ANTHONY HO
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EDUCATION

California State Polytechnic University, Pomona Expected Graduation: May 2026
B.S Mechanical Engineering, Minor in Physics *GPA: 3.9/4.0*

- College of Engineering President's Honor List
- President of Pi Tau Sigma - Mechanical Engineering Honor Society 2024

PROFESSIONAL EXPERIENCE

R&D Engineer Intern – R&D Department January 2025 – Current
Biodynamik, Inc. Lake Forest, California

- Led core engineering initiatives contributing to NSF SBIR Phase I Award and FDA 510(k) clearance of the XT3 System, an advanced orthopedic device enabling Transverse Tibial Transport (TTT) for the treatment of Diabetic Foot Ulcers (DFUs) and ischemic limb conditions.
- Performed theoretical stress calculations using Mechanics of Materials and validated results through Finite Element Analysis (FEA) in SolidWorks; simulated 4-Point Bending, Combined Load, and Stress Concentration scenarios to optimize orthopedic plate design.
- Engineered high-precision test fixtures in SolidWorks and fabricated prototypes using Bambu Lab 3D printing and Bridgeport CNC machining, ensuring tight-tolerance compatibility with laboratory test systems.
- Integrated Button Load Cells with PhidgetBridge 4-Input systems for real-time force measurement; executed precision color-coded wiring and soldering; conducted Compression Testing on diverse materials to quantify fracture thresholds and validate implant performance.
- Conducted mechanical analysis to evaluate Lead Screw Efficiency and designed a custom bone screw for the XT3 system using SolidWorks; performed Torque Testing with a digital wrench to determine lifting requirements, ensured clinical reliability; produced manufacturing-ready technical drawings.

Mechanical Engineer Intern – Sensor and Control Division May 2024 – August 2024
Bourns, Inc. Riverside, California

- Produced high-fidelity prototypes using Formlabs SLA 3D printers (Form 3, Form Wash, Form Cure L) to support design verification and functional testing.
- Programmed advanced CAM toolpaths using Fusion 360 and G-Wizard, and machined precision test parts on a Q350 CNC mill, achieving a 60% reduction in prototyping costs and cutting 3 weeks from design iteration timelines.
- Engineered and fabricated 6 custom thermal test fixtures with integrated liquid-cooled heat sinks, enabling accurate, temperature-controlled performance testing of power resistors.
- Developed life-cycle test systems to qualify products under high-temperature, thermal shock, and vibration conditions.

Engineering Tutor – Disability Resource Center August 2023 – May 2025
Cal Poly Pomona Pomona, California

- Tutored students in core mechanical engineering subjects, applying theory to real-world problems in statics, dynamics, materials, thermodynamics, and fluids.
- Guided students in developing a MATLAB point-of-sale application, reinforcing fundamentals in user input handling, control flow, loops, and automated output calculation (totals, payment, and change).
- Mentored students in Simulink modeling of dynamic vehicle systems, building and simulating block diagrams for both linear and quadratic drag ODEs; enabled analysis of velocity response under varying input forces and conditions.

PROJECT & RESEARCH EXPERIENCE

Undergraduate Researcher – *Optical Sensing & Materials Lab* August 2024 – Current

- Pioneered experimental research on thermal expansion in solids by designing and executing high-precision tests to characterize the coefficient of thermal expansion (CTE) of acrylic substrates using SMS (single-mode–multimode–single-mode) fiber optic sensors; quantified wavelength shifts from thermal and mechanical strain, culminating in a publication at the Optica Sensing Congress 2025.

Dirt Hoarders Robotics Competition – *Cal Poly Pomona* March 2024 – May 2024

- Designed a 3-DOF robotic excavator arm with rotary joints to scrape and transfer debris from a 15" x 12" container.
- Calculated Mass Moment of Inertia and analyzed Material Properties to guarantee stability, durability, and prevent flipping or bending during operation.
- Selected and integrated servo motors (MG996R, DS3225MG, DS3218MG) based on torque, speed, and weight requirements; developed a wireless Arduino-based control system using UNO R3 and ESP32 joystick shield.

Hand-Powered Lifting Machine – *Cal Poly Pomona* February 2024 – April 2024

- Led a team in designing, constructing, and integrating mechanical systems (ramps, pulleys, wheel/axle) to achieve a mechanical advantage of 38.7 to 54.2, enabling the lifting of a 500 lb block 10 feet with only 9.22-12.91 lb of force.
- Performed finite element analysis (FEA) in SOLIDWORKS to identify potential Failure Points and select materials with appropriate Young's Modulus, Shear Modulus, and Yield Strength; evaluated and authorized Part and Assembly Engineering Drawings with precise GD&T and optimal Dimensional Tolerances.