

# Fahiem Bacchus—Curriculum Vitae

## A Biographical Information

### 1. Personal

**E-mail:** fbacchus@cs.toronto.edu

**Mail:** Room 398B, D.L. Pratt, 6 King’s College Road, Toronto, Ontario, Canada, M5S 3H5

**Phone:** 416-946-7176 (office), 416-978-1455 (FAX)

**Homepage:** <http://cs.toronto.edu/~fbacchus>

### 2. Degrees

**Ph.D.** Computer Science, University of Alberta, 1988.

**M.Sc.** Mathematics, University of Toronto, 1983.

**B.Sc.** Computer Science, University of Alberta, 1979.

### 3. Employment

Sept 1999–present	Professor, University of Toronto, Department of Computer Science.
July 1999–Aug 1999	Professor, University of Waterloo, Department of Computer Science.
July 1993–June 1999	Associate Professor, University of Waterloo, Department of Computer Science.
July 1988–July 1993	Assistant Professor, University of Waterloo, Department of Computer Science.
Jan. 1988–June 1988	Post-Doctoral Fellow, University of Rochester. Department of Computer Science.
1979–1981	Programmer-Analyst, Genstar Cement Ltd.

### 4. Honours

1. Selected as Chair of the Sat Association Board.
2. Selected as Conference Chair for IJCAI-2017.
3. Member of IJCAI board of trustees 2015-2019.
4. Fellow of the Association for Advancement of Artificial Intelligence (AAAI) 2006.
5. First place in 2017 MaxSat Evaluation weighed category for my MaxSat solver MaxHS. Second place in the unweighted category. First place in two categories, in 2016 Evaluation.
6. Distinguished Paper award from International Conference on Principles and Practice of Constraint Programming 2017 for “Reduced cost fixing in MaxSat”.
7. 2018 Influential Paper Award from the International Conference on Automated Planning and Scheduling (ICAPS).
8. International Conference on Automated Planning and Scheduling, Distinguished Paper award, honorable mention, for “Using Temporal Logic to Control Search in a Forward Chaining Planner” published at the European Conference on Planning 1995, with F. Kabanza.
9. Winner of first, second and third place prizes in the 2006 International Quantified Boolean Formula Competition (with my student Horst Samulowitz).

10. Winner Best Paper Prize for “A Knowledge-Based Approach to Planning with Incomplete Information and Sensing” with R. Petrick at the 2002 International Conference on AI Planning and Scheduling.
11. Winner of prize for “Distinguished performance of the first order” for planning system TLPlan in the 3rd International Planning Competition 2002.
12. Invited Keynote Speaker at conference on Principles and Practice of Constraint Programming 2007.
13. Invited Keynote Speaker at conference on Theory and Applications of Satisfiability Testing, 2006.
14. Invited Keynote speaker at Canadian Conference on Artificial Intelligence, 2004.
15. Invited keynote speaker at Dagstuhl seminar on “Exploration of Large Search Spaces.” 2001
16. Invited tutorial on Planning and Temporal Logic at ICTL’97, the Second International Conference on Temporal Logic (Manchester, United Kingdom).
17. Selected Program Co-Chair for conference on Theory and Applications of Satisfiability Testing SAT 2005.
18. Selected Program Co-Chair conference on Uncertainty in Artificial Intelligence 2005.
19. Appointed Associate of the Canadian Institute for Advanced Research (CIAR) 1996–97.

## 5. Professional Affiliations and Activities

Associate Editor *Artificial Intelligence*, 2013–2016.

Member of AAAI Fellows selection committee 2008-2009.

Member steering committee for “Theory and Applications of Satisfiability Testing” international conference series.

Member of Chairs Council for “Uncertainty in Artificial Intelligence” conference series.

Editorial board *Journal on Satisfiability, Boolean Modeling and Computation*

Associate Editor *Journal of Artificial Intelligence Research (JAIR)* (2002–2005).

Member of Advisory Board *Journal of Artificial Intelligence Research (JAIR)* (2006–2009).

Member of the Editorial Board, *Electronic Transactions in Artificial Intelligence, Uncertainty Track*.

## B Academic History

### Research Endeavours

Constraint Satisfaction Problems; SAT and its extensions; Planning; Algorithms for Optimization; Search; Knowledge Representation;

### Research Awards

1. Google Research Award, 2017, \$37,240 US dollars.
2. NSERC Individual Discovery Grant, 2016–2021, \$43,000/year.
3. NSERC Engage Grant, 2014-2015, \$25,000, with industry partner 360pi Corporation, Ottawa.

