

Alex Lu

Irvine, California | 9499107387 | axlu@berkeley.edu | <https://www.linkedin.com/in/alexlu06/> | <https://six061.com>

EDUCATION

University of California, Berkeley

B.S. Mechanical Engineering

• **Coursework:** Fluid Mechanics, Mechanical Behavior of Materials, Thermodynamics

May 2028

Berkeley, CA

EXPERIENCE

Dune Industries - Subterranean Utilities ROV Startup

May 2026 - Sep 2026

Mechanical Engineering Intern

- Designed and prototyped a compact planetary-drive gimbal to replace a bulky worm-and-bevel mechanism, incorporating a larger concentric wiring passage and dowel clutch to enable underground vehicle rotation and anti-backdrive locking.
- Designed and integrated the complete ROV front-drill assembly, packaging an offset drivetrain around the vacuum passage using extended-length gears and brushless motors; demonstrated operation on the robot.
- Redesigned electronics enclosures and mounts with O-ring and custom TPU seals, achieving minimal soil ingress and no observed fastener loss, vibration-related PCB breakage, or wiring failures from strain during testing.
- Eliminated repeatable ROV shutdowns during dirt-and-dust transport testing by integrating metallic vacuum-path components and grounding connections.

SC ROBOTICS

Sep 2025 - Aug 2026

Mechanical Lead

- Led a 12-member mechanical team developing a University Rover Challenge rover, coordinating drivetrain and manipulator integration with electrical and software teams.
- Reduced wheel-hub mass by 50% through SolidWorks FEA-guided redesign while retaining a calculated factor of safety of 3.
- Redesigned a rover arm for competition tasks, reducing measured mass from approximately 17 to 12 kg with a 5 kg payload and approximately 32 in of reach.
- Designed a modular electronics belly pan with dust-sealed enclosures, a metal heat-sink base, and active cooling to improve serviceability and manage thermal risk.

CalSol - Solar Vehicle Team

Sep 2026 - Present

Steering Project Lead

- Designed wheel spokes and performed finite element analysis (FEA) for a dynamics-team onboarding project.

FIRST Robotics Team 6560

Aug 2022 - Jun 2024

Mechanical Member

- Designed lightweight drivebase architecture and bellypan packaging for an FRC robot, integrating vision hardware into the mechanical layout to support autonomous targeting.
- Developed an articulating arm and 4-bar intake with impact resistance informed by FEA and repeated match loading.

PARAMOUNT KEEB

Aug 2022 - Aug 2025

Product Engineer

- Launched Ciel/Ciel65 mechanical keyboards from concept through production, delivering 2,000+ units and generating \$300K+ in revenue.
- Designed a single-piece machined keyboard case with an O-ring mounting system, reducing part count, machining and assembly.
- Released SolidWorks assemblies and engineering drawings with GD&T and ± 0.05 mm critical-fit tolerances for supplier production.
- Coordinated five production runs across approximately 20 manufacturers, managing RFQs, supplier qualification, design for manufacturing (DFM), and quality control.
- Resolved anodizing defects through supplier rework and replacement parts, maintaining on-time customer deliveries and recovering value through B-stock sales.

PROJECTS

Mars Rover Arm / Manipulator Subsystem

- Designed a compact differential wrist using curved bevel gears and embedded pulleys to provide roll and pitch motion within tight forearm packaging.
- Designed belt-driven forearm and bicep assemblies using commercial off-the-shelf (COTS) tubing, mirrored motor packaging, and hard stops to balance stiffness, clearance, and manufacturability.
- Built a linear gantry using COTS rails, four carriages, and a ball-screw drive for rover manipulation.

SKILLS

- **Design & Simulation:** SolidWorks, Creo, Fusion 360, AutoCAD, ANSYS, SolidWorks FEA, GD&T, Mechanism Design, Sheet-metal
- **Programming & Software:** Python, C++, MATLAB, Git, Microsoft Excel
- **Manufacturing:** CNC Machining, 3D Printing, Composite Layups, Quality Control, DFM
- **Additional Interests:** F1, Filmmaking, Analog Photography
- **Eagle Scout, Troop 675:** Dec 2022