2004–Dec. 2007. Chair for Programming Systems, Faculty for Computer Science, Technische Universität Dortmund, Germany. Funded by Deutsche Forschungsgemeinschaft (German Research Foundation) under projects *heuristic search*, *directed model checking*, and *algorithm engineering*.
- *Research Assistant* (HiWi), Dec. 2001–Nov. 2003. Chair for Algorithms and Data structures, Institute for Computer Science, Albert-Ludwigs-Universität Freiburg, Germany.
- *Software Engineer*, May 2000 – December 2000. Information Technology Department, Jubilee Spinning and Weaving Mills, Karachi, Pakistan.

Teaching Assistant

- Faculty for Computer Science, Technische Universität Dortmund, Germany.
 - *Artificial Intelligence*, WS04/05 and WS05/06
- Institute for Computer Science, Albert-Ludwigs-Universität Freiburg, Germany.
 - Software Practical *Programmieren multimedialer Anwendungen mit Java (Programming Multimedia Applications in Java)*, SS03.
 - *Applied Computer Science II (Theoretical Computer Science)*, WS02/03.
- Department of EECS, M. A. Jinnah University, Karachi, Pakistan.
 - *Algorithms and Data Structures*, WS1999.
 - *Structured Programming*, SS1999.

Project Management of 1 year projects involving 12 Master's-Level Students

- *Bug-Finder: Model Checking of Multi-threaded C++ Programs*, WS05/06–SS06.
- *ModPlan: Automated PDDL Planning*, WS04/05–SS05.
- *GPS-Route: Mobile GPS-based Navigation System*, SS04–WS04/05.

Master Thesis (Diplomarbeit) Co-supervisor

- Damian Sulewski, Parallelization of a Software Model Checker for Concurrent C++ Programs, 2007.
- Mohammed Nazih, Efficient Action Planning in PDDL3, 2006.

Honours and Awards

- *Second position* in 6th International Planning Competition 2008 (IPC-6) for the planner **MIPS-XXL** in Net-benefit optimization track. Presented with a monetary award from SICK AG.
- Finished doctoral dissertation with a cumulated grade of *Summa cum laude*.
- *Distinguished Performance Award* in 5th International Planning Competition 2006 (IPC-5) for the planner **MIPS-XXL**.
- *Travel Scholarship Award* from ‘American Association for Artificial Intelligence’ for AAAI’06 conference, Boston, MA, USA.
- *Travel Scholarship Award* from ‘American Association for Artificial Intelligence’ for AAAI’05 conference, Pittsburgh, PA, USA.
- Doctoral Research funded by Deutschen Forschungsgemeinschaft (German Research Foundation).
- *Travel Scholarship Award* from ‘Friends of the University of Freiburg’ for ITSC’03 conference, Shanghai, China, 2003.
- *Second position* in Master’s program at University of Freiburg, Germany.
- Graduated *cum laude* in Bachelor’s program from Mohammad Ali Jinnah University, Karachi, Pakistan.
- Awarded *Gold Medal* for distinguished performance among all graduates from Mohammad Ali Jinnah University.

Publications

– 2009 –

1. Stefan Edelkamp, Shahid Jabbar, and Peter Kissman Scaling Search with Symbolic Abstraction Databases. In European conference on AI (ECAI) workshop on Model checking and artificial intelligence (MoChArt08) Patras, Greece. Revised Selected and Invited Papers by Peled and Wooldridge (Eds.), LNCS, vol. 5348, pages 49–64, Springer, 2009.

– 2008 –

2. Stefan Edelkamp and Shahid Jabbar. *Disk-based Search*. In Encyclopedia of Artificial Intelligence by J. R. Rabunal, J. Dorado and A. Pazos (Eds.), Idea Group Reference, May 2008. ISBN: 978-1-59904-849-9.
3. Stefan Edelkamp, Shahid Jabbar, Dino Midzic, Daniel Rikowski, and Damian Sulewski. External Memory Search for Verification of Multi-threaded C++ Programs. *Künstliche Intelligenz* (German Journal on Artificial Intelligence), volume 12, number 2, May 2008.