## C Scholarly and Professional Work

Career Publication Count	
Scholarly Books (authored)	1
Scholarly Books (edited)	2
Chapters in Books	0
Papers in refereed journals	12
Papers in refereed conferences	88
Major invited contributions	0
Other conference abstracts/posters/contributions	11
Other publications	12

### C.1 Refereed Publications

#### Articles Appearing in Refereed Journals

1. F. Bacchus, S. Dalmao, and T. Pitassi, “Solving #SAT and Bayesian Inference with Backtracking Search”, *Journal of Artificial Intelligence Research*, vol 34, 391–442, 2009.
2. J. A. Baier, F. Bacchus, and S. A. McIlraith, “A heuristic search approach to planning with temporally extended preferences”, *Artificial Intelligence*, vol 173, 593–618, 2009.
3. F. Bacchus, X. Chen, P. van Beek, and T. Walsh, “Binary vs. Non-Binary Constraints”, *Artificial Intelligence*, vol 140, 1–37, 2002.
4. F. Bacchus and F. Kabanza, “Using Temporal Logics to Express Search Control Knowledge for Planning”, *Artificial Intelligence*, vol 116, pages 123–191, 2000.
5. F. Bacchus, J. Y. Halpern, and H. J. Levesque, “Reasoning about Noisy Sensors and Effectors in the Situation Calculus”, *Artificial Intelligence*, vol 111, pages 171–208, 1999.
6. F. Bacchus and F. Kabanza, “Planning for Temporally Extended Goals,” *Annals of Mathematics and Artificial Intelligence*, vol. 22, pages 5–27, 1998.
7. F. Bacchus, A.J. Grove, J.Y. Halpern, and D. Koller, “From Statistical Knowledge Bases to Degrees of Belief,” *Artificial Intelligence*, vol. 87, pages 75–143, 1996.
8. W. Lam and F. Bacchus, “Learning Bayesian Belief Networks: An Approach based on the MDL Principle,” *Computational Intelligence*, vol. 10, pages 269–293, 1994.
9. F. Bacchus and Q. Yang, “Downward Refinement and the Efficiency of Hierarchical Problem Solving,” *Artificial Intelligence*, vol. 71, pages 43–100, 1994.
10. F. Bacchus, J. Tenenber, and J. Koomen, “A Non-Reified Temporal Logic”, *Artificial Intelligence*, vol 52, pages 87–108, 1991.
11. F. Bacchus, “LP—A Logic for Representing and Reasoning with Statistical Knowledge”, *Computational Intelligence*, vol 6, pages 209–231, 1990.

