

PASCALE GOURDEAU

DPhil (PhD) student at the University of Oxford

pascale.gourdeau@cs.ox.ac.uk

RESEARCH INTERESTS

Learning theory, adversarially robust machine learning, trustworthy machine learning, automata theory

EDUCATION

DPhil (PhD) in Computer Science

2017 – 2023

University of Oxford

Supervisors: James Worrell, Varun Kanade and Marta Kwiatkowska

Thesis title: *Sample Complexity of Robust Learning against Evasion Attacks*

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

Trinity College, University of Oxford

December 2022

Undergraduate Admissions Interviewer

Oxford, UK

- Underwent Oxford admissions and interview training
- Assisted in the conduction of interviews of 18 candidates
- Assisted in reviewing candidates' applications and recommending applicants

Wadham College, University of Oxford

2022 – Present

Course Tutor (grading assignments, reviewing them one-on-one 1h/week)

Oxford, UK

- Probability & Computing: Winter 2023
- Computational Learning Theory: Fall 2022

Department of Computer Science, University of Oxford

2018 – Present

Course Teacher and Marker (grading assignments, reviewing them w/ students 1h/week) *Oxford, UK*

- Computational Learning Theory: Fall 2021, Fall 2022
- Machine Learning: Fall 2018

Department of Computer Science, McGill University

2016 – 2017

Teaching Assistant (grading assignments and exams, holding office hours)

Montreal, Canada

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

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

DISTINCTIONS AND AWARDS

Graduate Scholarship

2019, 2022

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 (JMLR)*, 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?," in *36th Conference on Neural Information Processing Systems (NeurIPS)*, 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. [long presentation]

¹Now joint with Mila.

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.

Workshops

1. **Pascale Gourdeau**, Varun Kanade, Marta Kwiatkowska, and James Worrell, “When are local queries useful for robust learning?,” in *Women in Machine Learning Workshop (WiML)*, concurrent with NeurIPS, 2022. [oral presentation]
2. **Pascale Gourdeau**, Varun Kanade, Marta Kwiatkowska, and James Worrell, “On the hardness of robust classification,” in *Women in Machine Learning Workshop (WiML)*, concurrent with NeurIPS, 2019.
3. **Pascale Gourdeau**, Varun Kanade, Marta Kwiatkowska, and James Worrell, “On the hardness of robust classification,” in *Machine Learning with Guarantees Workshop*, concurrent with NeurIPS, 2019.

INVITED TALKS

Sample Complexity Bounds for Robust Classification

- University of British Columbia
- University of Victoria, British Columbia
- University of Princeton
- Université Laval, Quebec City

On the Hardness of Robust Classification

- Mila, McGill University/Université de Montréal
- IRIF, Université de Paris
- LabRI, Université de Bordeaux

Bisimulation Metrics for Weighted Finite Automata

- University of Warwick
- University College London
- Verification seminar, University of Oxford

PROFESSIONAL SERVICE

Chairmanship

- Area Chair, *Women in Machine Learning Workshop 2022*

Conference and Workshop Reviewing

- *COLT 2019, 2023; NeurIPS 2021 – 2023; ICLR 2023; WiML Workshop 2019*