

Dr. Christian Muise

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Education

Ph.D., Computer Science

[Feb. 2009 – Feb. 2014]

University of Toronto, Ontario, Canada

- Thesis: "Exploiting Relevance to Improve Robustness and Flexibility in Plan Generation and Execution"
- Advisors: Professor Sheila A. McIlriath and Professor J. Christopher Beck
- CGPA of 11.50 / 12.00

Masters, Computer Science

[Sept. 2007 – Jan. 2009]

University of Toronto, Ontario, Canada

- Thesis: "Exploiting Modern #SAT-Solving Techniques to Generate Implicants"
- Advisors: Professor Sheila A. McIlriath and Professor J. Christopher Beck
- CGPA of 11.50 / 12.00

Bachelor of Computer Science: Software and Computing, Minor in Mathematics

Carleton University, Ottawa, Canada

[Sept. 2002 – Aug. 2007]

- Thesis: "Audio Panning in Ardour"
- Advisor: Dr. Louis Nel
- CGPA of 11.19/12.00

Research Visits and Extracurricular Activities

[2012/13] Presented PhD research at the Research In Action showcase

[2010/11] Judge for University of Toronto ShowCase Competition for visiting high school students

[2009] Studied with the planning group at the University of Strathclyde, Glasgow, Scotland

[2005/06] Captain of Carleton's ACM programming contest team

[2004] Train-IT Exchange Program to Royal Institute of Technology (KTH), Stockholm, Sweden

Honours and Awards

[2013] Google Places API Developer Challenge Judge's Choice Award

[2012] Top submission for the Graduate Student Symposium of the Canadian AI Conference

[2012] Bell Graduate Scholarship

[2012] Ray Reiter Graduate Award

[2012] Random Hacks of Kindness Best Toronto Project Award for "TABS on Toronto"

[2011] Random Hacks of Kindness Best Toronto Project Award for "Hermes Message Carrier"

[2007-11] National Sciences and Engineering Research Council (NSERC) Canada Graduate Scholarship

[2011] Alexander Graham Bell Scholarship

[2007] University Medal for graduating at the top of my undergraduate class

[2007] NSERC Undergraduate Student Research Award: Carleton Computational Geometry Group

[2006] NSERC Undergraduate Student Research Award: D-Wave Systems

[2002] Nortel Networks Scholarship for Carleton University

[2002] Queen Elizabeth Medal

[2001] Lieutenant Governor's Medal

Work Experience

Research Fellow

[Oct. 2013 – Oct. 2015]

University of Melbourne, Victoria, Australia

- Conducted research for the project, "Foundations of Human-Agent Collaboration: Situation-Relevant Information Sharing" (Australian Research Council Grant DP130102825)
- Co-authored funding applications for continuing the project's research agenda
- Tutored the undergraduate course, COMP30022: IT Project
- Arranged reading groups for topics including automated planning, game theory, and machine learning
- Organized a one week research visit for University of Melbourne researchers to the University of Toronto
- Organized a three day research visit for NICTA Canberra researchers to the University of Melbourne

Teaching Assistant

[2007 – 2013]

University of Toronto, Ontario, Canada

- Assisted with courses ranging from undergraduate introductory CS topics to graduate-level topics in AI
- Duties included teaching tutorials and lectures, as well as marking assignments and exams
- Worked with a number of students to extend the scope of their course-work for larger research projects

Research/Software Developer (Co-op)

[May – Aug. 2006]

D-Wave Systems, Burnaby, British Columbia, Canada

- Contributed to the design and implementation of frameworks for solving problems with quantum devices
- Developed algorithms and software to solve and translate NP-hard combinatorial optimization problems
- Undertook extensive research on graph representation techniques and worked on new graph algorithms in conjunction with researchers from local universities

Volunteer Experience

Founder and Lead Discussant

[2012 - 2014]

Modelling Mondays, Virtual Collaboration

- Founded a bi-weekly online meeting / seminar series on modelling techniques for automated planning
- Arranged live tutorials from experts in the field to be recorded for the general research community

Technical Lead

[2012 - 2013]

Toronto Public Spaces Initiative TABS on Toronto Project, Ontario, Canada

- Developed an online portal to alert Toronto citizens of upcoming City Hall agenda items
- Worked with global initiatives from the US and India to help bring similar technology to their own locales

Executive Member and Communications Liaison

[2006 - 2007]

Computer Science Society, Carleton University, Ottawa, Canada

- Represented Computer Science students in the Carleton University Students Association, New University Government, and departmental meetings
- Maintained ongoing correspondence between the students and administrative staff

Linux Administrator

[2003 - 2007]

Carleton Nexus Project, Carleton University, Ottawa, Canada

- Independently acquired the fundamentals to maintain a Linux based OS
- Provided various services to the students including web-hosting, project repositories, shell access, etc.
- Developed and maintained websites for students, faculty, and staff

Advisory Experience

Alberto Camacho

[Sept. 2014 - Present]

University of Toronto - Doctoral Student

- Project: Probabilistic Planning -- Solving MAXPROB With FOND
- Primary supervisor: Sheila McIlraith

Rehan Aziz

[June 2014 - Present]

University of Melbourne - Doctoral Student

- Project: Knowledge Compilation With Projected Variables
- Primary supervisor: Peter Stuckey

Akshay Ganesh

[May 2013 – Dec. 2013]

University of Toronto - Undergraduate Student

- Project: Probabilistic Planning Using FOND
- Primary supervisor: Sheila McIlraith

Daniel Katz

[May 2013 – Sept. 2013]

University of Toronto - Undergraduate Student

- Project: Frameworks for Planning With Partial Observability
- Primary supervisor: Sheila McIlraith