12. F. Bacchus, H. Kyburg, and M. Thalos, “Against Conditionalization”, *Synthese*, vol 85, pages 475–506, 1990.

### **Papers in Refereed Conferences**

1. F. Bacchus, A. Hyttinen, M. Järvisalo, P. Saikko, “Reduced Cost Fixing in MaxSAT”. International Conference on Principles and Practice of Constraint Programming (CP) 2017, pages 641-651.
2. J. Drummond, A. Perrault, F. Bacchus, “Strategy-Proofness in the Stable Matching Problem with Couples”, International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2016, 10 pages, in press.
3. F. Bacchus, and G. Katsirelos, “Incrementally Computing a Collection of Muses”, International Conference on Integration of Artificial Intelligence and Operations Research Techniques in Constraint Programming (CPAIOR), 2016, 10 pages, in press.
4. F. Lonsing, F. Bacchus, A. Biere, U. Egly, and M. Seidl, “Enhancing Search-Based QBF Solving by Dynamic Blocked Clause Elimination,” Logic for Programming, Artificial Intelligence, and Reasoning (LPAR) 2015, pages 418-433.
5. J. Drummond, A. Perrault, F. Bacchus, “SAT is an Effective and Complete Method for Solving Stable Matching Problems with Couples”, International Joint Conference on Artificial Intelligence (IJCAI), 2015, pages 518-525.
6. F. Bacchus, and G. Katsirelos, “Using Minimal Correction Sets to more Efficiently Compute Minimal Unsatisfiable Sets”, Computer Aided Verification (CAV), 2015, pages 70-86.
7. F. Bacchus, J. Davies, M. Tsimpoukelli, G. Katsirelos, “Relaxation Search: A Simple Way of Managing Optional Clauses,” National Conference on Artificial Intelligence (AAAI), 2014 pages 835-84.
8. N. Narodytska, F. Bacchus, “Maximum Satisfiability Using Core-Guided MaxSAT Resolution,” National Conference on Artificial Intelligence (AAAI), 2014, pages 2717-2723.
9. N. Narodytska, A. Legg, F. Bacchus, L. Ryzhyk, A. Walker, “Solving Games without Controllable Predecessor,” Computer Aided Verification (CAV), 2014, pages 533-540.
10. F. Bacchus, N. Narodytska, “Cores in Core Based MaxSat Algorithms: An Analysis” International Conference on Theory and Applications of Satisfiability Testing (SAT) 2014, pages 7-15.
11. J. Davies and F. Bacchus, “Postponing Optimization to Speed Up MAXSAT Solving,” International Conference on Principles and Practice of Constraint Programming (CP), 2013, pages 247–262.
12. E. Delise and F. Bacchus, “Solving Weighted CSPs by Successive Relaxations,” International Conference on Principles and Practice of Constraint Programming (CP), 2013, pages 273–281.
13. A. Goultiaeva and F. Bacchus, “Recovering and Utilizing Partial Duality in QBF,” International Conference on Theory and Applications of Satisfiability Testing (SAT), 2013, pages 83–99.
14. J. Davies and F. Bacchus, “Exploiting the Power of MIPs Solvers in MAXSAT,” International Conference on Theory and Applications of Satisfiability Testing (SAT), 2013, pages 166–181.

15. L. Zhang and F. Bacchus, "MAXSAT heuristics for Cost Optimal Planning," National Conference on Artificial Intelligence (AAAI), 2012 pages 1846–1852, 2012
16. A. Goultiaeva and F. Bacchus, "Off the Trail: Re-examining the CDCL Algorithm," International Conference on Theory and Applications of Satisfiability Testing (SAT), 2012, pages 30–43.
17. J. Davies and F. Bacchus, "Solving MAXSAT by Solving a Sequence of Simpler SAT Instances," International Conference on Principles and Practice of Constraint Programming (CP), 2011, pages 225–239.
18. A. Goultiaeva, A. van Gelder, and F. Bacchus, "A Uniform Approach to Generating Proofs and Strategies for both True and False QBF Formulas." International Joint Conference on Artificial Intelligence (IJCAI), 2011, pages 546–553.
19. J. Davies, J. Cho, and F. Bacchus, "Using Learnt Clauses in MAXSAT", International Conference on Principles and Practice of Constraint Programming (CP), 2010, pages 176–190.
20. A. Goultiaeva and F. Bacchus, "Exploiting QBF Duality on a Circuit Representation", National Conference on Artificial Intelligence (AAAI), pages 71–76, 2010.
21. A. Goultiaeva and F. Bacchus, "Exploiting Circuit Representations in QBF Solving", International Conference on Theory and Applications of Satisfiability Testing (SAT), pages 333-339, 2010.
22. H. Mangassarian, B. Le, A. Goultiaeva, A. Veneris and F. Bacchus, "Leveraging Dominators for Preprocessing QBF", IEEE/ACM Design and Test in Europe (DATE), 2010, pages 1695–1700.
23. M. Kitching and F. Bacchus, "Exploiting Decomposition on Constraint Problems with High Tree-Width", Joint Conference on Artificial Intelligence (IJCAI), 2009, pages 525-531.
24. M. Kitching and F. Bacchus, "Set Branching in Constraint Optimization, Joint Conference on Artificial Intelligence (IJCAI), 2009, pages 532–537.
25. A. Goultiaeva, V. Iverson, and F. Bacchus, "Beyond CNF: a Circuit-Based QBF Solver, International Conference on Theory and Applications of Satisfiability Testing (SAT), 2009, pages 412–426.
26. M. Kitching and F. Bacchus, "Exploiting Decomposition in Constraint Optimization Problems", International Conference on Principles and Practice of Constraint Programming (CP), 2008, pages 478–492.
27. P. Hertel, F. Bacchus, T. Pitassi, A. Van Gelder, "Clause Learning Can Effectively P-Simulate General Propositional Resolution," National Conference on Artificial Intelligence (AAAI), pages 283–290, 2008.
28. F. Bacchus, "GAC via Unit Propagation," International Conference on Principles and Practice of Constraint Programming (CP), 2007, pages 133–147.
29. F. Bacchus and K. Stergiou, "Solution Directed Backjumping for QCSP", International Conference on Principles and Practice of Constraint Programming (CP), 2007, pages 148–163.
30. E. Hsu, M. Kitching, F. Bacchus and S. McIlraith, "Using Expectation Maximization to Find Likely Assignments for Solving CSP's," National Conference on Artificial Intelligence (AAAI), pages 224–230, 2007.

