

Joanna Drummond

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Education

PhD Computer Science, University of Toronto, (expected) Summer 2017.

Co-advisors: Allan Borodin, Kate Larson

Achieved Candidacy: Spring 2015

Relevant Courses: Algorithms for Solving Propositional Theories; Intro to Graph Theory; Topics in Knowledge Representation and Reasoning; Advanced Microeconomic Theory I

GPA: 3.83

M.S. Computer Science, University of Toronto, Spring 2013.

Advisor: Craig Boutilier

Relevant Courses: Decision Making under Uncertainty; Advanced Inference Algorithms; Algorithm Design, Analysis, and Theory

GPA: 3.93

B.S. Computer Science and Mathematics, University of Pittsburgh, December 2010.

Research Advisor: Diane Litman

Minor: Theatre Arts.

Honors: Graduated Magna Cum Laude with Departmental Honors; Dean's List, Fall 2006 to Spring 2010; Dean's Stars List, Spring 2007; Upsilon Pi Epsilon, Member

Relevant Courses: Human Language Technologies; Intro to Artificial Intelligence; Advanced Topics in Artificial Intelligence: Speech and Natural Language Processing for Educational Applications (*Graduate Course*); Algorithm Design; Machine Learning (*Graduate Course*); Intro to Theory of Computation

GPA: 3.73

Publications

Strategy-Proofness in the Stable Matching Problem with Couples, Perrault, A., **Drummond, J.**, Bacchus, F., Proc. of the Fifteenth International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2016), pages 132–140.

SAT is an Effective and Complete Method for Solving Stable Matching Problems with Couples, **Drummond, J.**, Perrault, A., and Bacchus, F., Proc. of the Twenty-fourth International Joint Conference on Artificial Intelligence (IJCAI-15).

Preference Elicitation and Interview Minimization in Stable Matchings, **Drummond, J.** and Boutilier, C., Proc. of the Twenty-eighth Conference on Artificial Intelligence (AAAI-14), pages 645–653.

Elicitation and Approximately Stable Matching with Partial Preferences, **Drummond, J.**, and Boutilier, C., Proc. of the Twenty-third International Joint Conference on Artificial Intelligence (IJCAI-13), pages 97–105.

Intrinsic and Extrinsic Evaluation of an Automatic User Disengagement Detector for an Uncertainty-Adaptive Spoken Dialogue System, Forbes-Riley, K., Litman, D., Friedberg, H., and **Drummond, J.**, Proc. of the 2012 Conference of the North American Chapter of the Association for Computational Linguistics (NAACL 2012).

Examining the Impacts of Dialogue Content and System Automation on Affect Models in a Spoken Tutorial Dialogue System, **Drummond, J.**, and Litman, D., Proc. of the Special Interest Group on Discourse and Dialogue (SIGDIAL) 2011 conference, pages 312–318.

A State Transition Model for Student Online Discussions, Seo, S.W., Kang, J.H, **Drummond, J.**, and Kim, J., Proc. of the 17th Conference on Knowledge Discover and Data Mining (AMC SIGKDD 2011) Workshop on Knowledge Discovery in Educational Data.

Using Graphical Models to Classify Dialogue Transition in Online Q&A Discussions, Seo, S.W., Kang, J.H., **Drummond, J.**, and Kim, J., Proc. of the 15th International Conference on Artificial Intelligence in Education (AIED 2011), pages 550–553.

Role of Elaborated Answers on Degrees of Student Participation in an Online Question-Answer Discussion Forum, **Drummond, J.**, and Kim, J., Presented at 2011 Annual Meeting of the American Educational Research Association (AERA).

In the Zone: Towards Detecting Student Zoning Out using Supervised Machine Learning, **Drummond, J.**, and Litman, D., Proc. of the 10th International Conference on Intelligent Tutoring Systems (ITS 2010), pages 306–308.

Evidence of Misunderstandings in Tutorial Dialogue and their Impact on Learning, Jordan, P., Litman, D., Lipschultz, M., and **Drummond, J.**, Proc. of the 14th International Conference on Artificial Intelligence in Education (AIED 2009), pages 125–132.

Working Papers

A Natural Equilibrium for Stable Matching with an Interviewing Budget, **Drummond, J.**, Borodin, A., and Larson, K.

Awards and Academic Activities

Microsoft Research PhD Fellowship Program Finalist, 2016.

Reviewer, *Algorithmica*, 2015.

Reviewer, **SAGT 2015**, (*8th International Symposium on Algorithmic Game Theory*).

