Ben Prystawski

Computational Cognitive Science Student

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Education

September, 2017 - April, 2021 (expected)
B.Sc. in Computer Science and Cognitive Science, *University of Toronto*, *4.0 cumulative GPA*.

September, 2013 - May, 2017
Ontario Secondary School Diploma and International Baccalaureate Diploma, *White Oaks Secondary School*, Oakville, Ontario, *98% top 6 average*. Perfect IB score of 45, 99.5th percentile of IB students globally

Research and Work Experience

May, 2020 - August, 2020
Research Intern, *Rationality Enhancement Group, Max Planck Institute for Intelligent Systems*, Tübingen, Germany (Remote).
- Developed computational models of human goal pursuit and tested them via online experiments
- Supervised by Dr. Falk Lieder
- Working toward publishing this work in a journal of cognitive science

September, 2019 - Present
Research Student, *Computational Cognitive Development Lab, UofT*, Toronto, ON.
- Used probabilistic programming to develop Bayesian models of hypothesis revision based on Markov chain Monte Carlo algorithms
- Supervised by Professor Daphna Buchsbaum
- Published this work in the proceedings of the Cognitive Science Society
- Currently modelling human puzzle solving with reinforcement learning and neural value approximation

May, 2019 - August, 2019
Research Student, *Cognitive Lexicon Lab, UofT*, Toronto, ON.
- Used word embeddings and machine learning models to analyze gender differences in speech to and by children
- Supervised by Professor Yang Xu
- Published this work as a first author in the proceedings of the Cognitive Science Society

January, 2019 - Present
Research Assistant, *Intelligent Adaptive Interventions Lab, UofT*, Toronto, ON.
- Developed algorithms for reliable hypothesis testing in adaptive experiments
- Supervised by Professor Joseph Jay Williams
- Published a workshop paper analyzing the effect of student supports in online education
- Prepared course materials to help with the design of Professor Williams' human-computer interaction course

May, 2018 - August, 2018
Data Science Intern, *Geotab Inc*, Oakville, ON.
- Analyzed vehicle telematics data from over one million vehicles worldwide using machine learning techniques and presented a dataset to Weather Network executives
- Created an original algorithm to trace major roads leading to an intersection

Research Interests

cognitive science, social cognition, reinforcement learning, computational linguistics, cognitive development, problem solving and planning, Bayesian statistics

Papers Under Review

1 Prystawski, B., Mohnert, F., Tošić, M., & Lieder, F. (2020). *Resource-rational models of human goal pursuit*. https://re.is.tuebingen.mpg.de/uploads_file/attachment/attachment/627/Prystawski_Et_Al_2020.pdf

Publications

3 Gelpi, R., Prystawski, B., Lucas, C. G., & Buchsbaum, D. (2020). Incremental hypothesis revision in causal reasoning across development, In *Proceedings of the 42nd annual conference of the cognitive science society*.

2 Prystawski, B., Grant, E., Nematzadeh, A., Lee, S. W. S., Stevenson, S., & Xu, Y. (2020). Tracing the emergence of gendered language in childhood, In *Proceedings of the 42nd annual conference of the cognitive science society*.

1 Prystawski, B., Nogas, J., Petersen, A., & Williams, J. J. (2020). Improving short and long-term learning in an online homework system, Paper presented at the Data Mining for Computer Science Education Workshop at the Annual Conference of the International Educational Data Mining Society.

Scholarships and Awards

November, 2020 **Class of '63 Scholarship**, $500 in-course scholarship for academic merit.

November, 2019 **Drew Thompson Scholarship**, $500 in-course scholarship for academic merit.

May, 2019 **NSERC Undergraduate Student Research Award**, $6000 award to pursue research in computer science over the summer of 2019.

December, 2018 **Samuel Beatty Scholarship**, $1500 in-course scholarship for academic merit.

November, 2018 **Chancellor's Scholarship**, $500 in-course scholarship for academic merit.

June, 2017 **UofT Scholar**, $7500 entrance scholarship for academic merit.

Extracurricular Involvement

January - February, 2020 **Chair Search Committee Member**, *Department of Computer Science, UofT*.
- Selected as the only undergraduate representative on the Department of Computer Science's chair search committee
- Attended meetings to discuss who should become the next chair of the department

May, 2019 - May, 2020 **Director of Academic Events**, *Computer Science Student Union, UofT*.
- Elected by computer science student body to organize academic events
- Planned academic seminars, events about study skills, and informal gatherings of students and professors attended by over 100 people

October, 2017 - May, 2018 **Compliance Analyst**, *G7 Research Group, UofT*.
- Researched and wrote a report on Germany's compliance with its 2017 G7 commitment to adapt to new forms of technical labour, published in the G7 Research Group's annual compliance report

Technical skills

Languages Python, R, SQL, Julia, JavaScript, WebPPL, TeX

Tools Jupyter Notebook, scikit-learn, nltk, PyTorch, pandas