CURRICULUM VITAE

Maksym Neyra-Nesterenko

Portfolio site: mneyrane.com | Email: contact@mneyrane.com

EDUCATION

Ph.D., Applied Mathematics – Simon Fraser University — May 2024—now

- Supervisor: Ben Adcock

M.Sc., Applied Mathematics – Simon Fraser University — Sep 2020-Mar 2023

- Thesis title: *Unrolled NESTA: constructing stable, accurate and efficient neural networks for gradient-sparse imaging problems*
- Contributes towards research in: deep neural networks for inverse problems in imaging and optimization acceleration schemes for fast image reconstruction
- Committee: Ben Adcock, Nilima Nigam, Ozgur Yilmaz, Nadish de Silva

B.Sc., Mathematics Honours – Simon Fraser University — Sep 2014-Apr 2020

TECHNICAL SKILLS

- Python, MATLAB, SQL, C, Git, Bash
- Microsoft Office 365, LaTeX
- tensorflow, torch, numpy, pandas, spark, scikit-learn, jupyter, matplotlib
- Data modelling, data analysis, data visualization and data cleaning
- Machine learning and statistics
- Optimization theory and algorithms

WORK EXPERIENCE

Data scientist – Statistics Canada — Oct 2019-Aug 2020, Jan-Apr 2019, May-Aug 2018

- Designed and implemented OpenTabulate, a data tabulation Python program, to compile datasets for an open data portal of public Canadian infrastructure hosted on Statistics Canada's website
- Webscraped and assembled a comprehensive dataset of Canadian education facilities on behalf of a government client aiming to conduct an analysis of indigenous schools
- Collaborated with supervisors to write, edit, and submit data quality reports to strengthen business relationships with government clients

PUBLICATIONS

Journal papers

- B. Adcock, M. Colbrook & M. Neyra-Nesterenko, *Restarts subject to approximate sharpness: a parameter-free and optimal scheme for first-order methods*. Found. Comput. Math. (2025)
- M. Neyra-Nesterenko & B. Adcock, *NESTANets: stable, accurate and efficient neural networks for analysis-sparse inverse problems*. Sampl. Theory Signal Process. Data Anal. **21**, 4 (2023)

Conference abstracts

- B. Adcock & M. Neyra-Nesterenko. Provably accurate, stable and efficient deep neural networks for compressive imaging. In *International Conference on Computational Harmonic Analysis,* volume 48. 13-17 Sep 2021.

PRESENTATIONS

Contributed talks

- *Parameter-free and optimal restart schemes for first-order methods via approximate sharpness*
  WCOM Autumn (Sep 21, 2024)
- *Unrolled NESTA: constructing stable, accurate and efficient neural networks for gradient-sparse imaging problems* – Math Grad Social Seminar (Feb 7, 2023)
- *Restart schemes: a powerful parameter-free acceleration scheme for first-order methods*
  SFU Applied Math Seminar (Nov 23, 2022)
- *Stable, accurate and efficient deep neural networks for reconstruction of gradient-sparse images*
  SIAM Pacific Northwest Conference (May 21, 2022)
- *Stable, accurate and efficient deep neural networks for gradient sparse imaging*
  SIAM Conference on Imaging Science (Mar 22, 2022)
- *Stable, accurate and efficient deep neural networks for inverse problems with analysis sparse models*
  SFU Operations Research Seminars (Feb 14, 2022)
- *Provably accurate, stable and efficient deep neural networks for compressive imaging*
  International Conference on Computational Harmonic Analysis (Sep 17, 2021)
- *Provably accurate and stable deep neural networks for imaging*
  CAIMS Annual Meeting (Jun 23, 2021)

RESEARCH INTERNSHIPS

Undergraduate Research Assistant – Simon Fraser University

- Supervised by Paul Tupper and funded by NSERC — May 2017-Aug 2017
- Supervised by Karen Yeats and funded by SFU — May 2016-Aug 2016