4. Stefan Edelkamp, Shahid Jabbar and Damian Sulewski, *Distributed Verification of Multi-threaded C++ Programs*. In Electronic Notes in Theoretical Computer Science (ENTCS), vol. 198, no. 1, Feb. 2008. Post-proceedings of International Workshop on Parallel and Distributed Verification (PDMC) by Cerna and Haverkort (Eds.), Berlin, Germany, Jul. 2007.

– 2007 –

5. Maik Drozdzyński, Stefan Edelkamp, Andreas Gaubatz, Shahid Jabbar, Miguel Liebe, *On Constructing a Base Map for Collaborative Map Generation and its Application in Urban Mobility Planning*. In International IEEE Conference on Intelligent Transportation Systems (ITSC), pages 678–683, IEEE Press, Seattle, WA, USA, Oct. 2007.
6. Stefan Edelkamp, Shahid Jabbar, and Blai Bonet, *External Memory Value Iteration*. In International Conference on Automated Planning and Scheduling, pages 128–135, AAAI Press, Providence, RI, USA, Sept. 2007. Also as Technical Report 813, University of Dortmund, Apr. 2007.
7. Stefan Edelkamp and Shahid Jabbar, *Real-Time Model Checking on Secondary Storage*. In International Workshop on Model Checking and Artificial Intelligence (MoChArt’06). Riva Del Garda, Italy. Revised Selected and Invited Papers. LNCS, vol. 4428, pages 67–83, Springer, 2007.
8. Stefan Edelkamp and Shahid Jabbar, *Pushing the Limits for Planning Pattern Databases*. Technical Report, 819, University of Dortmund, April 2007.
9. Shahid Jabbar, *External Directed Model Checking*, Dissertation Summary, In Künstliche Intelligenz (German Journal on Artificial Intelligence), vol. 11, no. 1, pages 37–38, Jan. 2007.

– 2006 –

10. Stefan Edelkamp and Shahid Jabbar, *Directed Model Checking Petri Nets*. In Electronic Notes in Theoretical Computer Science, vol. 149, no. 2, pages 3–18, Elsevier publishing, 2006.
11. Stefan Edelkamp, Shahid Jabbar, and Alberto Lluch-Lafuente, *Heuristic Search for the Analysis of Graph Transition Systems*. In International Conference on Graph Transformation (ICGT) by A. Corradini, H. Ehrig, U. Montanari, L. Ribeiro, and G. Rozenberg (Eds.). LNCS vol. 4178, pages 414–429, Springer, Natal, Brazil, Sept. 2006.
12. Stefan Edelkamp and Shahid Jabbar, *Cost-Optimal External Planning*. In 21st National (American) Conference on Artificial Intelligence (AAAI), pages 821–826, AAAI Press, Boston, MA, USA, Jul. 2006.
13. Stefan Edelkamp, Shahid Jabbar, Dino Midzic, Daniel Rikowski, and Damian Sulewski, *External Program Model Checking*. In KI’06 (German Conference on AI) 20. Workshop on New Results in Planning, Scheduling and Design, Bremen, Germany, June 2006.
14. Stefan Edelkamp, Shahid Jabbar, and Mohammed Nazih, *Cost-Optimal Planning with Constraints and Preferences in Large State Spaces*. In ICAPS (International Conference on Automated Planning and Scheduling) Workshop on Preferences and Soft Constraints in Planning, The English Lake District, Cumbria, U.K, June 2006.
15. Stefan Edelkamp, Shahid Jabbar, *Large-Scale Directed Model Checking LTL*. In 13th International SPIN Workshop on Model Checking Software (SPIN) by Valmari (Ed.). LNCS vol. 3925, pages 1–18, Springer, Vienna, Austria, Mar. 2006.
16. Shahid Jabbar, Stefan Edelkamp, *Parallel External Directed Model Checking with Linear I/O*. In Verification, Model Checking and Abstract Interpretation (VMCAI) by Emerson and Namjoshi (Eds.). LNCS vol. 3855, pages 1–18, Springer, Charleston, SC, USA, Jan. 2006.

