Thompson Wong

tcw003@ucsd.edu | (650) 382 - 8163 | linkedin.com/in/twong124244/ | github.com/TomGor88

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 & UCSD) ***GPA:* 3.925/4.0**
- **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

Associate in Science Degree in Mechanical Engineering - Dean's List - GPA **3.72/4.0** — Fall 2022 - Spring 2024

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 aseembly

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

- Developed an ergonomic endoscopic gripping tool to reduce physician muscle strain during colonoscopy procedures
- Designed iteratively to optimize grip angle and internal springs to enhance torque and minimize slippage
- Ulilized surface electromyography (sEMG) sensors to quantify muscle fatigue and evaluate the effectiveness of EndoGrip in reducing repetitive stress injuries

President - Foothill Engineering Club — September 2023 - July 2024

- Elected by 50 students as the leader to promote the growth and success of club at Foothill College.
- Worked 5 hrs/week to coordinate weekly meetings and maintained regular communication with faculty advisors.

Alumni Mentor, Handtools Lead - FRC Gunn Robotics (Team#192) — August 2020 - June 2024

- Tutored 8 rookie members to develop CAD skills from zero and advised them through prototype & design process
- Applied engineering principles to produce CAD models for flywheel turret mechanisms that met safety standards and competition regulations while maintaining 82% shot accuracy in competition

Projects

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

- Designed and assembled a mobile base for securing UR10 to engage in a game of chess against human players
- 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 Puppy | *Indepdent Study - Stanford University (CS123)* — 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 (UAV) | *Club Project* — November 2022 - June 2024

- 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 to layer fiberglass and carbon fiber for aircraft airfoil, enhancing its structural integrity while keeping weight minimal. Which allowed us to double the airfoil's size for maximum lift

Technical Skills

Computer Aided Design: SolidWorks (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++, Google Suite, Adobe Creative Suite