

Yichi Ma

Residence/domicile: 37 Angell Court, Apt. 332, Stanford, CA * *Work Portfolio:* yichima.github.io

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Education

Stanford University

September, 2022 – June, 2024

Master of Science, Mechanical Engineering - Fluid Mechanics

Stanford, CA, USA

Relevant Courses: Fluid Mechanics, Experimental Methods, Numerical Solutions of PDE, Optimization

University of California, Berkeley

August, 2018 – August, 2022

Bachelor of Science, Mechanical Engineering, Graduated High Honors

Berkeley, CA, USA

Professional experience

Investigation of Spray Injection Ignition on Hot Surface

June, 2023 – Present

Stanford University

Stanford, CA, USA

- Constructed the experimental setup, including the pipes deployment and solenoid valve control
- Completed **instrumentation** for data acquisition, such as thermocouples and anemometers.

Engineering Thermometric Generators for Wildfire Detection

January, 2023 – Present

Stanford University

Stanford, CA, USA

- Conducted experiments to characterize thermoelectric generator (TEG) using thermocouples and **LabView** instrumentation; presented comprehensive findings to the research team
- Utilized **COMSOL** for **heat transfer modeling**, deriving critical parameters to determine final dimensions and select suitable materials, informed the CAD design **optimization** process.
- Designed and developed an experimental TEG device to be tested in fire flames using **Solidworks**
- Executed real fire tests, collecting temperature data to inform accurate performance evaluations.

Investigating Various of Aspects of Fire Whirl Behavior

January, 2022 – August, 2022

University of California, Berkeley

Berkeley, CA, USA

- Conducted crude oil burning experiments, executed **measurements** of fuel mass loss rate, flow velocity, and fuel temperature data using hot wire anemometers, and thermocouples, and DustTrak.
- Independently executed in-depth analysis of velocity data using **Matlab**, generating comprehensive flow velocity profile graph with **quantified uncertainties**.
- Created Matlab scripts that identified critical mass data points, streamlining data interpretation
- Constructed a motorized lab stand with microcontroller, lead screw linear slider for anemometers movements, enabled seamless **velocimetry data acquisition** across multiple locations

Knee Replacement Surgical Robot - Engineering Intern

June, 2020 – August, 2020

Yuanhua Intelligence Co., Ltd.

Shenzhen, Guangdong, China

- Developed an assembly model of a robotic tooling components, and generated manufacturing-ready 2D **engineering drawing** with **tolerances** and material selection specified through **Solidworks**.
- Conceptualized and drafted a mechanical design of a tracker system hardware using **Solidworks**.
- Executed deflection measurements and analyzed data in **Matlab** for performance evaluation.

Relevant Project

Velocity Profile and Frequency Characterization of Synth-Jet

November 2015

Experimentally investigated, analyzed, characterized sythn jet with pressure transducer and Kiel probe.

Technical skills

Software

Solidworks, AutoCAD, OnShape, Fusion 360, Arduino, Raspberry Pi, COMSOL, LabVIEW, Abaqus, L^AT_EX

Hardware

3D Printers (FDM and SLA), Universal Laser Cutter, Omax Waterjet, Oscilloscope, Pressure Transducer, Kiel Probe

Computing and Programming

MATLAB, Simulink, PIVLab, Python, Java