

Siddharth Zalavadia

Mechanical Engineering Graduate

San Francisco Area

sidzal.github.io | linkedin.com/in/sidzal

Recent UCLA M.S. graduate with 3 years of hands-on experience in engineering robotic platforms for academic research and collegiate SAE racing. Interested in work in interdisciplinary engineering roles involving electrical, mechanical, and software engineering. Strong engineering communication and presentation skills from research background and SAE inter-team projects.

EDUCATION

University of California, Los Angeles (UCLA)

M.S. in Mechanical Engineering | GPA: 3.8, Departmental Scholar

B.S. in Mechanical Engineering | GPA: 3.7

Los Angeles

Sept. 2024 – June 2025

Sept. 2020 – June 2024

SKILLS

General Skills: Robotics, Automation, GD&T, Engineering Communication/Presentation

Environments: SolidWorks, MATLAB, Raspberry Pi, Arduino, Blender, COMSOL, Abaqus FEA, OpenCV, DYNAMIXEL

Manufacturing: Mill, Lathe, 3D Printing, CNC, Laser Cutter

Programming: Python, MATLAB, C++, Java, JavaScript, HTML/CSS, Bash

EXPERIENCE

Structures-Computer Interaction Lab at UCLA

Los Angeles

Researcher and Platform Engineer

June 2023 – Dec. 2024

- Developed and manufactured robots with 3D-printed bodies designed in SolidWorks and microcontrollers
- Published paper in IEEE's RoboSoft 2024 exploring attitude adjustment of bio-inspired bi-flagellated soft robots
- Built bi-flagellated robot with 2 motors and 9-axis IMU to record inertial data and compare to MATLAB simulation
- Automated collection of training data from mobile robot with OpenCV for ground truth and BLE communication protocols for neural net designed to produce a high-precision inertial navigation system (INS)
- Designed and manufactured handheld rigid buoyancy engine capable of traversing 1 meter vertically in liquid glycerin in <8 seconds using 3D-printed, threaded shells with space for a sealing O-ring
- Applied design for manufacturing principles and rapid, iterative design to meet research needs

Bruin Racing SAE/Supermileage at UCLA

Los Angeles

Powertrain Lead Engineer

June 2022 – June 2023

- Managed team of 6 engineers working on prototype combustion vehicle drive train optimized for fuel efficiency
- Achieved gas mileage of 422 mpg in UCLA's first complete technical inspection and run at Shell Eco Marathon since 2017
- Trained 20+ members for rapid design process using 3D-printing and simulation, suitable for competitive environment
- Optimized drive control with custom mechanical throttle connecting a bike brake lever to Honda GX50 engine throttle
- Increased modularity of fuel pressurization system by 80% to enable ease-of-use and rapid replacement in case of failure
- Improved documentation process with project management tools (Trello, Google Drive), standardized BOMs for every project, and CAD drawings to facilitate efficient transfer of knowledge and reduce time reverse-engineering old projects

Powertrain Engineer

Sept. 2021 – June 2023

- Manufactured sheet metal guards designed in SolidWorks to prevent injuries in case of catastrophic failure
- Produced engineering drawings following GD&T standards for manufacturing of flywheel and power transmission
- Reduced engine mount mass by 30% by machining mass reductions with mill and adjusting standoffs with lathe
- Thermoformed PETG for vehicle windows and prepared chassis for carbon fiber layup of vehicle monocoque
- Prepared list of spare parts and conducted inventory for competition at Shell Eco Marathon

PROJECTS

Air Hockey Robot for Final Group Project, MAE 263C: Control of Robotic Systems

Mar. 2025 – June 2025

- Wrote Python scripting for 2-DOF planar arm that plays air hockey with closed-loop inverse dynamics control and trajectory generation from camera data processed with OpenCV

Whiteboard Clock Robot for Final Group Project, MAE 263A: Kinematics of Robotic Systems

Sept. 2024 – Dec. 2024

- Wrote Python scripting for 4-DOF serial manipulator with a vertical prismatic joint that uses open-loop control to continuously write and update the current time on a whiteboard

Botanist Robot for Bachelor's Final Capstone Group Project

Jan. 2024 – June 2024

- Programmed mobile gardening robot with lift and movable spout to water pots identified by OpenCV