CHARLES WEI

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EDUCATION

Georgia Institute of Technology   **Aug 2021**
- M.S in Mechanical Engineering / GPA: 4.00

University of California, Santa Barbara   **Jun 2019**
- B.S. in Mechanical Engineering / GPA: 3.75

EXPERIENCE

Mechanical Systems Engineer | Sandia National Laboratories | Livermore, CA   **Jan 2022–present**
- Designed
- Assisted

Graduate Researcher | Degertekin Group | Atlanta, GA   **Sep 2019–Dec 2021**
- Researched ultrasonic MEMS transducers for wireless power transfer applications
- Modeled acousto-mechanical and electrical systems in COMSOL and Matlab/Simulink
- Microfabricated mm-sized capacitive membrane arrays in a cleanroom environment involving maskless lithography, physical and chemical vapor deposition, and wet/dry etching
- Presented poster and proceeding paper at IEEE Ultrasonics Symposium 2020 and 2021
- "Experimental Verification and Design Guidelines for Efficient Ultrasonic Power Transfer Using Capacitive Parametric Ultrasonic Transducers" 2020 *IEEE IUS*

Magnetic Car Roof Camera Enclosure | UCSB | Goleta, CA   **Sep 2018–Jun 2019**
- Designed and constructed an IP67 enclosure to mount a FLIR camera on top of a vehicle for infrared image acquisition
- Optimized enclosure geometry using FEA software and decreased drag coefficient by 27%
- Wrote SOP and conducted wind tunnel testing on scale model to validate drag forces
- Presented work at Gauchos in Tech 2019

Engineering Intern | StrahlBright Inc. | Santa Clara, CA   **Jun 2018–Sep 2018**
- Determined technical requirements for an oral irrigation device through research and initial experiments
- Iteratively designed a system in Fusion360 to provide necessary flowrates while analyzing and resolving flaws
- Manufactured design using NC machines and built a working proof of concept prototype

SKILLS & ABILITIES

Software
- SolidWorks (CSWP Professional Certification), AutoCAD, CREO, Fusion360, COMSOL
- Matlab, Simulink, C++, LabVIEW, Cluster computing

Microfabrication
- Photomask design; photoresist application and masked/maskless UV lithography
- Sputtering/evaporation (PVD), chemical vapor deposition (CVD), thermal oxidation
- RIE plasma etching and wet etching
- Metrology (refractometry, profilometry) and packaging (dicing) of completed devices

Manufacturing
- DFM/DFA, FMEA, GD&T
- CNC mill, lathe, laser cutter, 3d printing
- Computer aided manufacturing (CAM), G-code generation