

Aram-Alexandre Pooladian

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Education

PhD (Data Science: Theory track)

Focus: High-dimensional statistics and optimal transport

Advisor: Jonathan Niles-Weed

Funding: Data Science Fellowship, Data Science Supplementary Fellowship Grant, NSERC PGS-D

GPA: 4.00/4.00

New York University

September 2020 – Present

MSc (Applied Mathematics)

Focus: Optimization and Deep Learning

Advisors: Tim Hoheisel and Adam Oberman

Funding: Lorne Trottier Fellowship, NSERC CGS-M, FRQNT Scholarship, Mitacs Scholarship

GPA: 4.00/4.00

McGill University

May 2018 – May 2020

BA (Honours Applied Mathematics)

CGPA: 3.93/4.00, *Majors GPA:* 4.00/4.00

Awards and scholarships: NSERC Undergraduate Student Research Award (thrice received), FRQNT supplement funding (twice received), Charlie Peters Scholarship, First Class Honours, Dean's Honour List

McGill University

September 2014 – May 2018

Research Interests

High-dimensional statistics (e.g. computational and statistical optimal transport), optimization theory (stochastic, convex, and non-smooth), and deep learning theory and applications (e.g. normalizing flows)

Research Experience

Pre-prints

- Pooladian, A-A., and Niles-Weed, J. "Entropic estimation of optimal transport maps", 2021

Conference and workshop publications

- Finlay, C.*, Gerolin, A.*, Oberman, A., Pooladian, A-A.* (alphabetical) "Learning normalizing flows from Entropy-Kantorovich potentials", *Invertible Neural Networks, Normalizing Flows, and Explicit Likelihood Models (INNF+)*, with contributing talk, 2020. [arXiv] (Spotlight presentation)
- Pooladian, A-A.*, Finlay, C., Hoheisel, T., and Oberman, A. "A principled approach for generating adversarial images under non-smooth dissimilarity metrics", *Proceedings of the 23rd International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2020 (Oral presentation)
 - Link to code and paper: www.github.com/APooladian/ProxLogBarrierAttack [PyTorch]
- Finlay, C.*, Pooladian, A-A.*, and Oberman, A. "The LogBarrier attack: making effective use of decision boundary information", *IEEE International Conference on Computer Vision (ICCV)*, 2019
 - Link to code and paper: www.github.com/APooladian/logbarrier [PyTorch]

Asterisk next to author name indicates first or joint-first author contribution

Journal articles

- o Hoheisel, T., Pablos, B., **Pooladian A-A.**, Schwartz, A., and Steverango, L. (alphabetical) "A survey of one-parameter regularization methods for mathematical programs with vanishing constraints", *Optimization Methods and Software*. [PDF]

Research awards and scholarships

- NSERC PGS-D Scholarship** (\$ 63 000 CAD) *May 2020 – May 2023*
Highly competitive graduate scholarship, ranked 8th nationally among applicants in my category
- Data Science Fellowship** (\$180 000) *Fall 2020 – Fall 2025*
Full financial support from the Center for Data Science at New York University
- Data Science Supplementary Fellowship Grant** (\$6 000) *Fall 2020*
- IPAM Research Fellow at UCLA** (\$7 000) *March 2020 – June 2020*
- Mitacs Scholarship with Desjardins** (\$13 000 CAD) *September 2019 – December 2019*
- FRQNT Master’s Scholarship** (\$35 000 CAD) *May 2019 – May 2021*
Highly competitive graduate scholarship, ranked 2nd provincially in my category
- Lorne Trottier Fellowship** (\$5 000 CAD) *May 2018 – May 2019*
Awardees are nominated by the faculty to supplement NSERC CGS-M winners
- NSERC CGS-M Scholarship** (\$17 500 CAD) *May 2018 – May 2019*
Highly competitive graduate stipend awarded to 3 of ~32 applicants in the department

Teaching experience

- Course Instructor** for “GSTEM: Data Science” New York University
Prepared and delivered over 20h of material to ~40 high school students *Summer 2021*
- Head Teaching Assistant** for “MATH 151: Calculus A” McGill University
Prepared weekly tutorials and held office hours *Fall 2018*

Academic service and other activities

- o Reviewer for: NeurIPS OTML and OPTML workshop (2021), Conference on Learning Theory (COLT) 2021, 24th International Conference on Artificial Intelligence and Statistics (AISTATS 2021), Winter Conference on Applications of Computer Vision (WACV 2019)
- o President of the Graduate Student Association of Mathematics and Statistics (GSAMS) (2019 – 2020)

Relevant graduate coursework

- o *Probability and Statistics*: Statistical aspects of Optimal Transport, Mathematical Statistics, Advanced Probability Theory, (Computational) Bayesian Statistics, Computational Intensive Statistics, Combinatorics, Econometrics I (theory) and II (applications), Concentration Phenomena, Models in Financial Economics
- o *Optimization and analysis*: Continuous Optimization, Convex Analysis and Algorithms, Applied Machine Learning, Partial Differential Equations