



Education

University of California, Berkeley

Expected May 2028

B.S. in Mechanical Engineering and B.S. in Electrical Engineering and Computer Science, 3.98 GPA

Activities and Experiences

Skycart

Jun 2026 - Present

Automation Engineering Intern

- Designed a novel self-balancing multi-drop payload system with packing optimization and multi-release mechanisms.
- Developed simulation suite for quantitatively evaluating payload systems including balancing speed and scalability.

Liwei Lin Lab

Apr 2026 - Present

Undergraduate Researcher

- Designed a 6-layer ESP32 PCB with custom AFE to run Electrochemical Impedance Spectroscopy for sweat analysis.
- Created 3D printed enclosures for a wearable device including novel press fit connector and wiring harness designs.

Theoretical & Applied Fluid Dynamics Laboratory

May 2025 - Aug 2025

Mechanical Engineering Intern

- Designed the mechanical system architecture of three generations of autonomous endurance sailboats.
- Created hundreds of iterations of 3D printed components, including mounts, wind turbines, and drive systems.
- Devised a standardized, modular mounting system for fixturing sail, rudder, and sensor systems allowing for rapid iteration and repair. Incorporated water ingress protection validated in underwater pressure testing.
- Worked through every aspect of products' production and deployment processes, including epoxy application, PCB assembly, frontend and backend software deployment, and extensive hands-on testing at the marina.

Supernode Makerspace

Dec 2024 - Present

Student Fabrication Admin

- Provided comprehensive 3D printer operation assistance, including design for manufacturing advising for student projects and software usage support. Trained over 100 students on fabrication equipment operation over 2 years.
- Spearheaded the acquisition of \$10k of new equipment including organizing funding, deploying a custom software stack to provide remote access and user print tracking, and producing relevant training materials.
- Maintained and repaired a fleet of 3D printers, including performing complete printer rebuilds.

Unmanned Aerial Vehicles at Berkeley

Aug 2024 - Present

Lead Airframe Engineer, Business Team Member

- Designed autonomous modular quadcopter and compact tailsitter VTOL vehicle that both pack into an airline personal item-sized container with 20 miles of range. Performed manufacturing and electrical integration for each vehicle.
- Designed tiltrotor mechanism and frame assemblies for a high speed fixed wing tiltrotor VTOL vehicle.
- Created and taught CAD, material science, and manufacturing curriculum for 50-student onboarding program.
- Introduced Simulink stability and Ansys FEA analysis to optimize vehicle design process.
- Produced graphics and video content for outreach and fundraising events that led to \$6000 in donations.

Space Enterprise at Berkeley

Aug 2024 - May 2025

Structures Team Member

- Engineered thrust transfer structures for a 20 kN liquid rocket engine, chargewells, eye bolts, and other parts.
- Performed FEA and hand mechanics calculations on structural components for mass optimization.
- Integrated vehicle subassemblies using OpenRocket and by designing fixturing and retaining components.
- Fabricated numerous components including performing fiberglass layups for composite nosecones.

Projects

Please visit my portfolio at tianchenggu.org for examples of my work.

Skills

Computer Aided Design

Parametric modeling, assemblies, basic finite element analysis, basic CAM for CNC mills, ECAD/PCB design. SolidWorks, Fusion 360, OnShape, Ansys Mechanical, KiCAD.

Manufacturing

Technical drawings (GD&T), DFM (machining, SLA/FDM 3D printing), electronic and software integration. FDM 3D printer operation and maintenance. Soldering, reflow. Manual milling and lathes, 3D printers, CNC routers, mills, water jets, laser cutters.

Software Development

Python, Java, C/C++, Arduino, and MATLAB.

System Administration

Windows, Arch Linux, TrueNAS CE, Docker, WordPress, Nginx, basic networking.

Languages

Mandarin Chinese, German.