

Arav Singh

U.S. Citizen | Incoming SWE Co-Op @ Peraton | Personal: aravsingh@live.com | School: aravsingh@vt.edu | +1 571-342-8107
<https://www.linkedin.com/in/arav-singh-2120051b1/> | <https://github.com/aravsingh80>

Skills

- Programming Languages: Java, Python, C, JavaScript, HTML, CSS, SQL, Assembly, C++, MATLAB, R, Android Studio
- Frameworks: Flask, React, NodeJS, AngularJS, Django, jQuery
- Platforms: Linux, Bash, Powershell, ROS, Docker, AWS Cloud, Git, Postman, Microsoft Azure, JIRA
- Concepts: Machine Learning, Computer Vision, API Usage, Artificial Intelligence, Data Structures, App Development, Web Development, Frontend Development, Backend Integration, Package Integration

Experience

Noblis | Autonomous Systems Intern

June 2025 – Current

- Using a Python script to test and evaluate the error of a drone estimating the 3D distance between itself and an AprilTag
- Working with Python, C++, ROS, and Docker to develop and deploy software in container-based environments

Hume Center for National Security and Technology | Research Assistant

Oct 2024 – May 2025

- Worked with a team led by Dr. Jin-Hee Cho on an AI-powered conversational agent to improve internet safety
- Fine-tuned Ministral model using Linux, sbatch, Python, and the dataset to generate responses for our simulation
- Utilized Claude API and batch processing to optimize labeling mass datasets
- Researched evaluation metrics to judge responses from the chatbot, primarily using LLM's
- Worked in the Department of Defense-sponsored VICEROY workforce development program

Virginia Tech College of Engineering | Undergraduate Teaching Assistant

Sep 2024 – Dec 2024

- Undergraduate Teaching Assistant for the lecture-style course Intro to Problem Solving in CS (CS2104)
- Assisted 100+ students with learning collaborative CS skills such as Git, regex, Agile, API/HTTP requests, and SQL
- Helped students with problems in and out of class and also helped Dr. Siwei Cao with grading assignments

IDPro @ Virginia Tech | Undergraduate Researcher

Jan 2024 – Dec 2024

- Leader of interdisciplinary team to automate plant growth tracking with detecting plants and its area in pictures
- Trained semantic segmentation model to 93% accuracy for plant detection
- Added feature that utilizes YOLO model for auto-scaling of plant images so the area measurement is accurate

Education

Virginia Tech, Blacksburg, VA | BS in Computer Science, Minor: Mathematics

- GPA, 3.88/4.00, In-Major GPA: 4.0/4.0
- Expected Graduation: December 2026 (Rising Senior)
- President's List (4.0 GPA) - Fall 2024, Spring 2025
- Dean's List with Distinction (3.75 GPA and above) - Fall 2023, Spring 2024
- Boeing Transformations Challenge 2024 Finalist
- Relevant Courses: Data Structures & Algorithms, Software Design, Comparative Languages, Discrete Mathematics, Applied Combinatorics & Graph Theory, Computer Organization

Certifications

- Intermediate Technical Interview Prep (Advanced) – CodePath, Issued May 2025
- AWS Certified Cloud Practitioner – Amazon Web Services (AWS), Issued Jul 2024

Personal Projects

- Resume scanner using Flask, Tensorflow, and NLP: Building a Flask application that gives NLP-based suggestions scores the similarity between a resume and job description using Tensorflow by training on a large dataset as well as having cosine similarity as a low weightage. Implemented the scoring model, site layout, routing, and fallback for blocked web scraping using Python.
- Planetary navigation system using A*, K-means clustering, and NodeJS: Worked on a NodeJS website enables users to navigate planetary locations, avoiding clustered danger zones, and find the shortest path using the A* algorithm
- Hand-Controlled Drone using Arduino and MediaPipe: Worked on a summer project with an aerospace discipline where a drone can be wirelessly controlled by hand tracking
- Music Classifier App using Flask, React, TensorFlow: Worked on a machine-learning project with Flask and React that allows users to type in music search term, get genre recommendations, upload audio files, and share their recommendation with other users; the website was deployed using Heroku