

Akaash R. Parthasarathy

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EDUCATION

Georgia Institute of Technology

Expected Graduation: May 2026

Master of Science in Computer Science, Specialization in Machine Learning

Georgia Institute of Technology

Expected Graduation: May 2025

Bachelor of Science in Computer Science, Minor in Mathematics

GPA: 4.0/4.0

EXPERIENCE

Software Development Engineering Intern

May 2024 – Present

Amazon

Undergraduate Researcher

May 2023 – Present

Fung Lab, Georgia Tech School of Computational Science & Engineering

- Developing generalizable and large-scale foundation models for materials applications using MatDeepLearn package
- Devised novel derivative-based pre-training method to enhance graph neural network (GNN) performance on materials property inference tasks; published in Royal Society of Chemistry Digital Discovery Journal
- Implemented sequential model-based optimization and improved model performance on materials datasets by 93%
- Built distributed GNN training framework on Frontier supercomputer using PyTorch Distributed Data Parallel

Undergraduate Researcher

Jan 2023 – May 2024

Laboratory for Intelligent Decision and Autonomous Robots

- Investigated implicit neural scene representation for SLAM systems and safe navigation planning for quadrupeds
- Leveraged Mask R-CNN for object instance segmentation and mask generation in 3D indoor space reconstructions
- Adapted vectorized mapping for NeRF-SLAM to 50 multi-instance object classes via geometric prior aggregation
- Implemented deep reinforcement learning algorithm for decentralized multi-robot collision avoidance in dynamic environments and benchmarked performance against gap-based planners using ROS, STDR, and Stage

Machine Learning Engineering Intern

May 2023 – Jul 2023

EXL Service

- Collaborated with Xtrakt.AI team to build domain-agnostic document processing solutions using PyTorch and AWS
- Researched and benchmarked 20+ multimodal models for key information extraction from medical and insurance documents and achieved 95% F1 score using LayoutLMv3
- Implemented training and inference pipelines for custom model creation and integrated with front-end platform
- Applied few-shot learning to document image classification and custom NER for accurate data-constrained inference

Software Engineering Intern

Sep 2022 – Mar 2023

M2IOT Solutions (Industrial IoT Startup)

- Developed Python application for real-time PDF report generation from machine-collected data using PyFPDF
- Improved efficiency, executable size, and readability of 10000+ line Python codebase through QThread multithreading
- Engineered cross-platform alternative to Qt Designer for dynamic creation of Qt Widgets using PyQt

PROJECTS

Soccer Player Tracking (The Agency - Georgia Tech AI/ML Club)

Aug 2022 – Jan 2023

- Developed residual neural network using PyTorch to perform image recognition and object tracking tasks for soccer
- Trained model on over 100K real-world images and achieved 96% accuracy in ball and player bounding box estimation

ARP Knowledge Platform

Mar 2020 – Jul 2022

- Designed full-stack chatbot portal (1500+ users) using Python and JavaScript for closed-domain question answering
- Incorporated text-to-speech and speech recognition capabilities using Google Cloud to increase accessibility

SKILLS

Languages: Python, Java, C++, C, JavaScript (React, Node.js), HTML/CSS, SQL, C#, MATLAB, Bash

DevOps/Cloud: Git, Docker, AWS, Microsoft Azure, Google Cloud, REST APIs, Jira

Frameworks/Libraries: OpenCV, NumPy, pandas, scikit-learn, TensorFlow/Keras, PyTorch, Matplotlib, ROS, CUDA

Hardware/Infrastructure: OLCF Frontier, NERSC Perlmutter, Raspberry Pi, Arduino, Industrial Control Systems

Concepts: Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, Reinforcement Learning, Data Structures and Algorithms, Numerical Optimization, High-Performance Computing, Distributed Computing