

Bartosz Piotrowski

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Education

2017 – now	PhD in Computer Science , University of Warsaw Topic: Applying machine learning techniques in automated reasoning Supervisors: Josef Urban, Henryk Michalewski Expected graduation date: Winter 2022
2022 – now	Research visit , Carnegie Mellon University Topic: Applying machine learning to theorem proving in Lean Supervisor: Jeremy Avigad
2016 – 2017	Student exchange , Institute for Logic, Language and Computation, University of Amsterdam
2014 – 2021	MSc in Philosophy , University of Warsaw; Thesis: What Neural Networks Cannot Learn
2014 – 2016	MSc in Mathematics , University of Warsaw; Thesis: Generalised Random Forest and Flow Cytometry
2011 – 2014	BSc in Mathematics , University of Warsaw

Employment

2017 – 2022	Junior Research Scientist in POSTMAN and AI4REASON ERC-funded projects, Czech Institute of Informatics, Robotics and Cybernetics in Prague Accomplished tasks: Successfully applying machine learning and deep learning techniques to various automated reasoning tasks, including: premise selection, guiding inferences in tableaux provers, symbolic rewriting, tactic prediction in Coq proof assistant, guiding instantiation in SMT solvers
2015 – 2016	Internship in Interdisciplinary Centre for Mathematical and Computational Modelling, Warsaw Accomplished task: Developed machine learning software to analyze data from flow cytometry

Technical skills

- **Python** (Scikit-learn, PyTorch, TensorFlow, ...)
- **R** (developing R packages and teaching it)
- **Ocaml** (functional paradigm; basic knowledge)
- Basic tools: GNU/Linux, Git, Latex, Bash, ...

Teaching experience

- Artificial Intelligence in Theorem Proving
- Introduction to Functional Programming
- Probability Theory and Statistics
- Statistical Data Analysis

Selected publications

- Janota, Piepenbroeck, Piotrowski, Towards Learning Quantifier Instantiation in SMT, SAT 2022 (to appear)
- Piotrowski, Urban, Stateful Premise Selection by Recurrent Neural Networks, LPAR 2020
- Piotrowski, Urban, Guiding Inferences in Connection Tableau by Recurrent Neural Networks, CICM 2020
- Piotrowski, Urban, Brown, Kaliszyk, Can Neural Networks Learn Symbolic Rewriting? GNN@ICML 2019
- Piotrowski, Urban, ATPboost: Learning Premise Selection with ATP Feedback, IJCAR 2018
- Piotrowski, Kursa, Fully Automatic Classification of Flow Cytometry Data, ISMIS 2018

Grants & awards

- **Research grant** (28 000 EUR) from the National Science Centre in Poland for years 2019–2022
Topic: Deep Neural Architectures for Automated Theorem Proving
- **Research visit** (6 months) in Carnegie Mellon University, applying machine learning in Lean proof assistant
- **Research visit** (1 week) in University of Oxford, applying automated theorem proving techniques for databases
- **Research visit** (3 weeks) in University of Innsbruck, applying deep learning for automated theorem proving
- **Finalist** of the 62nd Polish National **Mathematical Olympiad** (April 2011)