

Alexandra Goultiaeva

Email: alexia@cs.toronto.edu
Web: <http://www.cs.toronto.edu/~alexia/>
Phone: (647) 887-2853
Address: 246-C Westmeadow Dr,
Kitchener, ON, N2N 0A1

RESEARCH INTERESTS

I work in the field of Artificial Intelligence, more specifically, in Constraint Satisfaction. My main line of research has been in improving Quantified Boolean Formula (QBF) solving. I have also worked on Satisfiability (SAT) solving.

My field of work combines theory and practice, so I am experienced and proficient in both programming and formal reasoning. I pride myself on being an adaptive and quick learner and enjoy expanding my horizons.

EDUCATION

Jan 2008 – March 2014

University of Toronto, Department of Computer Science
Ph.D., GPA: 4.0/4.0
Supervisor: Fahiem Bacchus

Sept 2006 – Feb 2008

University of Toronto, Department of Computer Science
M.Sc., GPA: 4.0/4.0
Supervisor: Fahiem Bacchus

Sept 2001 – June 2006

York University, Department of Computer Science
B.Sc., Spec. Hons., GPA: 8.525 / 9.0 (A+)

PUBLICATIONS

Goultiaeva, A., Bacchus, F. Recovering and Utilizing Partial Duality in QBF. Theory and Applications of Satisfiability Testing (**SAT 2013**), 83-99.

Goultiaeva, A., Seidl, M. and Biere, A. Bridging the gap between Dual Propagation and CNF-based QBF solving. Design, Automation, and Test in Europe (**DATE 2013**), 811-814 - short paper.

Goultiaeva, A., Bacchus, F. (2012) Off the trail: re-examining the CDCL algorithm. Theory and Applications of Satisfiability Testing (**SAT 2012**), 30-43.

Goultiaeva, A., Van Gelder, A., and Bacchus, F. (2011) A Uniform Approach for Generating Proofs and Strategies for Both True and False QBF Formulas. International Joint Conferences on Artificial Intelligence (**IJCAI 2011**), 546-553 - short paper.

Goultiaeva, A., and Bacchus, F. (2010) Exploiting QBF Duality on a Circuit Representation. The 24th AAAI Conference on Artificial Intelligence (**AAAI 2010**), 71-76.

Mangassarian, H., Le, B., **Goultiaeva, A.**, Veneris, A. G., and Bacchus, F. (2010) Leveraging dominators for preprocessing QBF. Design, Automation and Test in Europe (**DATE 2010**), 1695-1700.

Goultiaeva, A., and Bacchus, F. (2010) Exploiting Circuit Representations in QBF Solving. Theory and Applications of Satisfiability Testing (**SAT 2010**), 333-339 - short paper

Goultiaeva, A., Iverson, V. and Bacchus F. (2009) Beyond CNF: A Circuit-Based QBF Solver. Theory and Applications of Satisfiability Testing (**SAT 2009**): 412-426

Goultiaeva, A. and Bacchus, F. (2008) Applying QBF to Conformant Planning. The Third North East Student Colloquium on Artificial Intelligence (**NESCAI 2008**).

Goultiaeva, A. and Bacchus, F. (2007) Conformant Planning Through SAT. The Second North East Student Colloquium on Artificial Intelligence (**NESCAI 2007**). - short paper

Goultiaeva, A. and Lespérance, Y. (2007) Incremental Plan Recognition in an Agent Programming Framework. Working Notes of the AAAI 2007 Workshop on Plan, Activity, and Intent Recognition (**PAIR'07**), Vancouver, BC, July, 2007: 52-60

SCHOLARSHIPS AND AWARDS

Winter 2012	Michael Smith Foreign Study Supplement
Fall 2010 - Winter 2012	NSERC Alexander Graham Bell CGS D2
Fall/Winter 2009	Ontario Graduate Scholarship
Fall/Winter 2008	Ontario Graduate Scholarship
Fall/Winter 2007	Ontario Graduate Scholarship in Science and Technology
June 2006	York University Silver Medal
Summer 2004	York International Mobility Award
Fall/Winter 2003	York University Continuing Student Scholarship
Fall/Winter 2002	York University Continuing Student Scholarship
Fall/Winter 2001	York University Continuing Student Scholarship
Fall/Winter 2001	Faculty of Pure & Applied Science Entrance Scholarship
Fall/Winter 2001	York University Entrance Scholarship

EMPLOYMENT HISTORY

May 2014 – Aug 2014 Sessional Lecturer, University of Waterloo
Teaching a first-year course CS136.

May 2012 – Aug 2012 Course Instructor, University of Toronto
Planned and delivered a first-year course CSC165.

Sept 2006 – Apr 2013 Teaching Assistant, University of Toronto
Led tutorials and labs; occasionally gave lectures, standing in for instructors; redesigned assignments; marked tests and assignments (code, short/long answers, proofs); held office hours

May 2005 – Aug 2005 Research Assistant, York University
Designed and implemented a plan recognition system in IndiGolog

Jan 2005 – Apr 2005 Software Developer, IBM
Developed an internal tool in Java. Debugged and made design enhancements for one of the modules of DB2, in C++

Sept 2004 – Dec 2004 Software Developer, Ashwin Consulting Services
Designed web pages, developed a variety of programs in different languages (C++, Prolog, Pascal)

Jan 2003 – Apr 2004 Computer Lab Monitor, Bethune College, York University

Monitored the computer lab; helped students; resolved technical problems.

