Aparnaa Senthilnathan

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LinkedIn: https://linkedin.com/in/aparnaain | GitHub: https://github.com/AparCode | US Citizen

Education

Bachelor/Master of Science in Computer Science, *Rochester Institute of Technology* — Expected: May 2026
GPA: 3.36 — Rochester, New York
RIT Presidential and Recognition Scholar 2021

Skills

Languages: Python, SQL, Java, JavaScript

Backend & Infrastructure: FastAPI, REST APIs, Slurm, GitLab CI/CD, Linux, Perforce

Data & Real-Time Systems: PyTorch, OpenCV, MediaPipe, Pandas, NumPy

Tools: Unreal Engine, TouchDesigner, Docker, Git

Professional Experience

Computer Vision Intern, *Kitware Incorporation* — 05/2024 – 08/2024
Carrboro, North Carolina

- Orchestrated distributed data processing workflows using **Slurm** and multi-GPU environments, optimizing resource allocation for high-throughput model training cycles
- Engineered extensible pipeline components for the **YOLOX** framework, enabling the seamless injection of new model architectures into existing production systems
- Automated dataset curation and validation using **FiftyOne** and **PyTorch**, creating standardized protocols for detecting edge cases in large-scale datasets

Artificial Intelligence Research Intern, *Griffiss Institute* — 07/2023 – 12/2023
Rome, New York

- Designed adversarial stress-testing frameworks to evaluate system reliability, specifically targeting zero-shot classification failures and out-of-distribution data anomalies
- Implemented automated analysis pipelines using cosine similarity and confusion matrices as a way to quantify system robustness against homonyms
- Refactored legacy evaluation scripts into modular components, improving the reproducibility of experiments across **ResNet** and **Vision Transformer** model architectures

Projects

VirtualCloset, *Team, HACK.COMS '25, 2025* — 11/2025

- Architected a responsive desktop client using **JavaFX**, implementing a modular UI architecture to visualize dynamic inventory states from a remote server
- Constructed a robust HTTP client layer in **Java** to consume asynchronous **FastAPI** endpoints, utilizing background threads to prevent UI blocking during data retrieval
- Integrated generative AI features by designing a strict **JSON**-based data exchange schema, ensuring seamless communication between the **Java** application and the **Gemini**-powered **Python** backend

XRLive Projects, *Vertically Integrated Project* — 01/2025 – 11/2025

- Devised real-time gesture recognition pipelines using **TouchDesigner** and **MediaPipe**, utilizing vector-based hand tracking logic to drive physics-based fabric simulations on **Azure Kinect** hardware
- Established synchronization protocols for motion capture using **Unreal Engine** and **RADICAL Motion**, optimizing facial morph target retargeting to resolve avatar latency issues and ensure precise performer mapping
- Produced high-fidelity audio assets using **Ableton Live**, designing complex synth patches and integrating foley sound effects to engineer an immersive sonic environment for the final exhibition

Leadership & Activities

Women in Computing, *Graduate Coordinator, Active Member, PR Committee Member*

- Organized graduate-level technical and networking events to drive community engagement and membership growth
- Mentored elementary and middle school students in **JavaScript** and object-oriented programming fundamentals

Computing Organization for Multicultural Students, *Public Relations Chair, Active Member*

- Led communication and outreach initiatives, coordinating content across cross-functional teams
- Translated technical and event-related information into clear, user-friendly messaging for diverse audiences