

RANJANI KOUSHIK

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EDUCATION

• Georgia Institute of Technology

Aug 2023 - Dec 2026

B.S. Computer Science, GPA 3.8

- Operating Systems, Algorithms, Data Structures, Networking, Computer Architecture, AI, ML, Computer Vision

EXPERIENCE

• Research Intern, Computer Vision, Georgia Tech Research Institute

Aug 2025 - Present

- Built an end-to-end machine learning pipeline to study early detection of TSWV in peanut plants using disease classification and plant-age regression with leaf-level segmentation (ResNet, Mask R-CNN).
- Improved model accuracy from 54% to 86% by correcting label noise and creating a high-quality dataset of 800 hand-labeled leaf images after automated SAM2-based segmentation proved insufficient.

• Software Architecture Intern, DaVita

May 2025 - Aug 2025

- Architected a Gemini powered multi-agent (A2A) workflow with **LangGraph + Google ADK**, exposed via **FastAPI** and **Streamlit**, to automate patient placement from hospital referrals.
- Implemented calling dialysis facility from LLM with **Twilio**, distance to facility with **Google Maps MCP**, and stored information in database with **SQL MCP servers**
- Reduced average patient placement time from 4 days to 12 minutes (99% improvement).

• Software Engineer Intern, Siemens

May 2024 - Aug 2024

- Developed a **React/NodeJS web app** that automated vulnerability triage from NIST NVD, reducing manual analyst work by 60+ hours/month. Included automated data import into defect management systems.
- Created GitLab **CI/CD** pipelines (in **YAML**) to manage and demo internal vulnerability scanners of .NET applications.
- Automated **Jira** ticket generation using **Python and the Jira API**, handling 80+ issues across 4 internal projects.

• Medical Information Tech Startup Founder, Healiam

Aug 2022 - Aug 2025

- Democratizing healthcare by optimizing the blood testing process to provide affordable direct-to-consumer blood testing. Built the company to 100k annual recurring revenue since launch in Oct 2022.
- Engineered a **Python-based LIS** that reduced manual test result handling by 90% by automating device-to-cloud syncing.

RESEARCH

Research Intern, Computer Vision (PI: Ratan Murty), Georgia Tech [🌐]

Feb 2024 - Present

- Trained ANN-based linear regression models (**ResNet50-CLIP, AlexNet, DINOv3**) to predict brain activity in scene-selective regions (PPA, OPA, RSC) with 87% average correlation across validation folds using **PyTorch and Sklearn** Machine Learning libraries.
- Coded pipelines for interpretability experiments implementing **RISE, GradCam, MaCO, BrainACTIV, and high throughput screening** to map visual features to neural response patterns, replicating findings from 8 peer-reviewed fMRI studies.

Research Intern, Robotics (PI: Animesh Garg), Georgia Tech [🌐]

April 2024 - Present

- Migrated a legacy iOS **Swift** app to a cross-platform **Flutter** teleoperation interface on Isaac Sim and Robosuite, increasing robot demo collection speed by 10x over physical data collection.
- Built real-time teleoperation pipeline with **Python** interfaces for Meta Quest VR, keyboard, and SpaceMouse input, integrating **TCP/WebRTC** streaming via **Flask** for synchronized remote control and visualization.

COBALT: Crowdsourcing Robot Learning via Cloud-Based Teleoperation with Smartphones

ICRA 2026

PROJECTS

• Operating System Development – xv6 Kernel Enhancement Project

March 2025

Tools: C, Assembly

- Enhanced a Unix-like xv6 kernel by implementing **copy-on-write fork, zero-initialized data segments, and FIFO/Round-Robin CPU schedulers** to optimize memory and process management.
- Built a custom lightweight threading library with spinlock and mutex support for kernel-level synchronization; added boot-time login system with basic user authentication.

HONORS AND AWARDS

• Front Range Scholar

Aug 2024

- Awarded a merit-based full tuition scholarship.

• President's Undergraduate Research Award, Georgia Tech

Aug 2024

- Awarded a salary to conduct undergraduate research with Georgia Tech faculty.

• Colorado 25 Under 25, Inno Magazine

Oct 2023

- Recognized in Colorado's Inno Under 25 list for being one of the state's most effective innovators and entrepreneurs under 25 years old.