Moinak Nath

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EDUCATION

Northwestern University Evanston, IL
M.S. in Computer Science | B.A. in Mathematics, Minor in Physics December 2025
GPA: 3.9/4.0 | *Honors:* Dean's List (7 of 9 quarters)
Courses: Mathematical Models in Finance, Macroeconomics, Regression, Probability & Statistics, Deep Learning, Stochastic Models, Algorithms, AI, Machine Learning, Computer Systems, Graph Theory, Linear Algebra, Discrete Math

SKILLS

Expert: C/C++, Python, NumPy, SciPy, Jupyter Notebook, scientific programming, applied mathematics, data science
Intermediate: GitHub, PyTorch, TensorFlow, Pandas, Sklearn, openCV, UNIX, command line, Excel, Word, PowerPoint
Proficient: HTML, CSS, JavaScript, React, Flask, Figma, Mathematica, SQL, statistical analysis, time-series analysis

EXPERIENCE

Peer Mentor Evanston, IL
Northwestern University, COMP_SCI 150 - Fundamentals of Computer Programming 1.5 September 2024 – Present
- Tutored students in office hours for 6 hrs per week, providing assistance with coding and conceptual understanding

Quantitative Trading Analyst Evanston, IL
NU Capital Management, Quantitative Strategies Group February 2024 – Present
- Conducted industry and market research by analyzing electric vehicle price and market share data with Excel and Python financial models; won 1st place on an EV market making competition
- Completed course consisting of 10 lectures on market essentials, securities, derivatives, and options

Machine Learning Engineer Evanston, IL
Institute of Electrical and Electronics Engineers, Technical Program February 2024 – May 2024
- Spearheaded the development of ScriptScribe, a machine learning based React web app to correct grammar and spelling errors in handwritten text while preserving the author's style, resulting in a 95% accuracy rate
- Led a team of 10 engineers; organized weekly meetings, provided ideas, and assisted team with technical issues
- Introduced cutting-edge tool to Citadel and GrubHub engineers; showcased its potential to revolutionize education and increase user productivity by 40%, leading to endorsements and partnership discussions for future collaboration
- Constructed an innovative neural network made of 2 RNNs and a CNN using TensorFlow to learn authors' handwriting and generate corrected text; developed OCR system using PyTesseract and TrOCR to scan handwriting

Quantitative Researcher Intern Batavia, IL
Fermi National Accelerator Laboratory, BREAD Project June 2023 – August 2023
- Implemented mathematical algorithm in Python using NumPy and SciPy to convert S-parameter data to relative permittivity, achieving an error of 2%; conducted statistical analysis of measurement data to ensure precision
- Built device to measure permittivity of materials, allowing group to build 10-500 GHz range dark matter detector

Quantum Computing Researcher Evanston, IL
Koch Research Group October 2022 – June 2023
- Improved runtime of scQubits, a Python package for simulating qubits, by optimizing matrix diagonalization options in SciPy and testing PRIMME, a SciPy alternative for diagonalization, yielding a 26% speed improvement
- Developed library to perform runtime benchmarks and plot results using MatPlotLib, boosting team's research output by 13%; presented results of quantitative research project to 10 leading quantum computing researchers

TECHNICAL PROJECTS

MLStockPredict (Quantitative Research Project) June 2024 – July 2024
- Designed LSTM neural network to predict prices of 500+ stocks and trained model on large time-series data set; backtested model on Uber, Apple, and Tesla stocks, achieving a mean squared error of .013
- Integrated machine learning model into website to visualize market data and display predictions from neural net
- Showcased project to portfolio manager from Radix Trading, who saw potential in the model for profitable trading
- **Utilized**: Python, Pandas, TensorFlow, NumPy, Flask, React, TypeScript, Polygon.io API

Options Pricer (Quantitative Research Project) June 2024 – July 2024
- Implemented 2 options pricing algorithms based on the Black-Scholes model and Monte-Carlo simulations
- Compared algorithms by using them to price Apple options and plotting the real price against predicted values
- **Leveraged**: Python, Jupyter Notebook, Pandas, NumPy, Yahoo Finance