

# Achintya Jha

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## EXPERIENCE

### Undergraduate Computer-Vision Research Assistant

Jan 2025 – May 2025

Arizona State University

Tempe, AZ

- Engineered an adaptive low-light enhancement pipeline (Python/OpenCV/NumPy), increasing perceptual quality by 40% via CLAHE/gamma tuning.
- Achieved 10x throughput compared to deep-learning baselines by vectorizing OpenCV/NumPy operations.
- Scaled benchmarking across 50+ enhancement algorithms, minimizing evaluation time through parallel processing and polymorphic module design.

### Machine Learning Engineer Intern

May 2024 – Aug 2024

Epigeneres Biotech

Remote

- Architected high-throughput Python ETL pipelines to process **2 TB+** genomic datasets, boosting ingestion and preprocessing **speeds by 5 times** by parallelizing chunked I/O.
- Automated the detection of cancer-linked patterns, reducing manual analysis time by 80% by training supervised **ML models for genomic sequence classification**.
- Built a scalable, modular Python API** integrating 15+ external bioinformatics databases and local genomic files, dropping data-prep time from 10 hours to 3 minutes via caching and schema normalization.

### 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 API endpoints enhancing system scalability by improving data flow architecture.

## PROJECTS

### Deep Audio Classifier and Visualizer (*PyTorch, FastAPI, Next.js*)

[cnn-audio-vis.vercel.app](https://cnn-audio-vis.vercel.app)

- Architected a ResNet-style CNN with Mixup & SpecAugment, hitting **96.8 %** accuracy on ESC-50; trained with AdamW & OneCycleLR, tracked in TensorBoard.
- Built a type-safe **FastAPI** backend with **Pydantic** data validation and automated CI/CD with GitHub Actions, reducing API errors to **0.6 per 1000 requests**.
- Deployed an interactive dashboard (**Next.js + Tailwind**) showing waveform, Mel-spectrogram, and feature-map visualizations; **1.8K unique users, 99.9 % uptime** on Vercel.

### Multi-Agent Decision Engine

[github.com/achntj/multi-agent-reasoning](https://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.
- Shipped a **FastAPI backend** with semantic search (**Sentence Transformers + PyTorch**), and structured LLM prompt pipelines for document-driven reasoning under 10 seconds.
- 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.

## EDUCATION

### Arizona State University

Tempe, AZ

B.S. Computer Science, B.S. Economics; **GPA- 4.0; Dean's List** (All semesters)

Aug 2022 – May 2026

- President**, Sun Devil FinTech Club - Lead workshops, projects, and code-reviews on quant/ML topics.
- Quantitative Analyst**, ASU Investment Management Fund (\$1.6M)

## SKILLS

**Languages:** Python, TypeScript, JavaScript, Java, SQL

**Libraries:** React, Next.js, FastAPI, PyTorch, scikit-learn, NumPy, Pandas, Matplotlib

**Systems & Tools:** Docker, GitHub Actions, Redis, PostgreSQL, AWS, GCP, Vercel, Git, UNIX