– 2005 –

17. Stefan Edelkamp, Shahid Jabbar, and Thomas Willhalm, *Geometric Travel Planning*. In IEEE Transactions on Intelligent Transportation Systems, vol. 6, no. 1, pages 5–16, 2005.
18. René Büntrup, Stefan Edelkamp, Shahid Jabbar, Björn Scholz, *Incremental Map Generation with GPS Traces*. In 8th IEEE Conference on Intelligent Transportation Systems, Vienna, Austria, Sept. 2005, IEEE Press.
19. Stefan Edelkamp, Shahid Jabbar, Alberto Lluch-Lafuente, *Cost-Algebraic Heuristic Search*. In 20th National (American) Conference on Artificial Intelligence (AAAI), pages 1362–1367, AAAI Press, Pittsburgh, PA, USA, Jul. 2005.
20. Shahid Jabbar, Stefan Edelkamp, *I/O Efficient Directed Model Checking*. In Verification, Model Checking and Abstract Interpretation (VMCAI) by Cousot(Ed.). LNCS vol. 3385, pages 313–329, Springer, Paris, France, Jan. 2005.
21. Stefan Edelkamp and Shahid Jabbar, *Accelerating External Search with Bitstate Hashing*. In KI'05 (German Conference on AI) 19. Workshop on New Results in Planning, Scheduling and Design, Koblenz, Germany, Sept. 2005.
22. Stefan Edelkamp, Shahid Jabbar, Alberto Lluch-Lafuente, *Action Planning for Graph Transition Systems*. In ICAPS'05 Workshop on Verification and Validation of Model-Based Planning and Scheduling Systems (VVPS'05). Monterey, CA, 2005.

– 2004 –

23. Stefan Edelkamp, Shahid Jabbar, and Stefan Schrödl, *External A**. In KI 2004: Advances in Artificial Intelligence by Biundo *et. al* (eds.). LNAI volume 3238, pages 226–240, Springer, Ulm, Germany, 2004. Also as Technical Report 785, University of Dortmund.
24. Heiner Ackermann, Mohamed Bettahi, René Büntrup, Maik Drozdzyński, Stefan Edelkamp, Vanessa Faber, Andreas Gaubatz, Thomas Härtel, Seung-Jun Hong, Shahid Jabbar, Miguel Liebe, Tilman Mehler, Anne Scheidler, Björn Schulz und Feng Wang, *On-Line Navigation in GPS-Route*. 18. Workshop on New Results in Planning, Scheduling and Design, Ulm, 2004.

– 2003 –

25. Stefan Edelkamp, Shahid Jabbar, and Thomas Willhalm, *Geometric Travel Planning*. In 6th IEEE Conference on Intelligent Transportation Systems (ITSC), vol. 2, pages 964–969, IEEE Press, Shanghai, China, Oct. 2003.
26. Stefan Edelkamp, Shahid Jabbar, and Thomas Willhalm, *Accelerating Heuristic Search in Spatial Domains*. 17. Workshop on New Results in Planning, Scheduling and Design, Hamburg, Germany, 2003.

– Before 2002 –

27. Shahid Jabbar, Abbas K. Zaidi, A *Generalized Methodology and Framework for the Validation and Verification of Multi-agent Systems*. In IEEE Conference on Systems, Man and Cybernetics, vol. 2, pages 835–840, IEEE Press, Tuscon, AZ, USA, 2001.
28. Abbas K. Zaidi, Shahid Jabbar, and Khalid J. Siddiqui, *On a Utility for the Validation and Verification of Knowledge Bases of Intelligent Agents*. In Proceedings of SPIE Volume: 4205, pages 300–310, Boston, MA, USA, 2000.

Theses

1. Shahid Jabbar, *External Memory Algorithms for State Space Exploration in Model Checking and Action Planning*. Doctoral Dissertation. Fakultät für Informatik, Technische Universität Dortmund, Germany, 2008.
2. Shahid Jabbar, *GPS-based Navigation in Static and Dynamic Environments*. Master's Thesis, Institut für Informatik, Universität Freiburg, 2003.
3. Shahid Jabbar, *On a Utility for the Validation and Verification of Knowledge Bases of Intelligent Agents*. Bachelor's Thesis, Department of Electrical Engineering and Computer Science, Mohammad Ali Jinnah University, Karachi, Pakistan, 1999.

