

Vasily Ilin

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Education

University of Washington | 2020 - 2026

Applied Mathematics, PhD (\$15,000 in awards)

Boston University | 2015 - 2020

Computer Science, MS

Mathematics, BA & MA (Magna Cum Laude). Thesis: "Stochastic Simulation Algorithms and Benchmarks", [paper](#).

Skills

Technical Skills: Python, SQL, Julia, Java, Git, Lean

Math Skills: Deep learning, diffusion modeling, sampling, optimal transport, mean-field limits, SDE & PDE, math formalization

Publications and Talks

Score-Based Deterministic Density Sampling | ICLR, 2025 | [paper](#)

Deterministic sampling of an unnormalized density using on-the-fly score estimation with a neural network.

RealEdit: Reddit Edits As a Large-scale Empirical Dataset for Image Transformations | CVPR, 2025 | [project page](#)

A dataset and diffusion model to perform text-guided image edits. The first global edit model trained on real data.

Transport Based Particle Methods for the Fokker-Planck-Landau Equation | CMS, 2025 | [pre-print](#)

An algorithm for simulation of plasma using a neural network, inspired by score-based generative modeling.

Community and Mentorship Through the Experimental Lean Lab | JMM, 2025 | [abstract](#)

We share lessons we've learned in building community and mentoring undergraduate research projects in Lean.

Extending `JumpProcesses.jl` for Fast Point Process Simulation with Time-Varying Intensities | JuliaCon, 2024 | [paper](#)

An algorithm to efficiently simulate any point process on the real line with a continuous intensity rate.

Catalyst: Fast Biochemical Modeling with Julia | PLOS Comp Bio, 2023 | [paper](#)

Julia library for modeling and high-performance simulation of chemical reaction networks.

Work Experience

AI Intern at Google Cloud | Summer 2025

Optimized prompts for a Slides2Video model with a bespoke multi-agentic APO schema. Achieved F1 score of 0.9, sped up evaluation by 3x. Presented findings in Google DeepMind.

ML Intern at Google Cloud (Python, SQL) | Summer 2024

Trained XGBoost to predict defective TPUs from HBM ECC telemetry, achieved 80% accuracy and improved test efficiency 4x.

ML Intern at YouTube (Python, C++, SQL) | Summer 2023

Trained model to achieve a 2x Egress/Ingress improvement in a CDN. Proposed and implemented a load balancing algorithm.

Data Engineering Intern at Android, Google (Flume Java, SQL) | Summer 2022

Built a distributed pipeline for Quick Share, from logs to dashboards. Sped up dashboards by 30x using approximate aggregation.

Google Summer of Code (Julia) | Summer 2021 | [code](#), [blog post](#)

Implemented, tested, benchmarked, and optimized algorithms to simulate jump processes. Sped up simulations by 70%.

Projects

AI DnD Bot (LiteLLM, PostgreSQL) | Summer 2024 | [code](#)

Made a Telegram bot for Dungeons & Dragons, including short- and long-term memory, image generation, and persistence.

Deep Reinforcement Learning in DeepRacer | Spring 2022 | [video](#), [report](#), [code](#)

Trained 80+ different models, placed in top 3% out of 1000+ participants in a virtual race hosted by AWS.

Leadership

Math AI Lab (Lean, LLMs) | 2021-present | [Github org](#)

Taught a mathematical formalization class. Started the [Math AI Lab](#) and [seminar](#). Mentored 20+ research projects.