31. J. Davies and F. Bacchus “Using More Reasoning to Improve #SAT Solving”, National Conference on Artificial Intelligence (AAAI), pages 185–190, 2007.
32. H. Samulowitz and F. Bacchus “Dynamically Partitioning for Solving QBF,” Theory and Applications of Satisfiability Testing (SAT 2007), pages 215–229, 2006.
33. M. Kitching and F. Bacchus, “Symmetric Component Caching,” International Joint Conference on Artificial Intelligence (IJCAI) 2007 pages 118–124.
34. J. A. Baier, F. Bacchus and S. McIlraith, “A Heuristic Search Approach to Planning with Temporally Extended Preferences,” International Joint Conference on Artificial Intelligence (IJCAI) 2007 pages 1808–1815.
35. H. Samulowitz, J. Davies, and F. Bacchus “Preprocessing QBF,” International Conference on Principles and Practice of Constraint Programming (CP), 2006, pages 514–529.
36. H. Samulowitz and F. Bacchus “Binary Clause Reasoning in QBF,” Theory and Applications of Satisfiability Testing (SAT 2006), pages 353–367, 2006.
37. F. Bacchus and T. Walsh “Propagating Logical Combinations of Constraints,” International Joint Conference on Artificial Intelligence (IJCAI) 2005 pages 35–40.
38. H. Samulowitz and F. Bacchus “Using SAT in QBF,” International Conference on Principles and Practice of Constraint Programming (CP), 2005, pages 578–592.
39. G. Katsirelos and F. Bacchus “Generalized NoGoods in CSPs”, National Conference on Artificial Intelligence (AAAI), 2005, pages 390–396.
40. N. Hyafil and F. Bacchus. “Utilizing Structured Representations and CSPs in Conformant Probabilistic Planning,” European Conference on Artificial Intelligence 2004, pages 1033–1034.
41. T. Sang, F. Bacchus, P. Beame, H. Kautz, and T. Pitassi. “Combining Component Caching and Clause Learning for Effective Model Counting” appeared at SAT 2004 (Theory and Applications of Satisfiability Testing), 9 pages.
42. C. Thiffault, F. Bacchus, and T. Walsh “Solving Non-clausal Formulas with DPLL search” Principles and Practice of Constraint Programming (CP2004), pages 663–678.
43. R. Petrick and F. Bacchus “Extending the Knowledge-Based approach to Planning with Incomplete Information and Sensing”, International Conference on Automated Planning and Scheduling (ICAPS-2004), pages 2–11.
44. G. Katsirelos, F. Bacchus, “Unrestricted Nogood Recording in CSP Search”, Principles and Practice of Constraint Programming, CP-2003, pages 873–877, 2003.
45. F. Bacchus, S. Dalmao, and T. Pitassi, “Algorithms and Complexity Results for #SAT and Bayesian Inference”, 44th Symposium on Foundations of Computer Science FOCS03, pages 340–351, 2003.
46. F. Bacchus, S. Dalmao, and T. Pitassi, “Value Elimination: Bayesian Inference via Backtracking Search”, Uncertainty in Artificial Intelligence (UAI-2003) 20–28, 2003.