Seminars and Presentations

- *External Memory Value Iteration*, at DFG Algorithm Engineering Project Meeting, Karlsruhe, Germany, Dec. 2007.
- *On Constructing a Base Map for Collaborative Map Generation and its Application in Urban Mobility Planning*, at IEEE Conference on Intelligent Transportation Systems (ITSC), Seattle, WA, USA, Oct. 2007.
- *Cost-Optimal External Planning*, at National (American) Conference on Artificial Intelligence (AAAI), Boston, MA, USA, Jul. 2006.
- *External Memory Algorithms in Directed Model Checking*, at Seminar on Directed Model Checking, Schloss Dagstuhl, Germany, Apr. 2006.
- *Large-Scale Directed Model Checking LTL*, at Model Checking Software (SPIN), Vienna, Austria, Mar. 2006.
- Assisted Stefan Edelkamp during the invited tutorial *Directed Model Checking*, at Model Checking Software (SPIN), Vienna, Austria, Mar. 2006.
- *Parallel External Directed Model Checking with Linear I/O*, at Verification, Model Checking and Abstract Interpretation (VMCAI), Charleston, SC, USA, Jan. 2006.
- *Accelerating External Search with Bitstate Hashing*, at KI'05 (German Conference on AI) 19. Workshop on New Results in Planning, Scheduling and Design, Koblenz, Germany, Sept. 2005.
- *Cost-Algebraic Heuristic Search*, at National (American) Conference on Artificial Intelligence (AAAI), Pittsburgh, PA, USA, Jul. 2005.
- *I/O Efficient Directed Model Checking*, at Verification, Model Checking, and Abstract Interpretation, Paris, France, Jan. 2005.
- *External Memory Algorithms*, organized by ACM student's chapter, University of Karachi, Karachi, Pakistan, Dec. 2004.
- *GPS-Route*, at Workshop on Planning and Configuration '04, Ulm, Germany, Sept. 2004
- *External A**, at German Conference on Artificial Intelligence (KI), Ulm, Germany, Sept. 2004.
- *External A**, at Seminar on Cache-Oblivious and Cache-Aware Algorithms, Schloss Dagstuhl, International Conference and Research Center For Computer Science, Germany, Jul. 2004.
- *Geometric Travel Planning*, at IEEE Conference on Intelligent Transportation Systems (ITSC), Shanghai, China, Oct. 2003.
- *Geometric Travel Planning*, at Max-Planck Institute for Computer Science, Saarbrücken, Germany, Oct. 2003.
- *An Introduction to DNA Computing*, organized by ACM student's chapter, University of Karachi, Karachi, Pakistan, Jul. 2001.

Tutorials

- Stefan Edelkamp, Eric Hansen, Shahid Jabbar, and Rong Zhou, *External Memory Graph Search*, at 23rd AAAI Conference on Artificial Intelligence (AAAI), Chicago, IL, USA, Jul. 2008.
- Stefan Edelkamp, Eric Hansen, Shahid Jabbar, and Rong Zhou, *External Memory Graph Search*, at 18th International Conference on Automated Planning and Scheduling (ICAPS), Sydney, Australia, Sept. 2008.

Professional Activities

Reviewed papers for the following conferences and journal:

- European Conference on Artificial Intelligence - ECAI'04
- International Conference on Verification, Model Checking, and Abstract Interpretation - VMCAI'05
- Tools and Algorithms for the Construction and Analysis of Systems - TACAS'05
- IEEE conference on Systems Man and Cybernetics - SMC'05, 06
- IEEE conference on Intelligent Transportation Systems - ITSC'06
- International joint conference on Artificial Intelligence - IJCAI'07
- 34th International Colloquium on Automata, Languages and Programming - ICALP'07
- Symposium on Abstraction, Reformulation, and Approximation - SARA'05, 07
- Workshop on Model Checking Software - SPIN'05, 06, 07
- International Conference on Automated Planning and Scheduling - ICAPS'06, 07
- Journal of AI Communications - 2007
- IEEE Intelligent Vehicles Symposium - IV'08
- National (American) Conference on Artificial Intelligence - AAAI'05, 06, 07, 08
- Journal on Software Tools for Technology Transfer (STTT), Springer - 2008

Member of Program Committee:

- International joint conference on Artificial Intelligence - IJCAI'09

Memberships in Professional Organizations:

Currently: ACM, European Association of Software Science and Technology (EASST).
Former: IEEE, AAAI

Language Skills

English: Fluent.

German: Good knowledge.

Swedish: Functional.

Urdu: Native.

Hindi: Speaking – Fluent.