

# Alex Hovakimyan

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## Education

### San Jose State University

San Jose, CA

#### Computer Science B.S., GPA: 3.9

May 2026

**Coursework:** Algorithms and Data Structures (CS 146), Introduction To Computer Graphics (CS 116A), Machine Learning (CS171), Object Oriented Design (CS 151)

## Technical Skills

**Languages/Scripting:** C, C++, Bash, Python, Java, mySQL

**Frameworks:** MuJoCo, ROS, DDS, Unitree SDK, MoveIt, LeRobot

**Developer Tools:** Linux, Git, Docker, CMake, Cursor

**Libraries:** librealsense, OpenCV, Tensorflow, LiteRT, Scikit, pandas, numpy, matplotlib, Keras

## Work Experience

### Robot Systems Engineer

May 2025 – Present

*Mountain View, CA*

*Toborlife*

- Implemented a hardware plugin for ROS control package in C++ to enable Unitree G1 arm movement control through MoveIt; plugin used DDS to publish joint positions
- Captured depth and camera data from intel realsense d435i and processed on Jetson Orin NX; trained YOLO model to detect classes of objects such as Coca Cola cans, trash, pens, etc.
- Performed sensor fusion on lidar and depth camera point clouds followed by plane and object segmentation to fit meshes to point clouds

### Computer Vision Engineer

Sep. 2023 – June 2024

*Los Altos Hills, CA*

*Foothill College*

- Led a team of four, including mechanical and software engineers, to add autonomous response capabilities to Foothill's Chess Robot Arm
- 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

### Computer Science Summer Institute Participant

June 2022 – Aug. 2022

*San Jose, CA*

*Google*

- Conducted image-based malware classification in Python with Google engineers
- Processed Iris dataset with numpy and pandas, visualized with matplotlib
- Implemented Machine Learning algorithms like k-NN and Random Forest Classifiers on Iris dataset, achieving an accuracy of 76.94% and 84.44%, respectively

## Project Experience

### University Rover Competition | Python, ROS, Git, OpenCV, Linux

Sep. 2024 – Present

- Create fully autonomous navigation stack with onboard compute and radio communication
- Implemented Nav2's vSLAM functionality with an Oak D Pro camera to enable real-time localization and mapping for the autonomous navigation stack
- Net 30% faster searching pattern than last year's rover for creating pathfinding map by designing pathfinder that utilizes full camera fov

### Self Driving RC Car | Python, C, Git, OpenCV, Tensorflow, Keras, pandas

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 | Python, OpenCV, matplotlib

July 2023 – Aug. 2023

- Adapted two 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