Navid Bahadoran

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Visa Status: US Citizen

EDUCATION

Florida State University, Tallahassee, FL — Expected: May 2026
PhD in Applied Mathematics (Financial Mathematics Track), GPA (3.96/4)
- Research Focus: Random Matrix Theory (RMT) and its applications in Machine Learning, Deep Learning, and High-Dimensional Data Analysis

University of Washington, Seattle, WA — Dec 2021
MS in Applied Mathematics (Computational Finance and Risk Management Track), GPA (3.95/4)

Sharif University of Technology, Tehran, IRAN
Bachelor of Science in Electrical Engineering

PHD THESIS & RESEARCH EXPERIENCE

- Developing novel RMT-based dimensionality reduction and feature selection techniques for complex data structures in ML. — Spring 2025
- Investigating free probability theory and spectral analysis for improved covariance matrix estimation in finance and deep learning.
- Exploring the intersection of random matrices with quantum computing, particularly in quantum kernel methods for classification and hybrid quantum-classical optimization algorithms.
- Applications in large-scale data systems, cloud computing, and high-performance architectures, optimizing information retrieval and storage.

CFA Institute Research Challenge, University of Washington, WA — Jan 2021
Research Analyst, Financial Modeling & Time Series Analysis
- Conducted valuation and trading analysis of Columbia Sportswear using advanced time series forecasting techniques in Python

COURSEWORK AND PROFESSIONAL DEVELOPMENT

Machine Learning, Monte Carlo Methods, Time Series Analysis, Stochastic Analysis, Quantum Computing

- Quantum Computing & High-Dimensional Optimization — Summer 2024
  - Developed a quantum variational algorithm for the Max-Cut problem, implementing Hamiltonian simulation and hybrid quantum-classical variational methods.
  - Constructed a Quantum Support Vector Machine (QSVM) leveraging quantum kernel estimation to enhance classical ML models.
- Machine Learning for Image Forensics — Fall 2024
  - Built an image tampering detection model using GLCM, HOG, LBP, LLE for feature extraction, Random Forest, XGBoost, SVM for classification, and PCA for dimensionality reduction.
- High-Dimensional Financial Modeling — Spring 2025
  - Mean-Variance Portfolio Optimization combined with James-Stein shrinkage estimators for improved covariance estimation in high-dimensional finance.
  - Applied random matrix theory techniques to analyze eigenvector stability in financial risk assessment models.

MENTORING & TEACHING EXPERIENCE

Florida State University (FSU), Tallahassee, FL — Aug 2023-Present
Graduate Teaching Assistant & Research Mentor
- Mentored undergraduate students on Python programming, machine learning, and statistical modeling techniques for research projects.
- Provided hands-on training in data analysis and AI model evaluation.
- Led recitations and office hours for undergraduate courses in Probability & Stochastic Analysis.

Work Experience

State of Wisconsin Investment Board (SWIB), Madison, WI — Nov 2021-Aug 2023
Data Analyst, Risk Analytics and Systems

- Developed Monte Carlo simulation models for ex-ante risk analysis using FactSet Factor Models in Python.
- Built a liquidity analytics database for enterprise-level risk management, integrating SQL and Python (SQLAlchemy).

Massachusetts Pension Reserves Investment Management Board (Mass PRIM), Boston, MA — Jun 2021-Nov 2021
Quantitative Research Intern, Research Department

- Designed machine learning models to rank public companies based on likelihood of Private Equity-like returns, incorporating financial metrics, market trends, and NLP for earnings call analysis.

T-Mobile, Seattle, WA — Sep 2014-May 2018
Telecom Engineer, RF Network Planning and Optimization

- Performed RF modeling and simulation for cellular network planning, including propagation analysis and coverage optimization using industry-standard tools.
- Configured and optimized base station parameters (e.g., antenna tilt, power levels, neighbor lists) to improve coverage, capacity, and handover performance.
- Conducted drive test data analysis and KPIs evaluation to troubleshoot network performance and identify interference or capacity issues.
- Collaborated with cross-functional engineering teams to support network expansion and LTE rollout projects, including frequency planning and site commissioning.
- Documented network optimization strategies and prepared technical reports for internal stakeholders and regulatory compliance

Certifications & Professional Development

- Data Science Certificate, **Erdős Institute** — Dec 2024
- Stochastic Quantization, **SLMS Summer School, University of California, Berkley, CA** — July 2024

Modeling and Technical Skills

- Programming: Python (Pandas, NumPy, Scikit-learn, TensorFlow, PyTorch), R, SQL, C++ (basic)
- Machine Learning & AI: Supervised/Unsupervised Learning, Deep Learning, Quantum ML, Feature Selection, Bayesian Optimization
- Quantum Computing: Qiskit, PennyLane, Quantum Kernels, Variational Algorithms
- Financial & Risk Modeling: Stochastic Analysis, Portfolio Optimization, Monte Carlo Simulations
- Data Visualization & Cloud Computing: Power BI, Tableau, High-Performance Computing (HPC), AWS

Honors & Awards

- Academic Achievement & Peer Leadership Award, University of Washington (Fall 2021) — Fall 2021
- Graduate Fellowship Nominee, Google PhD Fellowship Program (2025) — Fall 2021

Interest & Activities

Tennis | Swimming | Traveling | Playing Santoor (Persian Musical Instrument)