

Xinghao Huang

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EDUCATION

University of California, Santa Barbara (UCSB)

Expected Graduation: June 2021

B.S, Mechanical Engineering (overall GPA: 3.87)

Relevant Coursework: Mechatronics LabVIEW, Advanced Strength of Material, Finite Element Structure, Thermodynamics, Fluid Mechanics, Numerical Analysis, Manufacturing, Vibration, Intro to NEMS/MEMS.

EXPERIENCE

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.
- Implemented a quadrant photodiode and amplifier circuits to measure the probe cantilever's deflection.
- Designed the laser kinematic mounts to measure the strain gauge's absolute displacement.

Research Assistant / Eureka Summer Intern – *RE Touch Lab, UCSB, CA*

June 2018 – Present

- Designed a syringe pump that used an integrated stepper motor actuator to provide over 150 psi hydraulic pressure for the lab's flexible actuating textiles and controlled it using LabView and Mcode.
- Researched the PID controlled hydraulic system and designed an electrical control box that can adjust stable water pressure up to 120 psi for the hydraulic flexible actuators used in soft robotics.
- Currently developing an innovative 3D printing method using low-viscosity and supersaturated fluid.

Project Chair – *ASME Club, UCSB, CA*

August 2019 – April 2020

- Led groups to make projects such as mecanum wheel vehicle, silicone 3D printer, and delta robot.
- Held weekly meetings to make sure all teams are making progress on schedule.
- Provided technical consultation and fast equipment support, such as 3D printer and electronics.

ENGINEERING PROJECTS

Parallel / Serial Robotic Arm – Personal Project

July 2019 – Present

- Currently designing a new delta robot with high-precision servo motors and pneumatic gripping mechanism to develop a faster and more accurate pick-drop method for industrial applications.
- Designed and built a 3D printed conventional robotic arm that has 5 degrees of freedom and controlled it using MATLAB-Arduino serial communication and inverse kinematics.
- Building and testing multiple control systems by using Arduino-LabView interface and Raspberry Pi.

Silicone 3D Printer Project – *ASME Club, UCSB, CA*

Oct 2018 – Dec 2019

- Leading a team to design a 3D printer that can directly print soft robotic parts using silicone materials.
- Designed the dual syringe pump that pumps the silicone material by using stepper motor and lead screw.
- Built the electronics for the heater control panel and switching power supply.

R/C Vehicle Project Series – Personal Project

July 2017 - May 2018

- Modified static tank and battleship scale models into R/C models using microcontroller, 3D printed gearboxes, micro servo motors, electronics speed controllers, and optical encoders.
- Developed a watertight power system for the R/C Yamato battleship and gun barrel stabilizer for the R/C Abraham tank using MPU-6050 gyro/accelerometer.

SKILLS

Programming: C/C++, Matlab, LabVIEW, Python (for Raspberry Pi).

Software: SolidWorks (CSWP certified), Ansys Workbench, LabVIEW, MATLAB, Arduino, PTC Creo, Inventor, Fusion 360, Abaqus, Visual Studio, Fritzing.

Tools: 3-D printer, interferometer, laser cutter, lathe, mill, oscilloscope, NI DAQ Board.