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)* *Aug 2022 – May 2026*

- **President**, Sun Devil FinTech Club; Fall 2025 Analyst, ASU Investment Management Fund **($1.6M)**

Experience

Undergraduate Research Assistant (Low-Light Image Enhancement) Jan 2025 – May 2025

Under Prof. Malena Espanol, Arizona State University *Tempe, AZ*

- Developed adaptive image enhancement pipeline using **Python, OpenCV, and NumPy**, optimizing CLAHE and gamma correction parameters for real-time processing with 40% improved perceptual quality.
- **Outperformed traditional deep learning models** by achieving 10x lower computational latency while maintaining comparable visual enhancement results.
- Conducted failure analysis on **Hugging Face diffusion models**, identifying limitations in deterministic gamma-based forward processes and suggesting stochastic modeling improvements.
- Built a modular evaluation and preprocessing suite with custom metrics for contrast and perceptual quality metrics, enabling automated benchmarking for 50+ enhancement algorithms.

Machine Learning and Data Science Intern May 2024 – Aug 2024

Epigeneres Biotech *Remote*

- Architected **high-throughput ETL pipelines** in Python to process **2 TB+** of genomic datasets, improving data ingestion and preprocessing speeds by **5 times**.
- Developed and deployed supervised **ML models for genomic sequence classification**, automating the detection of cancer-linked patterns and reducing manual analysis time.
- **Built a scalable, modular Python API** integrating external 15+ bioinformatics databases and local genomic files, streamlining downstream analytics workflows.

Software Engineering Intern Jun 2023 – Aug 2023

Nucleus Software *New Delhi, India*

- Optimized backend services (Spring Boot, PL/SQL) for General Motors Financial portal serving 100K+ users, **reducing latency by 30%** through targeted code refactoring and architectural optimizations.
- Implemented **end-to-end automated test pipelines (Spring Boot, Selenium)**, reducing regression bugs by 50% and improving deployment reliability across 8 financial dashboards.
- Designed reusable API endpoints with an improved data flow architecture, enhancing system scalability.

Projects

Multi-Agent Decision Engine | github.com/achntj/multi-agent-reasoning

- Engineered a full stack multi-agent reasoning system using LLMs (via **Ollama**) and retrieval-augmented generation, simulating balanced strategic analysis from Optimist, Pessimist, and Synthesizer agents.
- Built **FastAPI backend** with semantic search (**Sentence Transformers + PyTorch**), structured LLM prompt pipelines, and modular APIs for document-driven reasoning.
- Developed a **React + TypeScript** (Next JS) frontend with progressive loading indicators and real-time debate visualizations across agent perspectives; used **Tailwind CSS** for styling and Axios for API integration.

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

- Implemented statistical arbitrage strategy using Engle-Granger cointegration tests and K-means clustering to identify 200+ mispriced asset pairs with mean-reverting characteristics.
- Integrated ML-based signal predictors (**Random Forest**) to enhance spread forecasting accuracy and improve PnL consistency under varying market conditions.
- Built an end-to-end backtesting engine using **Pandas and NumPy**, integrating strategy logic, and risk metrics.

Skills

Languages: **Python**, Java, C++, **TypeScript**, JavaScript, SQL, R, HTML, CSS (Tailwind CSS)
Libraries: **React**, Next.js, FastAPI, Express, **PyTorch**, TensorFlow, scikit-learn, NumPy, Pandas, NLTK, Matplotlib
Systems & Tools: **Docker**, GitHub Actions, Redis, BullMQ, **PostgreSQL**, **AWS**, GCP, Vercel, Git, UNIX, Vim, Zsh
Specialized Areas: Machine Learning, **Deep Learning**, **NLP**, Financial Modeling, Optimization, Time Series Analysis