ANTON SUGOLOV

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Toronto, ON

EDUCATION

HBSc. Applied Mathematics and Statistics Sep. 2020 - Jun. 2024
Victoria College at the University of Toronto, St. George *3.82*

- Fourth year Applied Mathematics specialist and Statistics major.
- **Highlights:** Deep Learning, Nonlinear Optimization, Partial Differential Equations, Probability, Data Analysis

EXPERIENCE

Quantum Computing and Machine Learning May 2023 - Aug. 2023
Prof. Hans-Arno Jacobsen and Dr. Viki Kumar Prasad
Middelware Systems Research Group *University of Toronto*

- NSERC USRA research opportunity in dynamic quantum circuit structure selection for regression.
- Applied local search approach towards selecting best-performing circuit for bond dissociation energy prediction.
- Implemented past GNN-based approaches for generalizing circuit performance.
- Technical experience with PennyLane, PyTorch Geometric, Shell scripting, Slurm for HPC training.

Deep Causal Inference Nov. 2022 - Present
Prof. Animesh Garg
People, AI, and Robotics Lab *University of Toronto*

- Adapting previous deep causal inference approaches towards discovery of structural equations in dynamical systems.

Statistical Genetics June 2020 - June 2021
Prof. Lei Sun and Prof. Andrew Paterson *University of Toronto*

- Used PLINK v1.9, R for quality control, association tests, and principal component analysis on genetic data.
- Created open-source tutorial for running Genome Wide Association Studies using publicly available 1000 Genomes gene expression data, wrote accompanying 40-page documentation and published pipeline.
- Lead a workshop replicating GWAS results for 15 students with an introductory understanding of statistics.

PUBLICATIONS

- Sugolov, A., Emmenegger, E., Paterson, A.D., Sun L. *Statistical Learning of Large-Scale Genetic Data: How to Run a Genome-Wide Association Study of Gene-Expression Data Using the 1000 Genomes Project Data.* Statistics in Biosciences (2023).

PRESENATIONS

Q-Site Conference Sep. 2023
University of Toronto *Poster*

Data Sciences Institute Research Day Sep. 2023
University of Toronto *Poster*

Data Sciences Institute Undergraduate Research Day - Best Poster Aug. 2023
Data Sciences Institute, University of Toronto *Poster*

Undergraduate Engineering Research Day Aug. 2023
University of Toronto *Podium*

PROJECTS

Machine Learning

- Interested in the universal approximation of arbitrary continuous non-linear functions, dynamics discovery and PDEs.
- Trained deep-Q RL models with TensorFlow and Numpy for OpenAI gym environments.
- Coursework experience with additive, generalized linear models, multilevel models, random forests, gradient boosting, LDA, QDA, and logistic regression gradient descent from scratch.

Course Scheduling Application December 2021
CSC207: Software Design

- Created Java-based course scheduler implementing SOLID design principles, design patterns, and clean architecture.

TECHNICAL STRENGTHS

Languages & Markup	Python, R, Java, HTML, LaTeX
Packages	PyTorch, PennyLane, Numpy, Pandas, Sklearn
Other	GitHub, Arch Linux, Shell, Slurm, Hugo

HONOURS

NSERC Undergraduate Summer Research Assistantship May - Aug. 2023
Prof. Hans-Arno Jacobsen, Middleware Systems Research Group
Department of Electrical and Computer Engineering, University of Toronto

Regents Scholarship I, II, & III 2021 - 2023
Victoria College

University of Toronto Scholar 2020 - 2021
University of Toronto