47. A. Lopez and F. Bacchus, “Generalizing GraphPlan by Formulating Planning as a CSP”, IJCAI-03 (International Joint Conference on AI), pages 954-960, 2003.
48. N. Hyafil and F. Bacchus, “Conformant Probabilistic Planning via CSPs”, ICAPS-03 (International conference on Automated planning and Scheduling), pages 205-214, 2003.
49. F. Bacchus and J. Winter “Effective Preprocessing with Hyper-Resolution and Equality Reduction”, Selected papers from the Sixth International Conference on Theory and Applications of Satisfiability Testing pages, 2003. *Lecture Notes in Computer Science*, pages 341–355.
50. F. Bacchus, “Enhancing Davis Putnam with Extended Binary Clause Reasoning”, National Conference on Artificial Intelligence (AAAI-2002), 613–619, 2002.
51. F. Bacchus, “Exploring the Computational Tradeoff of more Reasoning and Less Searching”, Fifth International Symposium on Theory and Applications of Satisfiability Testing, pages 7–16, 2002.
52. R. Petrick and F. Bacchus, “A Knowledge-Based Approach to Planning with Incomplete Information and Sensing”, Sixth International Conference on AI Planning and Scheduling, 212–222, 2002.
53. G. Katsirelos, F. Bacchus, “GAC on Conjunctions of Constraints”, Principles and Practice of Constraint Programming, CP2001, pages 610–614, 2001. *Lecture Notes in Computer Science* #2239, Springer Verlag
54. C. Boutilier, F. Bacchus and R. Brafman, “UCP-Networks: A Directed Graphical Representation of Conditional Utilities”, Uncertainty in Artificial Intelligence (UAI-2001), pages 56–64, 2001.
55. F. Bacchus and M. Ady, “Planning with Resources and Concurrency: A Forward Chaining Approach”, International Joint Conference on Artificial Intelligence (IJCAI-2001), pages 417–424, 2001.
56. F. Bacchus, “Extending Forward Checking”, Principles and Practice of Constraint Programming,” pages 35–51 *Lecture Notes in Computer Science* #1894, 2000.
57. F. Bacchus and Y. W. Teh, “Making Forward Chaining Relevant,” Artificial Intelligence Planning Systems (AIPS-98), pages 54–61, 1998.
58. F. Bacchus and R. Petrick, “Modeling and Agent’s Incomplete Knowledge during Planning and Execution,” Knowledge Representation and Reasoning (KR-98), pages 432–443. 1998.
59. F. Bacchus and P. van Beek, “On the Conversion between Non-Binary and Binary Constraint Satisfaction Problems,” National Conference on Artificial Intelligence (AAAI-98), 1998.
60. F. Bacchus, C. Boutilier, and A. Grove, “Structured Solution Methods for Non-Markovian Decision Processes, National Conference on Artificial Intelligence (AAAI-97), pages 112–117, 1997.
61. F. Bacchus, C. Boutilier, and A. Grove, “Rewarding Behaviors”, National Conference on Artificial Intelligence (AAAI-96), pages 1160–1167, 1996.
62. F. Bacchus and F. Kabanza, “Planning for Temporally Extended Goals”, National Conference on Artificial Intelligence (AAAI-96), pages 1215–1222, 1996.
63. F. Bacchus and A. Grove, “Utility Independence in a Qualitative Decision Theory,” Principles of Knowledge Representation and Reasoning (KR-96), pages 542–552, 1996

64. F. Bacchus and F. Kabanza, "Using Temporal Logic to Control Search in a Forward Chaining Planner." in *New Directions in Planning*, M. Ghallab and A. Milani (Eds.) IOS Press, pages 141–153, 1996.
65. F. Bacchus, J.Y. Halpern, and H.J. Levesque, "Reasoning about Noisy Sensors in the Situation Calculus," International Joint Conference on Artificial Intelligence (IJCAI-95), pages 1933–1940, 1995.
66. F. Bacchus and A. Grove, "Graphical models for preference and utility," *Uncertainty in Artificial Intelligence (UAI-95)*, pages 3–10, 1995.
67. F. Bacchus, J.Y. Halpern, and H.J. Levesque; "Reasoning about Noisy Sensors *and* Effectors in the Situation Calculus," *Reasoning about Uncertainty in Robotics, Lecture Notes in Computer Science #1093*, Springer Verlag, pages 218–220, 1995.
68. F. Bacchus and A. Grove, "On the Forward Checking Algorithm," *Principles and Practice of Constraint Programming (CP-95)*, pages 292–309, 1995. *Lecture Notes in Computer Science #976*, Springer Verlag.
69. F. Bacchus and P. van Run, "Dynamic Variable Ordering in CSPs," *Principles and Practice of Constraint Programming (CP-95)*, pages 258–275, 1995. *Lecture Notes in Computer Science #976*, Springer Verlag.
70. F. Bacchus, A. Grove, J. Y. Halpern, and D. Koller, "Forming Beliefs about a Changing World," *National Conference on Artificial Intelligence (AAAI-94)*, pages 222–229, 1994.
71. W. Lam and F. Bacchus, "Using New Data to Refine a Bayesian Network," *Uncertainty in Artificial Intelligence (UAI-94)*, pages 383–390, 1994.
72. F. Bacchus, A. Grove, J. Y. Halpern, and D. Koller, "Generating New Beliefs from Old," *Uncertainty in Artificial Intelligence (UAI-94)*, pages 37–45, 1994.
73. F. Bacchus, A. Grove, J. Y. Halpern, and D. Koller, "Generating Degrees of Belief from Statistical Information: An overview," *Proc. 13th Conference on Foundations of Software Technology and Theoretical Computer Science, Lecture Notes in Computer Science, Vol. 761*, Springer Verlag, pages 318–325, 1993.
74. F. Bacchus, A. Grove, J. Y. Halpern, and D. Koller, "Statistical Foundations for Default Reasoning," *International Joint Conference on Artificial Intelligence (IJCAI-93)*, pages 563–569, 1993.
75. F. Bacchus, "Using First-Order Probability Logics for the Construction of Bayesian Networks," *Uncertainty in Artificial Intelligence (UAI-93)*, pages 219–226, 1993.
76. W. Lam and F. Bacchus, "Using Causal Information and Local Measures to Learn Bayesian Networks," *Uncertainty in Artificial Intelligence (UAI-93)*, pages 243–250, 1993.
77. F. Bacchus, A. Grove, J. Y. Halpern, and D. Koller "From Statistics to Beliefs," *National Conference on Artificial Intelligence (AAAI-92)*, pages 602–608, 1992.
78. F. Bacchus and Q. Yang, "The Expected Value of Hierarchical Problem Solving," *National Conference on Artificial Intelligence (AAAI-92)*, pages 364–374, 1992.