Reviewer, **AAAI-15**, (*Twenty-Ninth AAAI Conference on Artificial Intelligence*).

Ontario Graduate Scholarship, 2014. *Scholarship includes \$15,000 in funding.*

Reviewer, **COMSOC-2014**, (*Fifth International Workshop on Computational Social Choice*).

Microsoft Research Graduate Women’s Scholarship Recipient, 2012, deferred until 2013. *Scholarship includes \$15,000 in funding and \$2,000 conference stipend.*

Google Anita Borg Memorial Scholarship Finalist, 2012.

Ontario Graduate Scholarship, 2012. *Scholarship includes \$15,000 in funding.*

Awardee of 2011 NSF Graduate Research Fellowship Program, Declined to study in Canada.

DREU Recipient, Chosen for Distributed Research Experience for Undergraduates Program, (Organized by CRA-W).

Best Undergraduate Poster, University of Pittsburgh Department of Computer Science 10th Annual Computer Science Day.

Research Experience

Research Intern, Microsoft Research, with Ian Kash and Peter Key, May 2016 to August 2016.

Investigating simple pricing for cloud computing.

Research Assistant, University of Toronto, Department of Computer Science, Dr. Craig Boutilier, August 2011 to December 2014; Dr. Allan Borodin and Dr. Kate Larson, January 2015 to Present.

Investigating Bayes-Nash and ex-post equilibria for matching games with imperfect information.

Investigating stable and approximately stable matching using multi-attribute preference information.

Investigating elicitation schemes using multi-attribute based queries.

Investigating stable and approximately stable matching on social networks.

Investigated elicitation schemes for the stable matching problem, including a scheme that found low interview-cost matchings.

Investigated algorithms for finding stable and approximately stable matches with partial information regarding agents' preferences over alternatives.

Research Assistant, University of Pittsburgh Department of Computer Science, Dr. Diane Litman, April 2008 to June 2010; September 2010 to May 2011.

Investigated the impact of different training set populations on accurately classifying student uncertainty while using a spoken intelligent physics tutor.

Investigated applying the zoning out feature set to disengagement while using a spoken intelligent physics tutor.

Designed a feature set for and applied decision trees to classifying student zoning out while performing a spoken learning task.

Designed a feature set for categorizing student incorrectness categories and applied decision trees to build models to identify incorrectness categories.

Annotated spoken intelligent tutoring system for student incorrectness categories (e.g. too vague, etc.).

Directed Study, University of Pittsburgh Department of Computer Science, Dr. Kirk Pruhs, September 2010 to December 2010.

Analyzed and proved properties about an algorithm for dividing n indivisible objects among 2 people.

Research Assistant, DREU Program, Information Sciences Institute, University of Southern California, Dr. Jihie Kim, June 2010 to August 2010.

Applied HMM's and decision trees to students' online forum data to categorize students' posts.

Performed a corpus study to analyze correlations between speech acts and thread length in students' online forum data.

Annotated students' online forum data.

Teaching Experience

Teaching Assistant, University of Toronto Dept. of Computer Science, September 2011 to Present.

Helping develop assignments, created marking schemes and marked exams and assignments for a upper level Intro to AI course.

Ran a weekly programming lab, which allows students to practice programming skills in a supervised, group environment. Also held office hours, graded assignments, and graded exams. Course was taught in Python.

Teaching Assistant, University of Pittsburgh Dept. of Mathematics, September 2007 to April 2008.

Taught College Algebra Recitation, held office hours, graded homework.

Tutor, University of Pittsburgh Dept. of Mathematics, October 2006 to April 2007.

Individual and Group Tutor, Subjects: College Algebra through Calculus III.

Technical Skills

Programming Languages: Proficient: Python, Java; Familiar: Julia, R, Matlab, Unix Shell Scripting (bash)

Operating Systems: Proficient: Linux, Mac OSX; Familiar: Windows

Other Skills: L^AT_EX, Weka

References

Allan Borodin,
Professor of Computer Science
University of Toronto
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Kate Larson,
Associate Professor,
Cheriton School of Computer Science
University of Waterloo
klarson@uwaterloo.ca

Craig Boutilier,
Principal Scientist
Google
and Professor of Computer Science (on leave)
University of Toronto
cebly@cs.toronto.edu

Diane Litman,
Professor of Computer Science,
Research Scientist with Learning Research and Development Center,
University of Pittsburgh
litman@cs.pitt.edu