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*
- 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*
- Thesis title: *Diversities, cluster analysis, and ultrametric embeddings*
- Committee: Paul Tupper, Jonathan Jedwab

TECHNICAL SKILLS

- Linux, Windows
- Python, MATLAB, SQL, C, Git, Bash, LaTeX
- Tensorflow, Torch, Numpy, Pandas, Spark, Scikit-learn, NetworkX, Jupyter
- Machine learning and statistics
- Data analysis, visualization and cleaning
- Optimization theory and algorithms
- Technical writing, presentations and research

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
- Assembled and published open datasets for Canadian health and education facilities on Statistics Canada's website
- Collaborated with co-workers and supervisors to write, edit, and submit documentation of several projects

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

MEMBERSHIPS

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

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

PERSONAL PROJECTS

Address parsing with recurrent neural networks   Jun 26, 2023

- Mockup character-level Canadian address parser built with machine learning
- Procedural generation used to tackle the issue of imbalanced data
- Improved robustness by augmenting training data with typos

San Francisco fire service analysis   May 23, 2023

- Independent exploration of San Francisco's fire department with open data
- Collect descriptive statistics on service calls, safety complaints and incidents
- Examined trends and answered questions using inferential statistics

- Independently solved the 2-player abstract strategy game Quantik
- Written in C for high performance with data structures and algorithms

Strongly solving Quantik   Mar 22, 2023

- Independently solved the 2-player abstract strategy game Quantik
- Written in C for high performance with data structures and algorithms