

# Ariella Smofsky

MSC STUDENT · MACHINE LEARNING

Montreal, Canada

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## Education

### McGill University and Mila

MSC STUDENT IN COMPUTER SCIENCE

- Supervisor: Prakash Panangaden
- Concentration: Machine learning for sequential data

Montreal, Canada

Sept. 2018 - Present

### McGill University

BSC IN MATHEMATICS AND COMPUTER SCIENCE, WITH DISTINCTION

- 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.

Montreal, Canada

Jan. 2014 - Apr. 2017

### McGill University

BSC(ARCH) IN ARCHITECTURE, DEGREE INCOMPLETE

- Experience acquired in modelling software and 3D printing.

Montreal, Canada

Sept. 2012 - Dec. 2013

### Marianopolis College

DEC IN ARTS AND SCIENCES, WITH DISTINCTION

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

Westmount, Canada

Sept. 2010 - May 2012

## Experience

### Mila

GRADUATE RESEARCHER

- 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.

Montreal, Canada

May 2019 - Present

### McGill University

HEAD TEACHING ASSISTANT

- 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.

Montreal, Canada

Jan. 2019 - Apr. 2019

### McGill University

TEACHING ASSISTANT

- 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.

Montreal, Canada

Sept. 2018 - Dec. 2018

### Morgan Stanley

SOFTWARE DEVELOPER

- 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.

Montreal, Canada

June 2017 - Aug. 2018

### Morgan Stanley

TECHNOLOGY ANALYST PROGRAM (TAP)

- 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.

New York City, U.S.

Aug. 2017 - Dec. 2017

### InstaEDU

TUTOR

- 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.

<https://www.chegg.com/tutors/>

Sept. 2014 - Aug. 2017

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

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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