SCHOLARSHIPS

Graduate Travel and Research Award — Jan 2025-Apr 2025

Value: $490, received from SFU by application

Ph.D. Research Scholarship — May 2024-Apr 2025

Value: $6000, received from SFU by nomination

Special Graduate Entrance Scholarship — May 2024-Aug 2024

Value: $10000, received from SFU by nomination

Graduate Travel and Research Award — May 2022-Aug 2022

Value: $1500, received from SFU and SIAM by application

NSERC Canada Graduate Scholarships Master's — May 2021-Apr 2022

Value: $17500, received from NSERC by application

Peter Borwein Memorial Graduate Scholarship — Jan 2022-Apr 2022

Value: $1500, received from SFU by nomination

BC Graduate Scholarship Sep 2020-Aug 2021

Value: $15000, received from SFU by nomination

NSERC Undergraduate Student Research Award May 2017-Aug 2017

Value: $4500, received from NSERC by application

VPR Undergraduate Student Research Award May 2016-Aug 2016

Value: $4500, received from SFU by application

ACADEMIC RECOGNITION

- AISTATS 2023 top reviewer (top-10% of reviewers) Feb 2023

REFEREE ACTIVITY

- SIAM Journal on Scientific Computing (SISC) Apr 2023
- International Conference on Artificial Intelligence and Statistics (AISTATS) Nov 2022

WORKSHOPS and DEVELOPMENT

PIMS-IFDS-NSF Summer School on Optimal Transport – University of WA Jun 2022

- Workshop and lectures on optimal transport, attending sessions with focus on use cases in applied mathematics and data science

PIMS Math to power Industry workshop – University of Calgary Aug 2021-Sep 2021

- Completed MITACS professional industry training and development courses for data science
- Worked with Serious Labs to present and report a project on developing real-time simulation for hydraulic systems to enable virtual training for hydraulic equipment usage

TEACHING and MENTORSHIP

Teaching assistant – Simon Fraser University

- Guided students in math workshops, tutorials, and office hours to help understand course material
- Performed marking, invigilation, and management duties to assist course instructors
- Past courses and workshops:
  - Vector calculus (MATH252), algebra workshop Spring 2025
  - Continuous optimization (MATH309), calculus workshop Fall 2024
  - Vector and complex analysis (MATH254), linear analysis (MATH419) Summer 2024
  - Continuous optimization (MATH309), algebra workshop Fall 2022
  - Ordinary differential equations (MATH260) Summer 2022
  - Algebra workshop, mathematics of data science (MATH475) Spring 2022
  - Vector calculus (MATH254), applied calculus workshop Spring 2021
  - Algebra workshop Fall 2020
  - Applied calculus workshop Fall 2018, Spring 2018

PORTFOLIO PROJECTS

Address parsing with recurrent neural networks Jun 2023

- Implemented a data-driven Canadian address parser to perform geocoding and address verification
- Engineered the neural network architecture, data, and training procedure, to compute an accurate parsing model that is robust to noisy input addresses

San Francisco fire service analysis May 2023

- Examined fire service effectiveness and usage via data analysis to inform public safety policies
- Reported statistics on service calls, safety complaints and fire incidents to address service questions
- Extracted and cleaned fire service data programmatically with Python to carry out analysis

Strongly solving Quantik Mar 2023

- Independently solved the 2-player abstract strategy game Quantik, by writing an algorithm that identifies a winning strategy from any legal board position
- Solver implemented in C to leverage high performance and cache-friendly data structures for fast queries and search of winning moves

Analysis of parking tickets in Vancouver – university course group project Dec 2019

- Cleaned and merged spatial public street segment data with parking ticket data for analysis
- Studied variables correlative with parking ticket infractions, such as municipal zoning, date and time, and parking meter cost and presence
- Directed and revised the group project report to enhance clarity and presentability of our work

MEMBERSHIPS

Canadian Applied and Industrial Mathematics Society (CAIMS) Jan 2021—now

Society for Industrial and Applied Mathematics (SIAM) Jan 2021—now

LICENSES and CERTIFICATIONS

First aid and CPR/AED level C – Canadian Red Cross Jul 2023-Jul 2026

- Credential ID: 104291530