Joshua C. Leavitt

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EDUCATION

University of California, Berkeley **Expected Dec 2025**
B.S. Mechanical Engineering *GPA: 3.98*

- **Coursework:** Vehicle Dynamics and Control, Design of Planar Machinery, Product Development, MEMS

West Hills College Lemoore **May 2023**
A.S. Engineering *GPA: 4.0*

SKILLS

Software: SolidWorks, Onshape, Fusion 360, MATLAB, Simulink, Python, Ultimaker Cura, Microsoft Office Suite
Technical: CAD, FEA, GD&T, DFMA, Microcontroller prototyping (ESP32)
Manufacturing: Mill, Lathe, Omax2626 Waterjet Cutter, FabLight Laser Cutter, Welding, Sheet Metal, 3D Printing

EXPERIENCE

Formula Electric at Berkeley **Berkeley, California**
Brakes and Driver Interface Engineer *Jan 2024 – Aug 2025*

- Led full-cycle development of the braking system, conducted trade studies and employed first principles to support all design decisions, achieved an 8% pedal box weight reduction and resolved 4 safety critical design flaws from prior car
- Implemented and validated a braking dynamics calculator in MATLAB to prevent rear over-braking and inform hydraulic COTS selection, passed brake test for the first time in team history at the FSAE-EV 2025 competition
- Developed MATLAB models to simulate constitutive behavior and inform the design of pedal box mounting rails under a surprise emergency manufacturing deadline, validated a minimum factor of safety of 1.5
- Manufactured all braking assembly components and other components using machine shop equipment and tools, supervised the manufacturing of wheel assembly and pedal box assembly components

West Hills College Lemoore **Lemoore, California**
Math & Science Supplemental Instructor *Aug 2021 – May 2023*

- Delivered supplemental instruction for math and science courses for 150+ students, increasing enrollment retention rate for STEM courses
- Designed and executed comprehensive lesson plans aligned with student learning outcomes (SLOs) and course objectives, collaborating closely with course instructors
- Presented special topics during lectures and conducted office hours to provide one-on-one assistance

PROJECTS

Crashing Waves Kinetic Sculpture **Berkeley, California**
Sole Member *May 2025*

- Designed and manufactured a tunable, 1 DOF planar machine to simulate oscillatory wave motion using a custom 5 bar linkage
- Applied kinematic synthesis and force analysis methods in MATLAB to meet target path aspect ratio and mechanical advantage constraints
- Conducted iterative testing and refinement of prototypes to improve reliability and mechanical smoothness under different throttle transmission angles and crank velocities

Stroller Emergency Braking System **Berkeley, California**
Team Member *Dec 2024*

- Designed and implemented an emergency braking system using two ESP32 microcontrollers programmed in MicroPython
- Developed algorithms to process sensor data from an ultrasonic sensor, wheel speed sensor, and accelerometer, ensuring accurate detection of plausible brake deployment scenarios
- Employed ESP-NOW communication protocol for real-time data transmission between microcontrollers
- Implemented a proportional control strategy to precisely control brake shoe motor actuation and minimize position settling time