Academic Service

Organizing Committee

- Tidel Operations Research Challenge, Toronto, ON. [2011, 2012, 2013]
- DCS Symposium on Trends in Computing, Toronto, ON. [2010]

Program Committee

- International Joint Conference on Artificial Intelligence [2011,2015]
- International Conference on Automated Planning and Scheduling [2015]
- AAAI Conference on Artificial Intelligence [2015]
- European Conference on Artificial Intelligence [2014]
- ICAPS Workshop on Planning in Games [2013]
- AAAI Workshop on Problem Solving using Classical Planners [2012]
- North Eastern Student Colloquium on Artificial Intelligence [2010]

Reviewer

- International Conference on Automated Planning and Scheduling [2010,2013,2014]
- Journal of Artificial Intelligence Research [2013,2014]
- Conference on Artificial Intelligence [2010,2014]
- Conference on Principles of Knowledge Representation and Reasoning [2014]
- International Conference on Autonomous Agents and Multiagent Systems [2014]
- North Eastern Student Colloquium on Artificial Intelligence [2008]

Refereed Publications

1. Aziz, R. A., Chu, G., **Muise, C.**, & Stuckey, P. (2015) Stable model counting and its application in probabilistic logic programming. In The 29th AAAI Conference on Artificial Intelligence (AAAI'15).
2. **Muise, C.**, Belle, V., Felli, P., McIlraith, S., Miller, T., Pearce, A., & Sonenberg, L. (2015). Planning Over Multi-Agent Epistemic States: A Classical Planning Approach. In The 29th AAAI Conference on Artificial Intelligence (AAAI'15).
3. Felli, P., Miller, T., **Muise, C.**, Pearce, A. R., & Sonenberg, L. (2014). Artificial social reasoning: computational mechanisms for reasoning about others. In The International Conference on Social Robotics (ICSR'14).
4. Miller, T., Pearce, A. R., Sonenberg, L., Dignum, F., Felli, P., & **Muise, C.** (2014). Foundations of Human-Agent Collaboration: Situation-Relevant Information Sharing. In The AAAI 2014 Fall Symposium on AI for Human-Robot Interaction. *Extended Abstract*
5. **Muise, C.**, Belle, V., & McIlraith, S. A. (2014). Computing Contingent Plans via Fully Observable Non-Deterministic Planning. In The 28th AAAI Conference on Artificial Intelligence (AAAI'14).
6. **Muise, C.**, McIlraith, S. A., & Belle, V. (2014). Non-Deterministic Planning With Conditional Effects. In The 24th International Conference on Automated Planning and Scheduling (ICAPS'14).
7. Klebanov, V., Manthey, N., & **Muise, C.** (2013). SAT-based Analysis and Quantification of Information Flow in Programs. In 10th International Conference on Quantitative Evaluation of SysTems (QEST 2013), pg. 177-192.
8. **Muise, C.**, Beck, J. C., & McIlraith, S. A. (2013). Flexible Execution of Partial Order Plans With Temporal Constraints. In Proceedings of the 23rd International Joint Conference on Artificial Intelligence (IJCAI'13), pg. 2328-2335.
9. **Muise, C.**, McIlraith, S. A., & Beck, J. C. (2012). Improved Non-deterministic Planning by Exploiting State Relevance. In Proceedings of the 22nd International Conference on Automated Planning and Scheduling (ICAPS'12), pg. 172-180.
10. **Muise, C.**, McIlraith, S. A., & Beck, J. C. (2012). Optimally Relaxing Partial-Order Plans with MaxSAT. In Proceedings of the 22nd International Conference on Automated Planning and Scheduling (ICAPS'12), pg. 358-362.
11. **Muise, C.**, McIlraith, S. A., & Beck, J. C. (2012). DSHARP: Fast d-DNNF Compilation with sharpSAT. In Proceedings of the 25th Canadian Conference on Artificial Intelligence (CAI'12), pg. 356-361.
12. De Giacomo, G., Lesperance Y., & **Muise, C.** (2012). On Supervising Agents in Situation-Determined ConGolog. In Proceedings of the 11th International Conference on Autonomous Agents and Multiagent Systems (AAMAS'12), pg. 1031-1038.
13. **Muise, C.**, McIlraith, S. A., & Beck, J. C. (2011). Monitoring the Execution of Partial-Order Plans via Regression. In Proceedings of the 22nd International Joint Conference on Artificial Intelligence (IJCAI'11), pg. 1975-1982.
14. **Muise, C.**, McIlraith, S. A., & Beck, J. C. (2011). Optimization of Partial-Order Plans via MaxSAT. Workshop on Constraint Satisfaction Techniques for Planning and Scheduling Problems (COPLAS'11).
15. De Giacomo, G., Lesperance, Y., & **Muise, C.** (2011). Agent Supervision in Situation-Determined ConGolog. Workshop on Nonmonotonic Reasoning, Action and Change (NRAC'11).

16. **Muise, C.**, McIlraith, S. A., & Beck, J. C. (2010). Fast d-DNNF Compilation with sharpSAT. Workshop on Abstraction, Reformulation, and Approximation (WARA'10).
17. **Muise, C.**, McIlraith, S. A., Baier, J. A., & Reimer, M. (2009). Exploiting N-gram Analysis to Predict Operator Sequences. In Proceedings of the 19th International Conference on Automated Planning and Scheduling (ICAPS'09), pg. 374-377.
18. Hsu, E. I., **Muise, C.**, Beck, J. C., & McIlraith, S. A. (2008). Probabilistically Estimating Backbones and Variable Bias: Experimental Overview. In Proceedings of the 14th International Conference on Principles and Practice of Constraint Programming (CP'08), pg. 613-617.

References available upon request