

PASCALE GOURDEAU

DPhil (PhD) student at the University of Oxford

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RESEARCH INTERESTS

Learning theory, adversarially robust machine learning, automata theory

EDUCATION

DPhil (PhD) in Computer Science

2017 – Present

University of Oxford

Supervisors: James Worrell, Varun Kanade and Marta Kwiatkowska

Research themes: learning theory, adversarially robust machine learning

Medical leaves: October 2019 – April 2020; October 2020 – April 2021

M.Sc. in Computer Science

2017

McGill University, Montreal

Supervisors: Prakash Panangaden and Doina Precup

Thesis Title: *Bisimulation Pseudometrics for Weighted Finite Automata*

Overall GPA: 4/4

B.Sc. in Computer Science (Honours)

2012 – 2016

McGill University, Montreal

Minor in Mathematics

Overall GPA: 3.94/4

EMPLOYMENT AND TEACHING EXPERIENCE

Department of Computer Science, University of Oxford

2018 – Present

Course Teacher and Marker

Oxford, UK

- Computational Learning Theory: Fall 2021
- Machine Learning: Fall 2018

Department of Computer Science, McGill University

2016 – 2017

Teaching Assistant

Montreal, Canada

- Programming Languages and Paradigms: Winter 2017
- Logic and Computation: Fall 2016
- Foundations of Programming: Summer 2016

Reasoning and Learning Lab, McGill University

Summers 2014 and 2015

Research Assistant

Montreal, Canada

- Summer 2015: automata theory research. Themes: minimization and approximation algorithms for automata, bisimulation metrics.
- Summer 2014: medical application of machine learning. Project: using machine learning classification algorithms to predict extubation readiness in extreme preterm infants.

DISTINCTIONS AND AWARDS

- Graduate Scholarship** 2019
Awarded by Trinity College, Oxford for outstanding graduate research
- Clarendon Scholarship** 2017
Three and a half years of funding (tuition fees and living expenses) for the DPhil in Computer Science at the University of Oxford
- Natural Sciences and Engineering Research Council (NSERC) Postgraduate Doctoral Scholarship** 2017
Three years of funding for the DPhil in Computer Science at the University of Oxford
- Natural Sciences and Engineering Research Council (NSERC) Graduate Scholarship** 2016
Funding for the M.Sc in Computer Science at McGill University
- Anita Borg Memorial Scholarship** 2015
Scholarship from Google recognizing women’s contribution and leadership in Computer Science
- Natural Sciences and Engineering Research Council (NSERC) Undergraduate Student Research Award** 2015
Summer research funding in the Reasoning and Learning Lab at McGill University
- Science Undergraduate Research Award** 2014
Summer research funding in the Reasoning and Learning Lab at McGill University
- Full scholarship to attend Lester B. Pearson UWC** 2010
International boarding school network (United World Colleges) working towards peace and a sustainable future. Programme: International Baccalaureate (2 years)

PUBLICATIONS

Journal Publications

1. **Pascale Gourdeau**, Varun Kanade, Marta Kwiatkowska, and James Worrell, “On the hardness of robust classification,” in *Journal of Machine Learning Research*, 2021.
2. Borja Balle, **Pascale Gourdeau**, and Prakash Panangaden, “Bisimulation metrics and norms for real-weighted automata,” in *Information and Computation*, 2020.

Conference Publications and Preprints

1. **Pascale Gourdeau**, Varun Kanade, Marta Kwiatkowska, and James Worrell, “When are local queries useful for robust learning?,” under submission, 2022.
2. **Pascale Gourdeau**, Varun Kanade, Marta Kwiatkowska, and James Worrell, “Sample complexity bounds for robustly learning decision lists against evasion attacks,” in *International Joint Conference on Artificial Intelligence (IJCAI)*, 2022.
3. **Pascale Gourdeau**, Varun Kanade, Marta Kwiatkowska, and James Worrell, “On the hardness of robust classification,” in *33rd Conference on Neural Information Processing Systems (NeurIPS)*, 2019. [spotlight]
4. Borja Balle, **Pascale Gourdeau**, and Prakash Panangaden, “Bisimulation metrics for weighted automata,” in *44th International Colloquium on Automata, Languages, and Programming (ICALP)*, Schloss Dagstuhl-Leibniz-Zentrum fuer Informatik, 2017.
5. **Pascale Gourdeau**, Lara Kanbar, Wissam Shalish, Guilherme Sant’Anna, Robert Kearney, and Doina Precup, “Feature selection and oversampling in analysis of clinical data for extubation readiness in extreme preterm infants,” in *2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, pp. 4427–4430, IEEE, 2015.

INVITED TALKS

Sample Complexity Bounds for Robust Classification

- University of Princeton

On the Hardness of Robust Classification

- Mila, McGill/University of Montreal
- IRIF, Paris
- LabRI, Bordeaux

Bisimulation Metrics for Weighted Finite Automata

- University of Warwick
- University College London
- University of Oxford