

Aram-Alexandre Pooladian

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Education

PhD (Data Science: Theory track)

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 problems in deep learning (e.g. normalizing flows)

Research Experience

Conference and workshop publications

- o 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]
- o **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.
 - Link to code and paper: www.github.com/APooladian/ProxLogBarrierAttack [PyTorch]
- o 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]

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]

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

Pre-prints and projects

- o Pooladian, A-A. "Numerical methods for the Fermat-Weber problem in polyhedral norms"
- o Pooladian, A-A.*, Finlay, C., and Oberman, A. "Farkas layers: Don't shift the data, fix the geometry"

Research awards and scholarships

- NSERC PGS-D Scholarship** (\$ 63 000 CAD) *May 2020 – May 2023*
Highly competitive graduate scholarship, ranked 8th 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 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

Talks

- o Spotlight talk at the *2nd Workshop on Invertible Neural Networks, Normalizing Flows, and Explicit Likelihood Models (INNF+)*, 2020
 - One of two 25-minute spotlight talks (selected out of 42 accepted papers)
- o Oral presentation at the *23rd International Conference on Artificial Intelligence and Statistics*, 2020

Academic service and other activities

- o Reviewer for Conference on Learning Theory (COLT) 2021
- o Reviewer for the 24th International Conference on Artificial Intelligence and Statistics (AISTATS 2021)
- o Reviewer for the 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*: 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*: Continuous Optimization, Convex Analysis and Algorithms, Applied Machine Learning
- o *Analysis*: Partial Differential Equations, Numerical Analysis

Programming languages

PyTorch (3 years experience), Python (4 years), MATLAB (5 years)