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EDUCATION

Dartmouth College, Hanover, NH

• Bachelor of Arts in Mathematics (Expected June 2028)

• Sophomore; coursework includes Probability, Linear Algebra, Differential Equations, Real Analysis, Dynamical Systems, and Machine Learning.

QUANTITATIVE FINANCE & RESEARCH PROJECTS

Financial Tug-of-War Model (Independent Research)

• Modeled competing trading agents in a stochastic differential game, solving for Nash equilibrium strategies.

• Implemented Q-learning reinforcement learning algorithms; convergence achieved with 95–100% payoff efficiency.

• Applied dynamic programming, stochastic processes, and game theory to financial strategy.

Portfolio Optimization using Matrix Differential Calculus

• Applied quadratic programming and matrix calculus to minimize portfolio variance across AAPL, MSFT, and AMZN.

• Processed historical return data, computed covariance matrix, and derived efficient frontier portfolio weights. **Modeling Snowfall Dynamics in Vermont (Ongoing Research)**

• Developing models of long-term snowfall dynamics using Koopman Theory and Dynamic Mode Decomposition.

• Research explores predictive dynamics with applications in climate and risk modeling.

ML Startup – Acesso (Co-Founder, Data Science Lead)

• Built a machine learning model to predict and reduce medical claim denials.

• Designed and trained predictive pipelines in Python (scikit-learn, PyTorch), improving model accuracy and scalability.

• Collaborated on product design and strategy; pitched to early-stage investors.

TECHNICAL SKILLS

• Programming: Python, Java, JavaScript, C#, TypeScript

• Quantitative Methods: Reinforcement Learning, Game Theory, Convex Optimization, Stochastic Processes, Dynamical Systems

• Data Science: Data Cleaning, Statistical Analysis, Machine Learning Model Training & Deployment

LEADERSHIP & ACTIVITIES

• Startup Co-Founder: Co-created ML startup (Acesso), with the help of the Dartmouth Social Venture Incubator, focused on healthcare data analytics.

• Dartmouth Math Society

AWARDS & RECOGNITION

• Evolutionary Game Theory Project – 2nd Place Award

• Founders' Grant Award for $3000 for a startup competition through the Social Venture Incubator in the Magnuson Center at Dartmouth

EXPERIENCE

Machine Learning / Data Intern - Advvise Partners (Summer 2025)

• Built Python pipelines (pandas, openpyxl) to clean, consolidate, and analyze multi-sheet financial data across 20+ client accounts, replacing manual spreadsheet workflows.

• Engineered basic forecasting features and evaluated regression-based models to explore revenue and cash-flow trends.