Achintya Jha

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EDUCATION

Arizona State University Tempe, AZ
B.S. Computer Science, B.S. Economics; ***GPA*****- 4.15**; **Dean's List** (All semesters) May 2026
College Activities: Sun Devil FinTech **(President)**, Fall 2025 Cohort **Analyst** at University's Investment Management Fund **($1.6M)**

EXPERIENCE

Low-Light Image Enhancement Tempe, AZ
Undergraduate Researcher - under Prof. Malena Espanol, Arizona State University Jan. 2025 – May. 2025

- Co-authored a research project on **an adaptive low-light image enhancement model** using CLAHE, gamma correction, and non-local means denoising, optimizing parameters via first-order image statistics. (Python - **OpenCV, NumPy**).
- Achieved significant perceptual quality gains with ultra-low latency, outperforming traditional deep learning methods on computational cost.
- Conducted failure analysis on deterministic **diffusion using Hugging Face models**, identifying key limitations of gamma-based forward processes and proposing insights for stochastic alternatives
- Built a preprocessing and evaluation suite with custom metrics for image contrast and statistical quality benchmarking.

Epigeneres Biotech Remote
Machine Learning & Data Science Intern May. 2024 – Aug. 2024

- Designed high-performance data pipelines to process large-scale genetic data, boosting model throughput by 5x.
- Applied supervised machine learning and statistical inference to detect cancer-linked genomic patterns in human genome files.
- Built a modular Python API for bioinformatics data ingestion, transformation, and annotation, integrating external databases and local genomic files for downstream analysis.

Nucleus Software Remote
Software Engineering Intern Jun. 2023 – Aug. 2023

- Optimized system performance for a large-scale financial services portal used by General Motors Financial, reducing backend latency by 30% through code profiling and architectural improvements.
- Developed robust end-to-end automated testing pipelines using Spring Boot, Selenium, and PL/SQL, enhancing platform reliability and minimizing operational risk, working in an Agile team.

PROJECTS

Portfolio Optimizer & Risk Assessment | https://github.com/achntj/portfolio-optimizer

- Developed dynamic portfolio optimization models using **stochastic processes**, such as Monte Carlo simulations and Geometric Brownian Motion, to simulate asset price movements and optimize portfolio allocations using **Markowitz optimization** and the **Black-Litterman model**.
- Implemented strategies to dynamically adjust asset weights based on the likelihood of achieving target returns over specified holding periods. Additionally, integrated **Reinforcement Learning** to adjust portfolio allocations in response to changing market conditions, significantly improving real-time investment strategies.

Statistical Arbitrage Model | https://github.com/achntj/statistical-arbitrage

- Developed and implemented a **Statistical Arbitrage strategy**, utilizing **Engle-Granger cointegration tests and clustering algorithms to uncover mispriced intermarket asset pairs** with mean-reverting opportunities.
- Engineered ML-based signal generation models to forecast spread deviations and inform trading decisions.
- Developed a robust pair trading framework with dynamic entry/exit logic, integrating both statistical and machine learning components
- Backtested strategies over historical data, optimizing performance under Value at Risk (VaR) and Conditional VaR constraints, achieving strong Sharpe Ratio and controlled drawdowns.

SKILLS

Languages / Tools: **Python,** Java, **C++**, TypeScript, JavaScript, SQL, R, **Bloomberg Terminal**
Libraries: NumPy, Pandas, scikit-learn, PyTorch, TensorFlow, Matplotlib, TA-Lib, Fast API, NLTK, React JS, Prisma ORM
Development Skills: Machine Learning, Deep Learning, Monte Carlo Simulations, UNIX, Git, Vim, ZSH, Data Structures, Algorithms, **AWS**, Google Cloud, CI/CD, Databases
Math: Probability Theory, Stochastic Processes, Optimization, Econometrics, Empirical Modeling, Time Series Analysis
Certificates: Bloomberg Market Concepts, Machine Learning with SciKit Learn
Relevant Coursework: Data Structures & Algorithms, Object-Oriented Programming, Probability, Applied Regression and Data Analytics, Calculus 3, Discrete Math, Financial Economics, Portfolio Engineering, Game Theory, Corporate Finance