79. W. Lam and F. Bacchus, "Learning Bayesian Belief Networks," Pacific Rim Conference on Artificial Intelligence (PRICAI-92), pages 1237–1243, 1992.
80. F. Bacchus, "Default Reasoning From Statistics", National Conference on Artificial Intelligence (AAAI-91), pages 392–398, 1991.
81. F. Bacchus and Q. Yang, "The Downwards Refinement Property", International Joint Conference on Artificial Intelligence (IJCAI-91), pages 286–292, 1991.
82. F. Bacchus, "Probabilistic Belief Logics," Proceedings of European Conference on Artificial Intelligence (ECAI-90), pages 59–64, 1990.
83. F. Bacchus, "Lp—A logic for statistical information," in *Uncertainty in Artificial Intelligence 5*, (M. Henrion, et al. editors), North-Holland, pages 3–14, 1990.
84. F. Bacchus, "On Probability Distributions Over Possible Worlds," in *Uncertainty in Artificial Intelligence 4*, (R. Shachter, et al. editors), North-Holland, pages 217–226, 1990.
85. F. Bacchus, "A Modest, but Semantically Well Founded, Inheritance Reasoner," Proceedings of International Joint Conference on AI (IJCAI-89), pages 1104–1109, 1989.
86. F. Bacchus, J. Tenenber, and J. Koomen, "A Non-Reified Temporal Logic," Proceedings of First International Conference on Principles of Knowledge Representation and Reasoning (KR89), pages 1–9, 1989.
87. F. Bacchus, "Statistically Founded Degrees of Belief," Proceedings Biennial conference on Artificial Intelligence sponsored by the Canadian Society for Computational Studies of Intelligence (CSCSI), pages pp. 59–66, 1988.

#### **Papers appearing in Reviewed Workshops**

1. J. Davies, F. Bacchus, "Distributional Importance Sampling for Approximate Weighted Model Counting", Workshop on Counting Problems in CSP and SAT, and other neighbouring problems, 2008.
2. J. Baier, J. Hussell, F. Bacchus and S. McIlraith. "Planning with Temporally Extended Preferences by Heuristic Search", in ICAPS-06 Workshop on Preferences and Soft Constraints in Planning, 4 pages.
3. F. Bacchus and T. Walsh. "A Constraint Algebra" in CP2004 workshop on Constraint Propagation and Implementation.
4. R. Petrick and F. Bacchus "Reasoning with Conditional Plans in the Presence of Incomplete Knowledge", to appear at ICAPS-03 workshop Planning under Uncertainty and Incomplete Information. 7 pages.
5. F. Bacchus and M. Ady, "Planning with Resources and Concurrency A Forward Chaining Approach", AAAI-2000 Workshop on AI Planning and Operations Research, 2000.
6. F. Bacchus and C. B. Fraser, "Inner and Outer Boundaries of Literals A Mechanism for Computing Domain Specific Information", AIPS-2000 workshop on Analysing and Exploiting Domain Knowledge for Efficient Planning, 2000.

