

Akhil Kothapalli

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EDUCATION

Georgia Institute of Technology

Bachelors – Concentration in Networks & Machine Learning; GPA: 3.9

Atlanta, GA

Jun 2022 - Dec 2025

EXPERIENCE

Amazon Web Services

Jun 2025 – Aug 2025

Software Development & Networking Intern

Seattle, WA

- Designed and deployed benchmarking suite using Cisco T-Rex, simulating 55M+ packets/sec and supporting 200+ Gbps throughput across Nitro-based instance types
- Built reproducible Linux images with Nix and AWS CDK, reducing provisioning time from 13 minutes to under 1 minute and enabling reproducibility across teams
- Delivered scalable benchmarking framework supporting any packet size with IMIX traffic realism, expanding coverage with 14 new test scenarios, now adopted across all AWS networking teams for performance evaluation

Georgia Tech – IFL Lab

Jan 2024 – Dec 2025

Research Assistant – Autonomous Racing Vehicles

Atlanta, GA

- Developing autonomous racing algorithms on NVIDIA Jetson (Linux, ROS 2) leveraging LiDAR and computer vision for perception and control.
- Implemented SLAM Toolbox for map generation and AMCL for localization; integrated dynamic Pure Pursuit for path planning and waypoint navigation.
- Boosted racing performance by 23% over prior years by optimizing mapping, planning, and control while building a modular, extensible codebase for future research.

Georgia Tech - College of Computing

Aug 2023 – Dec 2025

Teaching Assistant – Databases & prev DSA

Atlanta, GA

- Supported a 1,200+ student course via office hours, recitations, and content creation.
- Optimized Java autograder using JUnit with rigorous edge-case analysis.
- Created modules for Binary Search Trees, HashMaps, and related algorithms.

PROJECTS

[Transforming Robots Tycoon](#) | Lua, JSON, Python

2023 – Present

- Led creation of multiplayer game based on Transformers attracting over 600,000 players.
- Visualized analytics using Python API to understand how users experience the game

[Real-time Camera Drone](#) | C, Embedded Systems, WebSockets

May 2025 - Present

- Engineered camera drone inspired by Rainbow Six Siege with low-latency video streaming and motor control.
- Integrated Flask-SocketIO with Raspberry Pi GPIO for real-time communication.
- Built server with Flask on AWS, leveraging its authentication system to enable secure, cross-device bot control.

[Smart Home Automation](#) | C, ESP32, Linux, Networks

May 2025

- Developed a self-irrigating garden system using long-range (LR) protocol on an ESP32
- Built a Linux server off old computer as a central IoT hub for device management.

[Website Bot Protection](#) | Node.js, Express, JavaScript, CryptoES

Jan 2025

- Built a multi-stage anti-bot challenge system using behavioral sensor analysis and a semi-prime factorization puzzle to verify human users.
- Implemented AES-encrypted challenge responses, rate limiting, cookie-based session management, and client-side obfuscation to resist automation.

TECHNICAL SKILLS

Coding Languages: Python, JavaScript, Java, C/C++, Lua, SQL, R

Frameworks: Svelte, Node.js, Flask, OpenCV, scikit-learn, DPDK, numpy

Developer Tools: Git, Docker, ROS, VS Code, MySQL Workbench, AWS

Operating Systems: Windows, macOS, Linux (Ubuntu, Raspberry Pi OS, Amazon Linux, CentOS)