# NAYESHA GANDOTRA

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## EDUCATION

**University of California at Berkeley** *Expected Graduation- May 2023*
Bachelors of Science in Mechanical Engineering Cumulative GPA: 3.829/4.0
*Incoming MSR-ME @ CMU* *Fall 2024*

## TECHNICAL STRENGTHS

**Robotics, Design, and Software**
Tensorflow, Robotic Simulation, RL, IsaacGym, openCV, MoveIt, LabView, SLAM, DNNs, ROS, GDT, Stability and Control, Siemens NX, Catia, ANSYS FEA, Python, MatLab, Simulink, Embedded Systems & Microprocessors

## RESEARCH PROJECTS / LEADERSHIP

**RL benchmarks for Robotic Manipulation- Advised by BAIR Lab** *Spring 2023*

- Created a benchmark simulation setup in IsaacGym for RL algorithms targeting robotic manipulation tasks.
- Successfully added target randomization & distractor objects; evaluated policy success rate & fragility to change.

**ROS based Robot Manipulator** *Fall 2022*

- Made a Sawyer robot conductor for orchestra music using motion planning & audio processing for beat and time signature. Implemented a loop control strategy based on kinematic analysis for accurate trajectory tracking.
- Implemented a state machine style decision architecture taking in audio input and openCV processed path points.

**Bio-Inspired GeckoBot** *Fall 2022*

- Designed bio-inspired silicone adhesive gecko feet and legs for self balancing surveillance wall climbing mini-robot
- Achieved max 28 deg unsupported incline climbing ability. Modeled robot locomotion cycle and foot adhesion on real life geckos; used on board microprocessors to implement linear control for gait and disturbance rejection.

**President, Aero SAE at Berkeley** *Invovement: 2019-2023*

- Leading a team of 150 students to design, test, and manufacture the structures and aerodynamic surfaces of a medium scale RC aircraft for the Aero SAE Design West competition. Team placed top 10 in 2022 and 2023.
- Responsible for leading community outreach and networking with industry professionals for capital raising.

## WORK EXPERIENCE

**Systems Engineer, Abuse and Functional Safety R&D- Tesla Inc.** *August 2023 - June 2024*

- Developed a 90% accurate machine learning algorithm (Deep Neural Network) to identify and classify battery damage using fleet sensor data and service articles to inform field statistics and preventative design.
- Studied translating accelerometer data to impact energy using FFT, mechanics and dynamics; pending simulation.
- Designed & executed experiments to identify and solve mechanical safety concerns for HV battery and drive unit.
- Conducted a deep dive analysis on HV arcing prevention due to reliability or high speed component failures.

**Head Teaching Assistant- Design of Microprocessor Based Mechanical Systems** *August 2022 - May 2023*

- Teaching 150 students real time and multitasking programming using LabView 2022Q3, embedded C for PsOC6BLE.
- Developed and debugged detailed instructions for sensor actuated mechanical systems, data storage buffers, real time trajectory mapping and plotting, and GUI design. Taught linear and Lyapunov controls theory.
- Conducted lecture style discussions with 50 student sections on basic electronics theory, microprocessors, sensors.

**Product Design Intern, Mac/Input/iPad- Apple Inc** *June 2022 - August 2022*

- Designed mechanical and electrical sub-components for Studio Display, Mac Studio, and iMac using Siemens NX.
- Developed a stability metric for display systems; proposed changes in based on statistical physical tip and Digital Image Correction (DIC) testing. Re-designed and tested silicone-plastic components for the same.
- Used GD&T to perform tolerance analysis on polymer liners to match FAI/CPK and six sigma standards.