CURRICULUM VITAE

Maksym Neyra-Nesterenko

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EDUCATION

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

- Minor in *Computing Science*

TECHNICAL SKILLS

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

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 clients

PUBLICATIONS

Journal papers

- 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.

Preprints

- B. Adcock, M. Colbrook & M. Neyra-Nesterenko, *Restarts subject to approximate sharpness: a parameter-free and optimal scheme for first-order methods.* arXiv:2301.02268.

PRESENTATIONS

Contributed talks

- *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-Aug 2017
- Supervised by Karen Yeats and funded by SFU — May-Aug 2016

AWARDS

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

Value: $17500, received from NSERC by application

Peter Borwein Memorial Graduate Scholarship — Jan-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-Aug 2017

Value: $4500, received from NSERC by application

VPR Undergraduate Student Research Award — May-Aug 2016

Value: $4500, received from SFU by application

RECOGNITION

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

REFEREE ACTIVITY

- SIAM Journal on Scientific Computing (SISC) — Spring 2023
- International Conference on Artificial Intelligence and Statistics (AISTATS) — Fall 2022

WORKSHOPS and DEVELOPMENT

PIMS-IFDS-NSF Summer School on Optimal Transport – University of WA — Jun 20-Jul 1, 2022

- Workshop and lectures on optimal transport, with numerous researchers presenting their work in the area

PIMS Math to power Industry workshop – University of Calgary — Aug 3-27, 2021

- Completed MITACS professional industry training and development courses
- Presented and reported for Serious Labs project on developing real-time simulation for hydraulic systems

TEACHING and MENTORSHIP

Teaching assistant – Simon Fraser University

- Advised and guided students in math workshop and tutorials
- Performed marking, invigilation, and management duties
- Past courses and workshops:
  - Continuous optimization, algebra workshop — Fall 2022
  - Ordinary differential equations — Summer 2022
  - Algebra workshop, mathematics of data science — Spring 2022
  - Vector calculus, applied calculus workshop — Spring 2021
  - Algebra workshop — Fall 2020
  - Applied calculus workshop — Fall & Spring 2018

PERSONAL PROJECTS

Address parsing with recurrent neural networks — Jun 26, 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 23, 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 22, 2023

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

MEMBERSHIPS

Canadian Applied and Industrial Mathematics Society (CAIMS) Jan 2021-Dec 2022

Society for Industrial and Applied Mathematics (SIAM) Jan 2021-Dec 2022

LICENSES and CERTIFICATIONS

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

- Credential ID: 104291530