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EDUCATION

University of Washington

Ph.D. in Applied Mathematics

Seattle, WA

Expected Graduation: 07/2023

University of Washington

M.Sc. in Applied Mathematics

Seattle, WA

07/2021

SKILLS

Machine Learning Algorithms and Deep Learning

As Research Assistant at University of Washington

Seattle, WA

09/2018-now

- Created an algorithm to distill learned physics laws from neural networks. It decreased the amount of data needed to model noisy dynamical systems by 90%.
- Adapted novel optimization methods to accelerate training of deep learning models with `tensorflow`, `jax`, and `CUDA`. Achieved state-of-the-art performance in selected image recognition applications.

Data Science and Data Analytics

As Research Assistant at the Institute for Health Metrics and Evaluation (IHME)

Seattle, WA

09/2018-now

- Devised new statistical models to improve the reliability of Global Burden of Diseases research. Implemented as a Python package and integrated it with the company's pipelines achieving 30-fold acceleration.
- Developed IHME Projections: a statistical model that projects cases and deaths from COVID-19 globally. Collaborated with a team of 130+ researchers while working on it. This tool helped the decision makers, like CDC, to properly allocate scarce resources at the beginning of the pandemic.

Software Development in Python and C++

As Research Assistant at University of Washington and IHME

Seattle, WA

09/2018-now

- Developed `gspack`: python-autograder to accelerate grading of coding assignments. This package is successfully used for 5 scientific computing classes for over 3000 students in Department of Applied Mathematics.
- Enabled SVM classifiers to work with large-scale data. Implemented it as an open-source package `MEMOIR` using SQL, C++, and Python. Improved the accuracy and memory management by 30%.

Project Management, Communication, Teamwork

As Research Student at Computing Center of Russian Academy of Science

Moscow, Russia

02/2016-07/2018

- Lead `rysearch` project: an exploratory search engine and recommender system that simplifies knowledge discovery with MongoDB, BigARTM.
- Effectively organized research and software development in the team of 4 researchers to meet tight deadlines.
- Taught graduate-level classes on Scientific Computing and Optimization to classes of 200+ students (UW).

SELECTED PUBLICATIONS

- **``Universal Feature Selection for Mixed-Effects Models with Non-convex Penalties"**
Together with Santomauro D., Burke J., Zheng P., and Aravkin A., *in preparation*
- **``Distillation of Neural Differential Equations for Interpretable Model Discovery"**
Together with Kutz, N., and Brunton, S. *in preparation*
- **``pysr3: Python Library for Sparse Relaxed Regularized Regression"**
Together with Zheng, P., and Aravkin, A., *under peer-review*
- **``Modeling COVID-19 scenarios for the United States"**
Together with IHME Covid-19 Forecasting Team. *Nature Medicine*, 2020.
- **``Quality Evaluation and Improvement for Hierarchical Topic Modelling."**
Together with Belyy A.V., Seleznieva, M.S., and Vorontsov, K.,

24rd International Conference on Computational Linguistics and Intellectual Technologies

- ``**MEMOIR: Multi-class Extreme Classification with Inexact Margin.**

Together with Belyy, A., *arXiv preprint arXiv:1811.09863 (2018)*.

SERVICE AND OUTREACH

Department of Applied Mathematics, University of Washington

Seattle, WA

Diversity, Equity, and Inclusion (DEI) Committee Member

09/2020 - Now

- Developed 10-years Diversity Action Plan for the Department of Applied Mathematics
- Organized and led educational seminars on importance of diversity in academia.
- Interviewed faculty job candidates to assess their DEI action track.