7. F. Bacchus and A. Grove, "Independence in Qualitative Decision Theory", AAAI Spring Symposium 1997. Proceedings of the Qualitative Preferences in Deliberation and Practical Reasoning workshop.
8. F. Bacchus, "Using Temporal Logics for Planning and Control", Proceedings of (TIME-96) workshop attached to the Florida AI Research Conference FLAIRS May 1996.
9. F. Bacchus and F. Kabanza, "Applying Decision Theory to Reactive Planning," AAAI Spring Symposium on Decision Theory 1994,
10. F. Bacchus, A. Grove, J. Y. Halpern, and D. Koller, "Indifference and Irrelevance," Fourth International Workshop on Nonmonotonic Reasoning, 1992.
11. F. Bacchus, "Default Inferences From Statistical Knowledge" in Proceedings of the 3rd International Workshop on Nonmonotonic Reasoning, 1990, 16 pages.

### **Books**

1. Bacchus. F., *Representing and Reasoning with Probabilistic Knowledge*, M.I.T. Press, 1990, (227 pages).

### **Books Edited**

1. F. Bacchus, Carmel Domshlak, Stefan Edelkamp, Malte Helmert. *Proceedings of the 21st International Conference on Automated Planning and Scheduling*, ICAPS 2011, Freiburg, Germany June 11-16, 2011, AAAI Press (Edited proceedings).
2. F. Bacchus and T. Walsh, *Theory and Applications of Satisfiability Testing*, 8th International Conference, SAT 2005, St. Andrews, UK, June 19-23, 2005, Springer 2005. (Edited proceedings).
3. F. Bacchus and T. Jaakkola, *21st Conference on Uncertainty in Artificial Intelligence*, UAI 2005, Edinburgh, Scotland. (Edited proceedings).

## **C.2 Non-Refereed Publications**

### **Position Papers**

1. F. Bacchus, "The Power of Modeling—a Response to PDDL2.1", *Journal of Artificial Intelligence Research*, Volume 20, pages 125-132, 2003.
2. F. Bacchus, "The Role of Logic in Planning," *Electronic Newsletter on Reasoning about Actions and Change*. August 26th, 2001, pages 1–9.
3. F. Bacchus, A. Grove, J. Y. Halpern, and D. Koller; "A Response to: "Believing on the Basis of Evidence," *Computation Intelligence*; pages 21–25, Vol 10, 1994.
4. F. Bacchus, "Probability and Logic: A Reply to Cheeseman;" *Computational Intelligence*; Vol 6, pages 180–183, 1990.

## Other Publications

1. F. Bacchus, S. Dalmao, T. Pitassi “DPLL with Caching: A new algorithm for #SAT and Bayesian Inference”. *Electronic Colloquium on Computational Complexity (ECCC)* 10(003): (2003)
2. F. Bacchus, “AIPS-2000 Planning Competition”, *AI-Magazine*, Fall 2001, volume 22 #1 pages 47–56, 2001.
3. F. Bacchus, “Computing Domain Specific Information”, invited contribution to *Logical foundations for cognitive agents : contributions in honor of Ray Reiter* Fiora Pirri, Hector J. Levesque (eds.) Springer, 1999.
4. F. Bacchus, Book review of *Logic for Applications* by A. Nerode and R. A. Shore. *Journal of Symbolic Logic* March 1999.
5. F. Bacchus, Book review of *Probabilistic Reasoning in Expert Systems* by Richard E. Neapolitan. Published in *Canadian Artificial Intelligence* 1991.
6. F. Bacchus, Book review of *Probabilistic Reasoning in Intelligent Systems: Networks of Plausible Inference* by Judea Pearl. Published in *Canadian Artificial Intelligence* 1990.
7. F. Bacchus, Book review of *The Mathematics of Inheritance Systems* by David S. Touretzky. Published in *Canadian Artificial Intelligence*, 1987.
8. F. Bacchus, Book review of *Readings in Nonmonotonic Reasoning* edited by M. Ginsberg. Published in *Canadian Artificial Intelligence*, 1987.

