Thompson Wong

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Education

University of California, San Diego — La Jolla, CA

B.S. in Mechanical Engineering — Specialization in Controls and Robotics — Fall 2024 - Spring 2026

- **Honors:** EMPOWER Scholar (Awarded by National Science Foundation) ***GPA:* 3.88/4.0**
- **Courses:** Engineeing Graphics & Design, Properties of Materials, Elements of Materials Science, Fluid Mechanics, Thermodyanmics , Solid Mechanics, Linear Circuits, Statics, Dynamics, Computational Methods in Engineering

Foothill College — Los Altos Hills, CA

A.S. in Mechanical Engineering - Dean's List - GPA: **3.72/4.0** — Fall 2022 - Spring 2024

Technical Skills

Computer Aided Design: SolidWorks, OnShape (Mechanical Design, Rapid Prototyping, Design for Manufacturing)

Manufacturing: 3-Axis Mill, Lathe, 3D-Printer (FDM & SLA), Laser-Cutter, Hand & Power Tools, Soldering

Software: Proficiency in MATLAB, Simulink, Java, C++, LaTex, Microsoft Suite, Google Suite, Adobe Creative Suite

Experience

Chassis Engineer - UCSD Formula SAE Triton Racing — October 2024 - Present

- Designed chassis frame welding jig with calculated tolerances & geometry to reduce thermal warpping during weld
- Optimized frame's stiffness-to-weight ratio by simulating torsional stiffness via Finite Element Analysis (FEA)
- Developed frame's shear pensls using Sheet Metal Design, and documented its design and manufacturing process
- Created detailed engineering drawings and bill-of-materials (BOM) for mulitple twenty plus parts aseemblies

Research Assistant - Delson's Lab (Medical Device Technology) — October 2024 - Present

Center for Memory and Recording Research, UC San Diego Health Science — La Jolla, CA

- Reserach & developed an ergonomic endoscopic gripping tool to reduce physician muscle strain during procedures
- Designed iteratively to optimize tool's grip angle and internal springs to enhance torque and minimize slippage
- Ulilized surface electromyography (sEMG) sensors and testing-apparatus to quantify muscle intensity & fatigue.
- Validated and analysised designs effectiveness with collected data in reducing repetitive stress injuries

President - Foothill Engineering Club — September 2023 - July 2024

- Worked 5 hrs/week to coordinate weekly meetings and maintained regular communication with faculty advisors
- Managed project workflows with Jira and Notion, overseeing progress on four concurrent techanical projects

Alumni Mentor - FRC Gunn Robotics (Team#192) — October 2022 - May 2024

- Coached 16 rookie members to develop CAD skills from zero, and lectured on machine shop safety protocols
- Advised team members through rapid-prototype, design, testing, troubleshoot, and validation process

Projects

6DOF Chess Cobot (Universial Robots UR10) | *Club Project* — Septempber 2023 - July 2024

- Designed and assembled a mobile base for securing arm to engage in a game of chess against a human player
- Developed an electromagnetic gripper module compatible with the UR10 for maneuvering chess pieces
- Utilized Finite Element Analysis to create a weight-efficient structurally stable and mobile base using aluminum extrusion which can withstand $600lbs$ and the jerk at most $1000mm/sec^3$

Quadruped Robot Dog | *Stanford University (CS123) - Indepdent Study* — March 2024 - September 2024

- Programmed 6-DOF legs to move using inverse kinematics with Proportional-Integral-Derivative feedback control
- Created a cartesian-space safety limit for each joint utilizing forward kinematics with impedance control
- Utilized GPU-based parallel-simulation as a reinforcement learning platform to optimize puppy's walk speed.

RC Airplane | *Club Project* — November 2022 - June 2023

- Designed and manufactured a lift testing kit consisting of wind speed & force sensors to graph the lift equation
- Prototyped, modeled, and assembled an aircraft launcher that can accelerate a 0.5 kg aircraft to 8m/s within 6 feet
- Utilized composite wet layup (carbon fiber) for airfoil, doubled its size while maintaining its structural integrity