Menooa Avrand

Los Angeles, CA | (818) 688-1064| menooaavrand@berkeley.edu| menooaavrand.com

EDUCATION

Bachelor of Science in Mechanical Engineering | University of California, Berkeley| **GPA: 3.7/4.0**   December 2025

SKILLS

- **CAD:** SolidWorks | Fusion 360 | Onshape | Autodesk Inventor | AutoCAD
- **Design & Fabrication:** SLA & FDM 3D Printing | CNC Router, Lathe, Mill | Plasma Cutting | Laser Cutting
- **Software & Others:** MATLAB | Python | FEA | G-code | Arduino | IoT | Simulink | Confluence & Jira

EXPERIENCE

UC Berkeley CalSol | Lead Steering Engineer   Aug 2023 - Present
- Led a team of seven engineers in the end-to-end development of the steering system for the new 11th-generation vehicle while also maintaining and working on previous-generation cars, overseeing design, analysis, and integration.
- Engineered a stability analysis script, facilitating multidisciplinary communication with other sub-teams to ensure design cohesion. Finalized critical vehicle dimensions, integrating constraints from aerodynamics, chassis, and suspension teams to maintain regulatory compliance and optimize overall performance.
- Designed and tested a high-strength array prop rod mechanism for solar array tilting, sourcing hardware, creating GD&T drawings, managing manufacturing, and conducting assembly/testing.

Industrial District Green | Mechanical Engineer Consultant Internship   Sep 2022 - Nov 2022
- Conducted research using GIS & NPMS to analyze civil and substructure obstacles and automated the tree selection process for developers in the Los Angeles Industrial District

PROJECTS

Autonomous Fire Suppression Robot| *(SolidWorks, FEA, IoT, FDM Printing)*
- Designed and developed **πRo-Bot**, an autonomous fire suppression system with infrared sensing, real-time positioning, and remote operation, leading the electrical system design, including circuitry, power distribution, and microcontroller integration for seamless sensor-actuator communication.
- Currently leading manufacturing, assembly, and system integration, validating mechanical-electrical interfacing and optimizing fire suppression accuracy through **closed-loop feedback control**.

Thermal Paste Performance| *(SolidWorks, GD&T,* IoT*/Sensors, MATLAB, Mill)*   Full Report
- Designed and conducted a controlled experiment to evaluate thermal paste conductivity using custom aluminum blocks, K-type thermocouples, and ESP32-based data acquisition.
- Analyzed temperature gradients, revealing that the most effective thermal paste reduced thermal resistance by 79% compared to setups without paste and by 51% compared to other industry-standard pastes.

3D Printed Wind Turbine Design and Testing| *(FEA, SolidWorks, FDM Printing)*   Full Report
- Designed and tested turbine rotor blades and a support tower, achieving 8+ N/mm stiffness while maintaining a weight below 350g and generating over 2W of power.
- Utilized finite element analysis (FEA) for stiffness simulations and optimized rotor blade profiles using 3D printing prototyping.

Microfluidic Exhaust Valve| *(SolidWorks, FEA, MUMPS)*   Full Report
- Designed a MEMS-based microfluidic valve integrating yoke array of six electro-thermal actuators for precise fluid control, reducing leakage in microscale channels via an electrostatic latching mechanism.