TEACHING INTERESTS and EXPERIENCE

I am proficient with both theory and practice of programming. I am experienced with a variety of programming languages, including algorithmic (python, C/C++, Java), functional (Lisp) and logical (Prolog and variants). I am enthusiastic about programming in general. However, my main strength lies in formal proofs and mathematical reasoning. I am enthusiastic about my field of work, and enjoy sharing my knowledge.

Course Instructorships

(University of Waterloo)

Summer 2014 – CSC136 Elementary Algorithm Design and Data Abstraction

Developed and taught a first-year course as part of a team.

The course introduces imperative programming, C language, basic run-time analysis and data structures.

(University of Toronto)

Summer 2012 – CSC165 Mathematical Expression and Reasoning for Computer Science.

Taught a first-year course. Prepared and delivered lectures, created teaching material, coordinated TA work.

The course introduces predicate and quantified logic, mathematical proof techniques, asymptotic notation, run-time analysis and correctness, and touches on computability theory.

Teaching Assistantships

Fall 2013 – CSC343 Introduction to Databases. *Instructor: Diane Horton*

Fall 2011 – CSC384 Introduction to Artificial Intelligence. *Instructor: Torsten Hahmann*

– **PMU199** Computers and Thought. *Instructor: Hector Levesque*

Winter 2011 – CSC384 Introduction to Artificial Intelligence. *Instructor: Sheila McIlraith*

Fall 2010 – CSC384 Introduction to Artificial Intelligence. *Instructor: Maryam Fazel-Zarandi*

Winter 2010 – CSC108 Introduction to Computer Programming. *Instructor: Diane Horton*

Fall 2009 – CSC165 Mathematical Expression and Reasoning for Computer Science.
Instructor: Danny Heap

Winter 2009 – CSC148 Introduction to Computer Science. *Instructors: Paul Gries, Jim Clarke*

Fall 2008 – CSC373 Algorithm Design and Analysis. *Instructor: François Pitt*

Winter 2008 – CSC363 Computational Complexity and Computability. *Instructor: François Pitt*

Fall 2007 – CSC236 Introduction to the Theory of Computation. *Instructor: François Pitt*

Winter 2007 – CSC236 Introduction to the Theory of Computation. *Instructor: Toby Kral*

Fall 2006 – CSC192 Computer Programming, Algorithms, Data Structures and Languages.
Instructor : Dave Wortman

Tutoring Experience

Winter 2009 – CSC373H3 Algorithm Design and Analysis (Analogous to **CSC373**)

Summer 2008 – CSC363 Computability and Computational Complexity (Analogous to **CSC363**)

Professional development

Sept 2010 The Computer Science Graduate Writing Course for Native and Proficient Speakers

A course aimed at improving language skills for both written work and oral presentations.

Sept 2008-Aug 2010 Teaching Assistants' Training Program (TATP) Advanced University Teaching Preparation Certificate

The program included a number of workshops, a practicum, as well as written reflective works.

Fall 2009 THE500: "Teaching in Higher Education"

A course on teaching for PhD students and Post-Doctoral Fellows. Weekly lessons included a lot of practice, as well as theory on a variety of topics, including teaching styles, curriculum development and lesson planning, accommodating different learning styles and facilitating critical thinking.

Fall/Winter 2007 Teaching Assistants' Training Program (TATP) Teaching Fundamentals Certificate
Training included a number of professional development workshops by TATP

OTHER ACTIVITIES

Reviewer for: ICTAI 2013, IJCAI 2013, CP 2012, SAT 2012, CP 2011, POS 2011, SAT 2009, NESCAI 2008

**Jan 2012 - Apr 2012 Visiting researcher, Institute for Formal Models and Verification
Johannes Kepler University, Linz, Austria.**

Funded by the Michael Smith Foreign Study Supplement, visited Armin Biere's lab for research and collaboration. Together with Armin and his team members explored a number of ideas in the area of QBF, DQBF and Bounded Model Checking.

Sept 2011 – Dec 2011 Knowledge Representation Group Coordinator

Organized KR group seminars: handled scheduling tasks, found speakers, organized food and video recording.

Sept 2010 – Dec 2011 Constraint Satisfaction Group Coordinator

Organized weekly meetings of the Constraint Satisfaction Reading Group.

**Jan 2010 - Apr 2010 Program Committee Member, North-East Student Colloquium on Artificial
Intelligence (NESCAI) Program Committee**

NESCAI is a student colloquium on Artificial Intelligence. As a committee member, I was in charge of finding and organizing reviewers for a number of papers, as well as handling some administrative duties.

**February 2008 Knowledge Representation (KR) group coordinator for Grad Visit Day,
KR research group, University of Toronto**

Grad Visit Day is an opportunity for prospective graduate students to see the university and meet our faculty and students. As a KR group representative, I handled our visitor's time tables, co-ordinated with the faculty and other group representatives to schedule their meetings and activities. On the actual day I guided our visitors and answered their questions, and staffed breakout rooms.

**Sept 2004 – April 2005 Undergraduate Student Representative,
Tenure and Promotion Committee,
Department of Computer Science, York University**

Participated in committee meetings, discussing the candidates' files and voted on tenure decisions and administrative questions.

**Sept 2002 - April 2004 Member of Student Ombuds Services (SOS),
Bethune College, York University**

SOS is a peer advising service for students. During my involvement with SOS, I held weekly office hours; participated in the 'class buddy program' making information announcements throughout the year; participated in orientation leading campus tours, ice breakers, and being generally available to help or answer questions.