Vineet Kulkarni

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Education

Georgia Institute of Technology Expected Dec 2026
Honors BS/MS in Computer Science (GPA: 4.00 / 4.00) *Atlanta, Georgia*

Experience

Amazon May 2025 – Aug 2025
SDE Intern — DOX Team *Bellevue, Washington*

- Developed an automated Modeled Change Management (MCM) generation tool, reducing creation time by 96% (45 to 2 mins) and eliminating manual follow-ups in the deployment process.
- Engineered an AWS Lambda-based microservice using AWS CDK, with CI/CD pipelines, automated testing, and security scanning; integrated internal and external APIs.
- Implemented a custom MCP server enabling Amazon AI agents to autonomously deploy changes and heal pipelines; system is actively used by oncall engineers weekly.

Georgia Tech Research Institute May 2024 – Aug 2024
Research Intern *Atlanta, Georgia*

- Built Neural Architecture Search (NAS) for Aerial Object Tracking using surrogate-assisted Genetic Algorithms in DEAP and PyTorch.
- Designed surrogate models that outperformed conventional NAS, doubling top-performer selection accuracy.

Clubs and Activities

Yellow Jacket Space Program Aug 2022 – Present
Software Lead

- Lead development of avionics software stack for rockets, including a novel modular avionics system presented at the AIAA Student Regional Conference and published in AIAA proceedings.
- Previously built operator-facing flight software in TypeScript and Rust; currently developing embedded firmware in Rust.

Vertically Integrated Project Jan 2023 – Dec 2024
Agile Locomotion and Manipulation Team

- Designed and fabricated a GelSight tactile sensor from scratch.
- Worked on reinforcement learning-based pose retargeting for the Digit humanoid robot.

HIVE Makerspace Aug 2023 – Present
Peer Instructor

- Mentor students on maker projects and provide technical guidance on fabrication and electronics at Georgia Tech's HIVE.

Projects

Kinestri (Create-X) | *C++, PyTorch, ESP32, OpenCV, MediaPipe*

- Built a wearable tech shirt with IMUs and flex sensors for real-time 3D human pose tracking and athlete performance metrics.
- Trained a sequential regression model on MediaPipe-based vision data to map sensor input to 3D pose. Pilot testing planned with Georgia Tech Athletics.

2 DOF Drawing Robotic Arm | *Python, SciPy, NumPy, OpenCV, Raspberry Pi*

- Built a 2 DOF robotic arm from scratch using 3D printing and laser cutting; solved inverse kinematics to draw images on paper.

Technical Skills

Languages: Java, Python, C/C++, JavaScript, TypeScript, Rust, Dart, MATLAB, SQL
Frameworks & Tools: PyTorch, TensorFlow, Keras, NumPy, OpenCV, scikit-learn, DEAP, Solid.js, Flutter
Platforms: Linux, Raspberry Pi, Arduino
CS Topics: DSA , Machine Learning, Deep Learning, Computer Vision, Genetic Algorithms, Robotics, Perception
Hardware: 3D Printing, Laser Cutting, PCB Fabrication, Soldering, Electronics