

HORST SAMULOWITZ

National ICT Australia, University of Melbourne
111 Barry Street, Level 4
3053 Carlton, Victoria
Australia

Phone: +61-(0)3-8344-1353
hsamulowitz[at]googlemail[dot]com
cs.toronto.edu/~horst

Research Positions

- **Researcher**, Constraint Programming Platform (G12), National ICT Australia (NICTA), Victoria Research Laboratory, University of Melbourne, Australia **August 2009 - present**.
- **Post-Doctoral Researcher**, Constraint Reasoning and Machine Learning Group, Microsoft Research, Cambridge, UK **September 2007 - July 2009**.

Education

- **Ph.D.** Computer Science, University of Toronto, Knowledge Representation Group. Advisor: Professor Fahiem Bacchus. Project: *Quantified Boolean Formulas*, **September 2003 - August 2007**
- **M.Sc.** Computer Science (*Minor: Neurobiology*), University of Technology (RWTH), Aachen, Germany, Knowledge Representation Group. Advisor: Professor Gerhard Lakemeyer. Project: *Evaluation-Based Reasoning in First-Order Knowledge Bases*, **October 1997 - February 2003**

Refereed Conference Proceedings

- [IJCAI2009] Lucas Bordeaux, Youssef Hamadi, Horst Samulowitz: **Experiments with Massively Parallel Constraint Solving**, *International Joint Conference on Artificial Intelligence (IJCAI)*, to appear, 2009
- [LION2009] Yuehua Xu, David Stern, Horst Samulowitz: **Learning Adaptation to Solve Constraint Problems**, short paper, *LION 2009, Learning and Intelligent Optimization*, 2009
- [AAAI2007] Horst Samulowitz, Roland Memisevic: **Learning to Solve QBF**, *AAAI 2007, The Twenty-Second AAAI Conference on Artificial Intelligence*, 2007
- [NЕСAI2007] Jessica Davies, Eric Hsu, Horst Samulowitz: **Solution Backtracking for #SAT**, *NЕСAI 2007, North East Student Colloquium on Artificial Intelligence*, 2007
- [SAT2007] Horst Samulowitz, Fahiem Bacchus: **Dynamically Partitioning for Solving QBF**, *SAT 2007, Tenth International Conference on Theory and Applications of Satisfiability Testing*, 2007
- [SAC2007] Lucas Bordeaux, Horst Samulowitz: **On the Stochastic Constraint Satisfaction Framework**, *SAC2007, The 22nd Annual ACM Symposium on Applied Computing*, 2007
- [CP2006] Horst Samulowitz, Jessica Davies, Fahiem Bacchus: **Preprocessing QBF**, *CP 2006, Principles and Practice of Constraint Programming*, Springer New York, 2006

- [SAT2006] Horst Samulowitz, Fahiem Bacchus: **Binary Clause Reasoning in QBF**, *SAT 2006, Ninth International Conference on Theory and Applications of Satisfiability Testing*, Springer New York, 2006
- [NЕСSAI2006] Horst Samulowitz, Jessica Davies, Fahiem Bacchus: Preliminary version of **Preprocessing QBF**, *NЕСSAI 2006, North East Student Colloquium on Artificial Intelligence*, 2006
- [NЕСSAI2006] Horst Samulowitz, Fahiem Bacchus: Updated and compacted version of **Using SAT in QBF**, *NЕСSAI 2006, North East Student Colloquium on Artificial Intelligence*, 2006
- [CP2005] Horst Samulowitz, Fahiem Bacchus: **Using SAT in QBF**, *CP2005, Principles and Practice of Constraint Programming*, Springer New York, 2005
- [GI2001] Alexander Hornung, Horst Samulowitz: **3D-Visualization of Music**, German Society for Computer Science (GI), *Computer Science Days*, Ulm, 2001
- [CGI2000] Walter Oberschelp, Alexander Hornung, Horst Samulowitz: **Visualization of Eclipses and Planetary Conjunction Events: The Interplay between Model Coherence, Scaling and Animation**, *Computer Graphics International (CGI2000)*, Geneva, 2000

Journal Publications

- [JVC2001] Walter Oberschelp, Alexander Hornung, Horst Samulowitz: **Visualization of eclipses and planetary conjunction events. The interplay between model coherence, scaling and animation.** *The Visual Computer*, Vol. 17(5): 310-317, 2001

Theses

- Horst Samulowitz, **Solving Quantified Boolean Formulas**, *PhD Thesis*, University of Toronto, 2008
- Horst Samulowitz, **The Efficiency and Implementation of an Evaluation-Based Reasoning Procedure with Disjunctive Information in First-Order Knowledge Bases**, *Master Thesis*, RWTH Aachen, 2003

Software

- Contributed to the “Microsoft Solver Foundation”
<http://www.solverfoundation.com>
- Developed an extensible and lightweight search-based QBF solver (C++)
<http://miniqbf.spaces.live.com/>
- The following software to solve Quantified Boolean Formulas (QBF) is available:
 - QBF Preprocessor **PreQuel**
 - QBF Solver **SQBF**
 - QBF Solver **2clsQ**

The software (developed in Microsoft Visual Studio) can be found at:
<http://www.cs.toronto.edu/~fbacchus/qbf.html>.

