# Aleksei Sholokhov

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# **SUMMARY**

- o I am a Ph.D. candidate with a background in machine learning, statistics, and applied mathematics.
- o I honed my skills as a Machine Learning Engineer at Stripe and Mitsubishi Electric Research Labs.
- o I love coding: I completed multiple projects in Python, Scala, and C++, for both academic and corporate use.
- o I enjoy research: I contributed to 12 research papers in machine learning and statistical modeling.
- o I am excited to complete amazing projects as a Machine Learning Engineer / Scientist at your company.

# **EDUCATION**

University of Washington
Ph.D. in Applied Mathematics

Seattle, WA

Expected Graduation: 06/2023

**SKILLS** 

## Machine Learning Engineering and Infrastructure

Seattle, WA

Stripe, Inc., Machine Learning Engineer Intern

06/2022-09/2022

- o Designed and implemented a calibration pipeline for large deep learning and xgboost models using flyte and airflow frameworks. Improved the target metrics by 300%. Enabled the team to offer their products to a much broader audience.
- o Transformed my team's vision into a project proposal. Communicated extensively with my leadership to ensure meeting the company's needs. Presented 3 times at department-wide meetings. Drove the project to production in 3 months.

## Research in Machine Learning Algorithms, Deep Learning, and Optimization

Boston, MA

Mitsubishi Electric Research Labs, Inc. (MERL), Machine Learning Research Intern

03/2022-06/2022

- o Created a new deep learning algorithm for predicting behavior of physical phenomena. Implemented it using pytorch and tensorflow. Successfully met specifications of an embedded device; improved the target metrics by 250%.
- o Drove 1 paper from proposal to completion in 3 months and contributed, as a second author, to 1 additional paper.

### **Data Science and Statistical Analysis**

Seattle, WA

Institute for Health Metrics and Evaluation, Research Assistant at Math Sciences Team

09/2019-12/2021

- o Invented new statistical modeling tool pysr3 which does feature selection for mixed-effect models. Achieved 30-fold speed-up relative to competitors. This work led to 3 papers at top peer-reviewed journals and 1 open-source package.
- o Developed a statistical model that projects cases and deaths from COVID-19 in collaboration with a team of 130 researchers to help governmental decision-makers manage resources and plan ahead during the pandemic.

## Software Development in Python, Scala, MATLAB, and C++

Seattle, WA

University of Washington, Research Assistant

09/2018-now

- o Developed gspack: an autograder that accelerates grading of coding assignments in Matlab and Python. This package is successfully used for 5 scientific computing classes for thousands of assignments in the Dept. of Applied Mathematics.
- o Enabled SVM classifiers to work with large-scale data using approximate nearest neighbor search. Implemented it using SQL, C++, and Python. Improved accuracy and memory costs by 30% over competitors.

### Negotiation Skills, Cross-Functional Collaboration, and Cross-Cultural Dialog

Seattle, WA

As a Diversity, Equity, and Inclusion (DEI) Committee Member at UW

09/2020 - 03/2022

- o Developed 10-year Diversity Action Plan for the Department of Applied Mathematics.
- o Negotiated \$20k financial commitment from the department of Applied Mathematics to Early Scholars Program.
- o Organized and led climate orientations and educational seminars on importance of diversity and inclusion in academia.

# SELECTED PUBLICATIONS

- o Sholokhov A. et. al. "A Relaxation Approach to Feature Selection for Linear Mixed Effects Models", arXiv:2205.06925
- o Sholokhov A. et. al. "pysr3: Python Library for Sparse Relaxed Regularized Regression", ICCOPT 22
- o IHME Covid-19 Forecasting Team, "Modeling COVID-19 scenarios for the United States". Nature Medicine