Ariella Smofsky

MSc student · Machine learning

Montreal, Canada

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Education

McGill University and Mila — *Montreal, Canada*

MSc Student in Computer Science — *Sept. 2018 - Present*

- Supervisor: Prakash Panangaden
- Concentration: Theoretical Machine Learning

McGill University — *Montreal, Canada*

BSc in Mathematics and Computer Science, with Distinction — *Jan. 2014 - Apr. 2017*

- CGPA of 3.85 (out of 4.00).
- Formal verification course project on the theoretical foundation of Separation Logic.
- Senior thesis completed in the Health Informatics Group.

McGill University — *Montreal, Canada*

BSc(Arch) in Architecture, Degree incomplete — *Sept. 2012 - Dec. 2013*

- Experience acquired in modelling software and 3D printing.

Marianopolis College — *Westmount, Canada*

DEC in Arts and Sciences, with Distinction — *Sept. 2010 - May 2012*

- Intensive interdisciplinary studies with emphasis on mathematics, physics and essay writing.

Experience

Mila — *Montreal, Canada*

Graduate Researcher — *May 2019 - Present*

- Theoretical and experimental investigation of the connection between recurrent neural networks (RNN) and automata.
- In preparation for the fall semester, I am enhancing the educational Learn-OCaml platform with documentation and integration of the plagiarism detection system MOSS.

McGill University — *Montreal, Canada*

Head Teaching Assistant — *Jan. 2019 - Apr. 2019*

- Actively involved in the course development and smooth running of COMP 302: Programming Languages and Paradigms.
- Responsible for writing OCaml test suites to automatically grade programming assignments within the Learn-OCaml platform.

McGill University — *Montreal, Canada*

Teaching Assistant — *Sept. 2018 - Dec. 2018*

- Graded student assignments and midterms for the course COMP 330: Theory of Computation. Topics included automata theory, context free languages, and complexity theory.
- Wrote a Python script to automate merging and uploading assignment feedback.

Morgan Stanley — *Montreal, Canada*

Software Developer — *June 2017 - Aug. 2018*

- Key team member in the design and implementation of a high traffic data aggregator and analysis engine. Technologies used: Python, Pandas, DB2, and Autosys.
- Contributed to all facets of the software development life cycle including but not restricted to implementing core components of the application, participating in code reviews, job scheduling, database schema and table design, and gathering requirements.
- Conducted technical interviews and trained new team members.
- Crafted educational presentations on machine learning fundamentals which were presented to upper management.

Morgan Stanley — *New York City, U.S.*

Technology Analyst Program (TAP) — *Aug. 2017 - Dec. 2017*

- Completed a four month software development comprehensive training program at Morgan Stanley's headquarters in New York City.
- Attended lectures and was tested on the following topics: operating systems, databases, and programming languages (C++, Java, Scala, C#).
- Gathered business requirements, designed, and implemented a full-stack risk manager web application. The backend of the application was implemented using the non-relational database LevelDB for efficient storing and querying of sparse data.

InstaEDU — *https://www.chegg.com/tutors/*

Tutor — *Sept. 2014 - Aug. 2017*

- Assisted students with both conceptual understanding and problem solving skills via the Chegg online tutoring platform.
- Specialized in discrete mathematics, real analysis, and algorithm design.

McGill University *Montreal, Canada*

Grader *Jan. 2017 - May 2017*

- Graded assignments and final exams for COMP 424: Artificial Intelligence.
- Authored and published assignment solutions to 170+ students.

McGill University *Montreal, Canada*

Computer Science Teaching Mentor *Jan. 2017 - Apr. 2017*

- Provided specialized attention to students grappling with upper level courses including operating systems, algorithm design, and theory of computation.

McGill University *Montreal, Canada*

Volunteer Computer Science Tutor *Sept. 2014 - Apr. 2017*

- Helped undergraduate students solve problem sets and better understand core Computer Science topics.
- Established the technical interview help desk initiative; tutors teaching students how to construct solutions during technical interviews.

Morgan Stanley *Montreal, Canada*

Summer Technology Analyst *May 2016 - Aug. 2016*

- Designed and implemented a new application to monitor transactions within a large heterogeneous ecosystem of platforms and applications. Technologies used: Java, Jetty, WebSocket, Typescript, and Gradle.
- Presented the project to various business units and to international upper management.

Morgan Stanley *Montreal, Canada*

Summer Technology Analyst *May 2015 - Aug. 2015*

- Implemented a new component in the backend of a large-scale application used by financial advisors. Technologies used: DB2, Scala, and Java.
- The component was released in production with no performance issues.
- One out of five interns selected to present the project to upper management.

Skills

Programming Python, PyTorch, Java, OCaml, Scala, LaTeX

Natural Languages English, French

Awards

2019	**Travel Award**, Cornell, Maryland, Max Planck Pre-doctoral School	*Saarbrücken, Germany*
2019	**IVADO Travel Award**, ICML	*Long Beach, U.S.*
2019	**Diversity and Inclusion Travel Award**, ICML	*Long Beach, U.S.*
2017	**Outstanding Presentation**, McGill University COMP 525: Formal Verification	*Montreal, Canada*
2017	**Tomilson Engagement Award for Mentoring (TEAM)**, McGill University SOCS Help Desk	*Montreal, Canada*
2016	**Travel Award**, Waterloo University Undergraduate Research Opportunities Conference (UROC)	*Waterloo, Ontario*
2016	**McGill University SOCS Travel Award**, ACM Richard Tapia Celebration of Diversity in Computing	*Austin, U.S.*
2016	**1st Place Winner**, ConUHacks: Concordia University Hackathon	*Montreal, Canada*
2010	**Governor General's Bronze Medal**, Riverdale High School Convocation	*Pierrefonds, Canada*

Publications

P.N. Ward*, **A. Smofsky***, A.J. Bose. "Improving Exploration in Soft-Actor-Critic with Normalizing Flows Policies." Invertible Neural Networks and Normalizing Flows (INNF) Workshop, International Conference on Machine Learning (ICML). 2019.
arXiv:1906.02771

Invited Talks

Invertible Neural Networks and Normalizing Flows (INNF) Workshop, ICML *Long Beach, U.S.*

Spotlight Speaker *Jun. 2019*

Gave a presentation on applying normalizing flows to reinforcement learning continuous control algorithm Soft-Actor-Critic (SAC).

Diversity and Representation of Underrepresented Groups in CS Workshop, CSCan *Montreal, Canada*

Panel Moderator *Jun. 2019*

Led a discussion on imposter syndrome, pedagogical approaches to inclusion, and unintended consequences of diversity efforts.

McGill University COMP 302: Formal Languages and Paradigms Lecture *Montreal, Canada*

Guest Lecturer *Jan. 2019*

Lectured about OCaml higher order functions and functional programming as a paradigm shift from imperative programming.

McGill University COMP 330: Theory of Computation Lecture *Montreal, Canada*

Guest Lecturer *Sept. 2018*

Lectured about Dana Angluin's seminal work on Learning Automata and the L^* algorithm.

McGill University Internship Year in Science Program Presentation *Montreal, Canada*

Speaker *Sept. 2015*

Provided the incoming Computer Science class of 2019 with a personal account of seeking, studying for, and completing an internship at Morgan Stanley.

Academic Community

2019 **Reviewer,** Invertible Neural Networks and Normalizing Flows (INNF) Workshop, ICML

2019 **Reviewer,** AI for Social Good Workshop, ICLR

2019 **Technical Mentor,** MariHacks, Marianopolis College Hackathon