## D Teaching

### Courses Taught (past 5 years)

- CSC384. Artificial Intelligence. 3rd year undergraduate course at the University of Toronto. Generally taught twice a year.
- CSC2512. Constraint Satisfaction Problems. Graduate seminar course on constraint satisfaction problems. Generally taught once per year.

### Graduate Students Supervised (past 5 years)

Career Student Numbers		
	In Progress	Completed
Masters	2	18
PhD	1	8
Postdoctoral Fellows	0	6

1. Randy Hickey; MSc 2017–present.
2. Alexandra Poole; MSc 2017–present.

3. Pashootan Vaezipoor; Phd 2018–present.
4. Nina Narodytska: Post-Dos 2013-2014.
5. Ozan Erdem; “Exploring A Two-Solver Architecture for Clause Learning CSP Solvers” Phd Completed 2016
6. Alexandra Goultiaeva; “Exploiting Problem Structure in QBF Solving”, PhD Completed 2013.
7. Jessica Davies; “Solving MAXSAT by Decoupling Optimization and Satisfaction”, PhD Completed 2013.

## **E Administrative Positions**

### **Within the University**

July 2010–2011	Acting Chair, Department of Computer Science.
July 2008–2009	Associate Chair Graduate Studies.
Sept 2007–2008	Chair of Graduate Admissions Committee.
Sept 2005–Sept 2006	Chair of MSc. Restructuring Committee.
June 2002–Sept 2005	Member of various administrative committees in the Department of Computer Science.
June 2000–June 2002	Associate Chair, Graduate Studies, Department of Computer Science, University of Toronto.
March 1998–Aug 1999	Associate Dean for Graduate Studies and Research Faculty of Mathematics, University of Waterloo.
Sept 1992–Oct 1992	Visiting Lecturer/Research Advisor, Department of Computer Science, Eindhoven University of Technology, The Netherlands

### **Within the Research Community**

#### *Chairmanship Positions.*

1. Conference Chair 26th International Joint Conference on Artificial Intelligence 2017.
2. Program co-chair 22st International Conference on Automated Planning and Scheduling 2011.
3. General Chair 22nd Conference on Uncertainty in Artificial Intelligence 2006.
4. Conference and Program co-chair Eighth International Conference on Theory and Applications of Satisfiability Testing, 2005.
5. Program co-chair 21st Conference on Uncertainty in Artificial Intelligence 2005.
6. Conference co-chair Tenth International Conference on Principles and Practice of Constraint Programming, 2004.
7. Program co-chair Eighth International Symposium on Artificial Intelligence and Mathematics, 2003.
8. Chair of AIPS-2000 planning competition.

*Program committee membership.*

- Conference of the Canadian Society for Computational Studies of Intelligence (CSCSI): 1990, 1994, 2001, 2004.
- International Conference on Computing and Information (ICCI): 1991.
- Conference on Artificial Intelligence and Mathematics: 1995, 1998, 2000.
- Conference on Principles and Practice of Constraint Programming (CP). 1996, 2001, 2002, 2003, 2007, 2009, 2011, 2012, 2013, 2015, 2016.
- Conference on principles of knowledge representation and reasoning (KR): 1994, 1996, 1998, 2002.
- The National Conference of the American Association for Artificial Intelligence (AAAI): 1991, 1996, 1997, 1998, 1999, 2002 (Senior PC), 2004, 2006 (Nectar Track), 2010 (Senior PC), 2016 (Senior PC).
- International Joint Conference on Artificial Intelligence (IJCAI): 1991, 1995, 1997, 1999, 2001, 2003, 2005, 2007 (SPC), 2011 (Area Chair), 2013 (Area Chair), 2016 (Area Chair).
- Conference on Uncertainty in Artificial Intelligence (UAI): 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003 (Senior PC), 2004 (Senior PC), 2007 (Senior PC).
- European Conference on Planning (ECP): 1997, 2002.
- International Conference on Automated Planning & Scheduling, (ICAPS) 2003, 2004, 2008, 2010, 2011, 2012, 2013.
- International Conference on Theory and Applications of Satisfiability Testing (SAT), 2002, 2003, 2004, 2006, 2007, 2008, 2009, 2010, 2012, 2013, 2014, 2015, 2016.
- International Conference on Integration of Artificial Intelligence and Operations Research techniques in Constraint Programming (CPAIOR), 2013.
- Fifth International Symposium on Artificial Intelligence and Mathematics (AIMATH-98).