Alex Hovakimyan

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Education

San Jose State University San Jose, CA
Computer Science B.S., GPA: 3.9 *Aug. 2024 – June 2026*
Coursework: Advanced Algorithms and Data Structures (CS 146), Parallel Processing (CS 159), Applied Statistics (MATH 161A), Data Visualization (CS 133), Machine Learning (CS 171), Operating Systems (CS 149)

Technical Skills

Languages/Databases: Python, C, C++, C#, Java, HTML & CSS, JavaScript, TypeScript, PostgreSQL
Frameworks: ROS2, CUDA, React, React Native, Node.js, JUnit, ASP.net core, gRPC
Developer Tools: UNIX, Linux, Git, Github, Docker, CMake, Visual Studio Code, Excel, Kubernetes
Libraries: pandas, numpy, matplotlib, OpenCV, PyTorch, Tensorflow, Scikit, Keras

Work Experience

ML Research Assistant Aug. 2024 – Present
San Jose State University *San Jose, CA*
- Conduct image-based malware classification in Python with PhD advisor Fabio Di Troia
- Generate grayscale and color images from MalExe dataset using numpy, matplotlib, Scikit and Tensorflow
- Apply Machine Learning algorithms like Auxillary-classifier GAN and k-NN on images, achieving an accuracy of 76.94% and 84.44%, respectively

ACR Computer Vision Engineer Sep. 2023 – June 2024
Foothill College *Los Altos Hills, CA*
- Led 4 students to add chessboard-vision to Foothill's Autonomous Chess Robot (ACR) in C++
- Applied Git and Github for version control and collaboration in a team of 13
- Utilized OpenCV for ArUco pose estimation and external calibration parameters to transpose center of marker to the chess piece's base
- Designed and implemented error correction for piece localization, accomplishing 99.3% reading accuracy and no misreads in 50 hours of use
- Presented interactive demo to 100s of people during Foothill College's STEM Fair

Full-Stack Developer - Intern June 2023 – Sep. 2023
National Renewable Energy Laboratory (NREL) *Golden, CO*
- Functioned as a full-stack developer on the CYSAT-Hydro Team, deploying Docker in UNIX environment and Gitlabs for collaboration
- Improved gRPC services in Python to respond to weather and occupancy patterns, saving $131,000 per year
- Implemented an ASP.NET core front-end in C# and displayed data from a PostgreSQL

Project Experience

University Rover Competition | *Python, ROS2, Github, Git, OpenCV, CMake, Linux* Sep. 2024 – Present
- Created fully autonomous navigation system with onboard compute and radio communication
- Combined A* pathfinding algorithm with YOLO object detection to attain live obstacle detection
- Netted 30% faster searching pattern than last year's rover for creating pathfinding map

Personal Website | *Python, Github, HTML & CSS, JavaScript, React* July 2024 – Aug. 2024
- Ideated website UX elements such as biography and projects section; realized front-end design with React
- Adjusted styling with CSS Flexbox framework to work on both desktop and mobile

Self Driving RC Car | *Python, C, Git, OpenCV, Tensorflow, Keras, pandas, CUDA* Sep. 2023 – Apr. 2024
- Devised entire software and hardware architecture for supervised-learning self driving RC car
- Applied canny-edge detection to images and trained on sequential model containing 3 convolutional layers with 32, 64, and 128 filters and a filter size of 3x3 with reLU activation functions

Stereo Camera Depth Detector | *C++, Git, OpenCV, matplotlib, PyTorch* July 2023 – Aug. 2023
- Adapted 2 web cameras to measure depth using stereo camera block matching with 5x5 block size and a max disparity range of 16
- Triangulated depth map from disparity map leveraging basic euclidean geometry