Aparnaa Senthilnathan

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Education

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

Professional Experience

Intern, Computer Vision Team, *Kitware Incorporation* 05/2024 – 08/2024
Carrboro, North Carolina
- Developed three cutting-edge object detection systems for customers in the DoD and IC
- Improved two methods for small object detection by fine-tuning a PyTorch model and its parameters
- Conducted three datasets and validation pipelines using RT-DETR to test small object model performance
- Trained a SOTA real-time, transformer-based architecture on COCO (RT-DETR)

Artificial Intelligence Research Co-Op/Intern, *Griffiss Institute* 07/2023 – 12/2023
Rome, New York
- Revamped a PyTorch zero-shot classifier model that tests CLIP's performance in identifying homonyms
- Researched the impact of a couple adversarial attacks on a foundational model
- Identified four vulnerabilities of the CLIP pre-training technique within two foundational models

MIT Beaver*Works Summer Institute Cog*Works, *Massachusetts Institute of Technology* 07/2020 – 08/2020
Remote
- Trained a model on using 15-second audio snippets and finding wavelength peaks to identify a song using NumPy, SciPy, and Numba
- Designed a computer vision algorithm to match more than one faces shown on screen with a webcam with those saved in the program's database
- Created one natural language learning ResNet model to find images using a given caption

Skills

Programming Languages: Python, SQL, Java, JavaScript, C#, HTML, CSS

Technologies: TensorFlow, PyTorch, Scikit-Learn, NumPy, Pandas, OpenCV, MediaPipe, Jupyter Notebook, Google Colab, Anaconda, LangChain, Hugging Face Spaces, OpenAI APIs, Git, GitHub, Virtual Studio, Linux Shell Scripting, Ubuntu, Windows, iOS, Angular, WebGPU, Unreal Engine, RADICAL Motion, Microsoft Office, Canva

Concepts: Artificial Intelligence, Machine Learning, Deep Learning, Neural Networks, Generative AI, Natural Language Processing, Computer Vision, Computer Graphics, Virtual Reality, Augmented Reality, Algorithms, Data Structures, Predictive Modeling, Model Development & Evaluation, Statistics, Applied Mathematics, Software Engineering, Software Development, User Interface Design, Technical Writing, Results Reporting, Real-World Data, Problem Solving

Projects

XRLive: The Return of Virtual Karaoke, *Vertically Integrated Project, 2025*
- Engineered functionality for the virtual avatar's thirty morph targets and motion capture using Unreal Engine and RADICAL Motion
- Identified two bugs with facial animations in motion capture when retargeting avatars
- Modeled the user interface to switch between six avatars by pressing the spacebar

MyErgBuddy, *Team, WicHacks '25, 2025*
- Architected one pose estimation model using MediaPipe to detect and measure six landmarks to determine the correct postures
- Implemented four functions that measure and compare each of the six body landmarks' positions using math
- Pioneered three parts of the OpenCV fancam model, such as getting the program to print statements for correct postures

BrickStein, *Team, BrickHack 11 Hackathon, 2025*
- Refined two screenshot and video generation features using OpenCV and Manim to aid the chatbot in guiding students
- Built framework for image summarization using an OpenAI model for the chatbot to scan
- Processed and cropped screenshots that have a drawn circle or box using OpenCV

Organizations

Computing Organization for Multicultural Students, *Public Relations Chair, Active Member*
- Innovate a template for the weekly COMS Connection Newsletter using CampusGroups
- Formulate and post fifteen weekly posts, reels, and flyers to help promote the organization using Canva
- Capture photos and videos of events to produce recap posts and reels on Instagram and LinkedIn

Women in Computing, *Graduate Coordinator, Active Member, PR Committee Member*
- Design posts and flyers to promote events through social media
- Mentored students in 6th-12th grade in computer programming skills

Artificial Intelligence Club, *Events Coordinator*
- Planned events such as company visits to promote Artificial Intelligence to our college student body