Navid Bahadoran

(425)209-7391 | Tallahassee, FL | navid.bahadoran@gmail.com | Personal Website | LinkedIn | GitHub| **US Citizen**

SUMMARY

PhD candidate in Applied Mathematics at Florida State University with a strong foundation in quantitative modeling, high-dimensional statistics, and machine learning. Experienced in applying advanced mathematical techniques and Python-based tools to real-world problems in finance, risk analytics, and AI. Seeking data science, machine learning, or quant research roles to apply cutting-edge theory to impactful business solutions.

EDUCATION

Florida State University (FSU), *PhD in Applied Mathematics, Financial Mathematics (*GPA = 3.97) **May 2027**
University of Washington (UW), *MS in Applied Mathematics, Financial Mathematics (*GPA = 3.95) **Dec 2021**
Sharif University of Technology, *BS in Electrical Engineering* (GPA = 3.66) **Jun 2003**

SKILLS & CERTIFICATIONS

- Languages & Platforms: Python (OOP), R, SQL, Git, C++ (basic), Power BI, Tableau
- Python Libraries: PyTorch, LightGBM, XGBoost, TensorFlow, SQLAlchemy
- Machine Learning: Supervised/Unsupervised Learning, Feedforward NN, Convolution NN, Feature Selection, Bayesian Optimization, Logistic regression, Random Forest, Gradient Boosting, Ensemble Learning, Stacking Learning
- Quantum Computing: Quantum ML, Qiskit, PennyLane, Quantum Kernels, Variational Algorithms
- Quantitative: PCA, Optimization, Eigenvector shrinkage, Monte Carlo, Time series, Fairness metrics, Bayesian inference
- Soft Skills: Technical presentation, Collaboration, Documentation, Adaptability, Cross-functional teamwork
- Certifications: The Erdos Institute, Deep Learning Boot Camp (2025), The Erdos Institute, Data Science Boot Camp (2024)

WORK EXPERIENCE

State of Wisconsin Investment Board (SWIB): Madison, WI **2021 – 2023**
Data Analyst, Risk Analytics and Systems
- Built Python pipelines for ex-ante risk metrics using FactSet Factor Models and Monte Carlo simulations.
- Designed and implemented enterprise-wide liquidity database using SQL and SQLAlchemy.

Massachusetts Pension Reserves Investment Management Board (Mass PRIM): Boston, MA **2021-2021**
Quantitative Research Intern
- Researched public-company screening methods by adapting private-equity metrics and classification models.
- Proposed LBO-style classification using Python-based modeling and historical fundamentals.

T-Mobile: Bellevue, WA **2014-2020**
Network Systems Engineer
- Developed and implemented the Risk Management System for telecommunication projects to evaluate ongoing projects and assess new bids coming from the clients, using Python.
- 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 (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.

SELECTED PROJECTS

High-Dimensional Portfolio Optimization – FSU **Summer 2025 - Present**
- Designed a PCA-based covariance estimator for asset returns under high-dimensionality (p = 500, n = 100).
- Applied eigenvector shrinkage and James–Stein regularization to enhance out-of-sample Sharpe ratios by 21%, aligning with liquidity and investment suitability risk management.

Fair Auto Loan Risk Modeling (Link) **–** FSU **Spring 2025**
- Built classification models (Logistic Regression, XGBoost, Random Forest) to predict default risk using 21,000 loan records.
- Conducted fairness analysis across demographic groups, identifying and mitigating approval biases.
- Demonstrated responsible ML practices aligned with regulatory risk and compliance frameworks.

Business and Financial health Forecasting – FSU **Spring 2025**

- Performed Time Series Analysis such as ARIMA, GARCH and Linear Regression to forecast the sales and net income of specific firm till 2026 and provided trading (Buy or Sell) suggestion. Calculated the Beta, liquidity, profitability, leverage, and efficiency ratios and Altman Z-Score for comparing its business health using Python.

Tampered Image Detection (Link) **–** The Erdős Institute **Fall 2024**

- Trained image classification models on a dataset of 25,000 images (50% tampered), using CNN and classical feature extraction (LBP, GLCM, HOG, LLE) for tampered vs. authentic image classification. Evaluated with precision, recall, and ROC-AUC metrics. Achieved 83.4% accuracy and AUC of 0.85 across 3-fold validation.

Quantum Optimization Algorithms (Link) **–** FSU **Summer 2024**

- Constructed variational quantum circuits for Max-Cut on graphs with 8–16 nodes. Compared quantum cost function minimum to classical exhaustive search, achieving up to 45% speedup for mid-size instances. Integrated quantum kernel methods with SVM achieving 96% classification accuracy on the Iris dataset.

Firm Bankruptcy Prediction (Link) **–** FSU **Spring 2024**

- Applied Machine Learning (ML) & Statistical Modeling to predict firms' Bankruptcy. In this project financial ratios, industry and management risks considered as features and it was programmed in Python using SciKit Learn and Tensorflow-Keras packages to apply ML models such as Kernel SVM, KNN, PCA, Random Forest, Deep Neural Network and Autoencoder for forecasting healthiness of firms.

American Option Valuation via Monte Carlo – FSU **Spring 2024**

- Valued American options using the Least-Squares Monte Carlo method to estimate early-exercise risk, liquidity exposure, and embedded optionality.
- Analyzed impact of market volatility on pricing accuracy using stochastic simulations.

SRI Portfolio Analysis (Link) **–** FSU **Fall 2023**

- Constructed a socially responsible investing (SRI) portfolio by screening stocks on ESG factors and applying machine learning classification.
- Used **mean-variance optimization** to allocate capital while managing client suitability and exposure risk.

LEADERSHIP EXPERIENCE

Florida State University **Aug 2023-Present**

Graduate Teaching Assistant & Research Mentor

- Mentored undergraduate students in Python programming, machine learning, and data analysis for research projects.
- Conducted recitations and office hours, fostering peer learning in Probability and Stochastic Analysis.

University of Washington **Sep 2021-Dec 2021**

Academic Achievement & Peer Leadership Award

- Recognized for academic excellence and leadership in collaborative research and peer mentoring.

University of Washington – CFA Institute Research Challenge **Jan 2021-Feb 2021**

Team Member & Research Analyst

- Collaborated with a team to perform equity valuation and trading analysis of Columbia Sportswear.
- Led Python-based financial modeling and time series forecasting in a team setting; presented analysis to industry judges.

AWARDS, HONORS AND ACTIVITIES

- Third Place, Tam Family Poster Competition (Link) – FSU **2025**
- Featured in UW CFRM Newsletter by Chair Dr. Tim Leung (Link) – (UW) **2022**
- Academic Achievement Reward (Link) – UW **2021**
- Peer Leadership Award (Link) – UW **2021**
- Enjoy recreational activities including chess, backgammon, tennis, pickleball, and swimming
- Playing piano and santoor (traditional Iranian instrument)