

Nikhil Devanathan

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Education

M.S. Electrical Engineering

3.9 GPA

Stanford University,

Sep 2022–Jun 2024

Coursework includes: Convex Optimization II (EE 364B), Numerical Linear Algebra (CME 302), Stochastic Methods in Engineering (MATH 228), Machine Learning (CS 229)

B.S. Math

3.9 GPA

Stanford University,

Sep 2020–Jun 2024

Coursework includes: Probability III (MATH 230C), Theory of Statistics III (STATS 300C), Mathematical Finance (MATH 238), Randomized Algorithms and Probabilistic Analysis (CS 265)

Experience

Student Researcher

Information Systems Lab, Electrical Engineering, Stanford,

Jun 2022–Jun 2024

Optimization research with Prof. Stephen Boyd

- Developed an efficient method to approximate a statistical quantity
- Proved convergence for a family of convex optimization algorithms

AI Labs Intern

AI Labs, BlackRock,

Jun 2023–Mar 2024

Optimization research and development to support portfolio management

- Delivered risk reductions to multi-asset-class portfolios
- Developed an algorithm and tool for efficient performance attribution on portfolios
- Designed and tested methods to reduce transaction costs

Technical Intern

Chemical and Biological Signatures Group, Pacific Northwest National Laboratory,

Jun–Aug 2021

Mass over charge (M/Q) simulation optimization

- Optimized gas molecule collision simulation code to run 140x faster on high-performance computers

Technical Intern

Battery Materials Group, Pacific Northwest National Laboratory,

Jun–Aug 2019

Assembly of organic redox molecule database

Teaching

Teaching Assistant

EE 104 (CME 107), Introduction to Machine Learning

Mar–Jun 2024

Teaching Assistant

EE 364A (CME 364A), Convex Optimization I

Jan–Mar 2023

Teaching Assistant

EE 263 (CME 263), Linear Dynamical Systems

Sep–Dec 2022

Papers

2024

- Efficient Shapley Performance Attribution for Least-Squares Regression, *arXiv preprint*
- Polyak Minorant Method for Convex Optimization, *Journal of Optimization Theory and Applications*

2023

- The Role of Ion Rotation in Ion Mobility: Ultrahigh-Precision Prediction of Ion Mobility Dependence on Ion Mass Distribution and Translational to Rotational Energy Transfer, *The Journal of Physical Chemistry A*