

Xinghao Huang

714.244.6295 | huangxinghao17@gmail.com | xinghaotanks.com | US Citizen

EDUCATION

University of Southern California (USC)

Sept 2021 – Present

Ph.D. Student, Mechanical Engineering, MEMS/Advanced Surface Material

University of California, Santa Barbara (UCSB)

Sept 2017 – June 2021

B.S, Mechanical Engineering (cumulative GPA: 3.89)

Relevant Coursework: Mechatronics, NEMS/MEMS, Control System Design, Robot Dynamics/Planning, Strength of Material, Thermo Science, Fluid Mechanics, Numerical Analysis, Manufacturing, Vibration.

EXPERIENCE

Optomechanical R&D Intern – Alcon, Lake Forest, CA

June 2021 – Aug 2021

- Researched and designed an air-puff excitation system to commercialize the optical coherence elastography (OCE), which can measure the biomechanical properties of cornea and test eye dynamics.
- Tested and calibrated the air-puff prototype using DAQ cards, motor eval-boards, and pressure sensors.
- Designed a motorized linear stage for calibrating optical coherence tomography (OCT) systems.

Mechanical Engineering Intern – Lumentum, Milpitas, CA

Jun 2020 – Sept 2020

- Used SolidWorks to perform thermal, flow, and stress simulations on the optical transceiver products.
- Improved the failure modes on PCBAs, flex cables, and fixture frames used in the optical transceivers.

Mechanical Engineering Intern – Bruker Nano Surfaces, Goleta, CA

June 2019 – Sept 2019

- Used Ansys to model the stress, nonlinear contact, and vibration of MEMS strain gauge and flexure.
- Designed and built an optical cage system to test the light interference in AFM's beam deflection detection system using low-coherence laser source, piezo actuators, and Thorlabs' optical components.

Project Chair – ASME Club, UCSB, CA

Aug 2019 – Apr 2020

- Led project groups and held weekly meetings to make sure all groups are making progress on schedule.
- Provided technical consultation and fast equipment support, such as 3D printers and electronics.

ENGINEERING PROJECTS

Brush Cutting Vehicle – Senior Capstone, UCSB, CA

Sept 2020 – June 2021

- Worked as the mechanical team lead in a multidisciplinary team to build an autonomous electrical vehicle that can cut brushes to create firelines and retaliate wildfires.
- Designed two independent suspensions that allowed the front tires to constantly contact the ground.
- Wrote Python programs that used Modbus RTU on Jetson Nano to control the BLDC hub-motors.

Parallel / Serial Robotic Arm – Personal Project

July 2019 – Mar 2020

- Designed and built a low-budget delta robot with precision servo motors and pneumatic gripping mechanism to develop an accurate pick-drop method for industrial applications.
- Designed and built a 3D printed 4-Dof robotic arm and controlled it using MATLAB-Arduino serial communication and inverse kinematics.

Object Tracking Pan-Tilt Camera – Personal Project

Aug 2020 - Sept 2020

- Utilized OpenCV and python to identify faces, pedestrians, and vehicles using Haar and DNN modules.
- Designed a pan-tilt camera stage that can track faces and objects using Raspberry Pi and stepper motors.

SKILLS

Programming: Python, C/C++, Matlab, LabVIEW.

Software: SolidWorks (CSWP in modelling/simulation), Ansys, LabVIEW, MATLAB, COMSOL, ImageJ, Arduino, PTC Creo, Inventor, Fusion 360, Abaqus, Fritzing.

Tools: Cleanroom devices, FDM/SLA printer, Raspberry Pi, Jetson Nano, NI-DAQ.