XIYAN (HENRY) MAI
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EDUCATION

Bachelor of Science in Biomedical Engineering. GPA: 3.56
University of California, Davis Graduated
Master of Science in Biomedical Engineering. GPA: 3.75
University of California, Davis Graduated

SKILLS

- CAD with SolidWorks and Autodesk Inventor
- MATLAB signal analysis and modelling
- Programming: Python, C++
- Fabrication: metal machining, 3D printing, laser cutting
- PCB design and assembly
- MS Office, Visual Studio Code
- Manufacturing root cause analysis
- Medical device risk assessments
- Fast learning, active listening
- Self-motivating, driving project to completion

EXPERIENCE

Product Engineer
Product Performance Group, *Abbott Structural Heart* Aug 2021-Current

- Investigating medical device customer complaints and performing cause analysis on device issues and patient complications.
- Participating in returned device analysis using validated equipment to verify device functionalities.
- Utilizing SolidWorks and 3D printing to build device model for better visualization of internal components.
- Identifying potential product quality issues and working with multidisciplinary teams to complete CAPA process.
- Mentored incoming team members. Optimized training plan and reduced on-boarding time by 50%.
- Developed a Python program with object-oriented programming and graphical user interface to guide customer complaint investigation, improving throughput and consistency of documentation across the team.

Graduate Student Researcher
Micro-Nano Innovations Lab, *UC Davis BME Department* Nov 2019-July 2021

- Developed automated systems for unmanned wet lab procedures, capable of high-precision fluid sample handling, utilizing commercially-available robotic arm platforms, Arduino, pressure controllers and customized microfluidic chips.
- Integrated APIs provided by hardware manufacturers and automated fluid sample handling processes in Python.
- Fabricated microfluidic devices with laser cutting, micro-machining and 3D printing.
- Developed an imaging system capable of detecting area of interest for Competitive ELISA color analysis.
- Researched FDA Emergency Use Authorization standard requirements for ventilator device.
- Participated in a pneumatic BVM-based ventilator project (AmbuBox) in response to COVID-19 pandemic.

CAD Drafter
R&D Department, *TacSense Inc.* July 2020-Dec 2020

- Assisted R&D team in the housing design of wearable devices to minimize size and ensure manufacturability.
- Created sketches for device appearance and utilized Autodesk Inventor to generate 3D models and technical drawings.
- Provided 3D printing consultation to R&D team regarding selection of printing technologies and materials.

Teaching Assistant
BIM 111 Biomedical Instrumentation, *UC Davis BME Department* July 2020-Dec 2020

- Restructured the in-person laboratory component of the course to be fully remote and computer-based.
- Wrote lab instructions which guided students to perform circuit simulations and signal processing in MATLAB.
- Led online laboratory sessions. Helped students build and troubleshoot amplifier circuits in a simulated environment.
- Ensured students an interactive learning experience from home during the pandemic.

Undergraduate Research Assistant
Sato Lab, *UC Davis School of Medicine Pharmacology* Nov 2018-Nov 2019

- Modelled cardiac action potentials with Hodgkin-Huxley Equations in MATLAB.
- Built and programmed a machine-machine interface that communicates with light utilizing electrical circuitry and C++.
- Implemented motion sensing in a human-machine interface and assembled a handheld device with customized PCB.

LEADERSHIP

President, Chinese Calligraphy at UC Davis, June 2017-Sept 2019

- Hosted annual Spring Festival Calligraphy Sale on campus.
- Performed calligraphy live and sold works created by club members to students and professors.

PUBLICATIONS

Ambubox: A Fast-Deployable Low-Cost Ventilator For COVID-19 Emergent Care.
Fang, Z.; Li, A.; Wang, H.; Zhang, R.; Mai, X.; Pan, T. SLAS TECHNOLOGY: Translating Life Sciences Innovation 2020, 25 (6), 573-584.
Sample-to-Answer Robotic ELISA.
Zhou, C.; Fang, Z.; Zhao, C.; Mai, X.; Emami, S.; Taha, A.; Sun, G., Pan, T. Analytical Chemistry 2021, 93, 33, 11424-11432.