Awards

- **Winner of the International QBF Competition 2006**
1st, 2nd, and 3rd place on the industrial benchmarks (see <http://www.qbflib.org> for more details)

Work Experience

- **Research Assistant, AI Group, University of Toronto, Canada, September 2003 to August 2007**
- **Internship at Microsoft Research, Cambridge, England, July to October 2006** Together with Lucas Bordeaux I worked on a new constraint satisfaction framework. We focused mainly on a natural integration of uncertainty within the context of constraint satisfaction. For more details please refer to the previously mentioned publications.
- **Founder and Executive Board, IT-DEVELOP, Aachen, Germany, May 2001 - January 2003** The main activities were related to the development of a contemporary communication platform that enabled interactive location-based event management. Mobility is becoming evermore important and present in our society - both in business and in private life. People use mobile phones, PDAs and laptop computers, drive to work and to events, fly to business meetings and on holidays. But whereas mobility is increasing and peoples geographical horizons are broadening, information sources did not keep up.
- **Editor, March 2003** German translation of the book "The Essence of Artificial Intelligence" by Alison Cawsey.
- **Research Assistant, Virtual Reality Lab, RWTH Aachen, Germany, February 1999 - August 2002** Besides developing and designing several presentations for computer trade fairs (e.g., CeBIT Hannover) the work mainly concentrated on developing a virtual reality software that supported multiple projectors and operated on a distributed system (Linux Cluster).
- **Software Developer and System Administrator, HEWATT Corp., Stolberg, Germany, 1995 - 2003** The software projects were mainly focused on embedded systems and the simulation of prototypes (e.g., blood pressure meter). The duties as a system administrator included the installation and support of Windows/Linux machines and networking (SAMBA).

Teaching and Mentoring

- Teaching Assistant for **Introduction to Artificial Intelligence** (CSC 384, University of Toronto), Winter 2003, Spring 2004, Winter 2004, Spring 2005, Winter 2005, Spring 2006, Winter 2006.
Topics: What is AI, Search (e.g., Backtracking/Game Tree Search), Knowledge Representation, Reasoning Under Uncertainty, Planning
Duties included marking assignments and exams, conducting weekly one hour classroom tutorials, office hours, and also setting up assignments/exams.
- Teaching Assistant for **The How and Why of Computing** (CSC 147, University of Toronto), Spring 2007.
Topics: HTML, JAVA, Algorithms and Data Structures, Database Systems, Theory of Computation
Duties included marking assignments and exams, conducting weekly one hour classroom tutorials/lab sessions, maintaining newsgroup and also setting up assignments, tutorials, and lab questions.
- Mentoring Undergraduate and Master students at the University of Toronto, 2005-2007
- Leading Internship in the Constraint Reasoning Group at Microsoft Research, 2008

Program Committee

- Twenty-Fourth AAAI Conference on Artificial Intelligence, AAAI, 2010
- Learning and Intelligent Optimization, LION, 2010
- Doctoral Symposium on Engineering Stochastic Local Search Algorithms, SLDS-DS, 2009
- The International Joint Conference on Artificial Intelligence, IJCAI, 2009
- Twenty-Third AAAI Conference on Artificial Intelligence, AAAI, 2008
- Workshop on Autonomous Search at the Principles and Practice of Constraint Programming Conference, CP, 2007

Reviewing

- Journal of Satisfiability, JSAT, 2008, 2009
- Grant Proposal, 2009
- Letters to Constraint Processing, Special Issue on Autonomous Search, 2008
- Twenty-Third AAAI Conference on Artificial Intelligence, AAAI, 2008
- PhD. Proposals at Microsoft Research, Cambridge, 2008
- STAIR workshop at the Conference on Artificial Intelligence, AAAI, 2008
- Principles and Practice of Constraint Programming, CP, 2005, 2007, 2009
- North East Student Colloquium on Artificial Intelligence, NESCAI, 2007, 2008
- International Conference on Theory and Applications of Satisfiability Testing, SAT, 2006, 2007

Other Skills

- Computer Languages: C#, C, C++, F#, Python, Java, HTML, PHP, SQL, Prolog, Mercury
- Familiar with High-Performance Computing Clusters (Microsoft Windows HPC and Linux cluster)
- Research Group Organizer (Cognitive Robotics Group, University of Toronto)
- Fluent in English, German, and Dutch; at an intermediate level in Spanish; basic knowledge in French.

References

- Fahiem Bacchus, Professor
email: [fbacchus\[at\]cs\[dot\]toronto\[dot\]edu](mailto:fbacchus@cs.toronto.edu)
web: www.cs.toronto.edu/~fbacchus
Department of Computer Science
University of Toronto
Toronto, ON M5S 3G4
CANADA

- Hector Levesque, Professor
email: [hector\[at\]cs\[dot\]toronto\[dot\]edu](mailto:hector@cs.toronto.edu)
web: www.cs.toronto.edu/~hector
Department of Computer Science
University of Toronto
Toronto, ON M5S 3G4
CANADA

- Gerhard Lakemeyer, Professor
email: [gerhard\[at\]informatik\[dot\]rwth-aachen\[dot\]de](mailto:gerhard@informatik.rwth-aachen.de)
web: <http://www-i5.informatik.rwth-aachen.de/gerhard/>
Department of Computer Science
Aachen University of Technology (RWTH)
Aachen, 52056
GERMANY

- Ralf Herbrich, Senior Researcher
Head of the Applied Games Group and Online Service and Advertising Group
email: [rherb\[at\]microsoft\[dot\]com](mailto:rherb@microsoft.com)
web: <http://research.microsoft.com/en-us/people/rherb>
Microsoft Research
Cambridge, CB3 0FB
UNITED KINGDOM

- Michael Brudno, Professor
email: [brudno\[at\]cs\[dot\]toronto\[dot\]edu](mailto:brudno@cs.toronto.edu)
web: www.cs.toronto.edu/~brudno
Department of Computer Science (Computational Biology)
University of Toronto
Toronto, ON M5S 3G4
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