Aparnaa Senthilnathan

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Objective

Seeking an internship in artificial intelligence and software development to utilize my skills in PyTorch and Python.
Available: May - August 2025

Education

Bachelor/Master of Science in Computer Science,
Rochester Institute of Technology
Rochester, New York
GPA: 3.35, *Expected May 2026*

Professional Experience

Intern, Computer Vision Team, *Kitware Incorporation*
05/2024 – 08/2024 | Carrboro, North Carolina
- Developed cutting-edge object detection systems for customers in the DoD and IC.
- Improved methods for small object detection by fine-tuning a PyTorch model and its parameters.
- Conducted 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 adversarial attacks on foundational models.
- Identified a vulnerability of the CLIP pre-training technique within foundational models.

Research Student Internship, *Northeastern University*
02/2020 – 06/2021 | Remote
- Revised a mask recognition algorithm on the improvement of public health awareness post-COVID19.
- Presented research findings to NYC-based research competitions and was recognized as a Junior Science and Humanities Symposium 2021 semifinalist.

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 faces shown on screen with a webcam with those saved in the program's database.
- Created a natural language learning ResNet model to find images using a given caption.

Projects

Are You Social Distancing Mask-Recognition Program,
Team
- Composed a recognition algorithm that identifies faces and masks using CNN models, mask landmarks, and PyTorch.
- Developed image and video detection algorithms using OpenCV.

BrickStein, *Team, BrickHack 11 Hackathon*
- Refined 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
- Processed and cropped screenshots that have a drawn circle or box using OpenCV

Organizations

Artificial Intelligence Club, *Events Coordinator*
- Planned events such as company visits to promote Artificial Intelligence to our college student body.
- Captured photos and videos of events to help create recap posts and reels to support the club.

Women in Computing,
Active Member, PR Committee Member
- Design posts and flyers to promote events through social media.
- Guide K-12 students by teaching them programming skills.

Sigma Sigma Sigma, *Active Member, Alumni Relations Chair*
- Networked with and designed monthly newsletters to send to the alumni.

Computing Organization for Multicultural Students,
Active Member
- Created a UI to track tech projects' progress as a front-end developer.

Skills

Programming Languages: Python, Java, JavaScript, C#, MySQL, Git, Ubuntu

Technologies: Angular, TensorFlow, TensorBoard, Microsoft Windows, Microsoft Office, PyTorch, JSON, Google Colab, Jupyter Notebook, JavaScript, WebGPU, CSS, HTML, iOS, Anaconda, PyTorch, OpenCV, Langchain, OpenAI

Concepts: Artificial Intelligence, Algorithms, Machine Learning, Neural Networks, API, Computer Vision, Computer Graphics, Statistics, Computer Programming, Generative AI