# Herbert Hsu

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**Portfolio: herberthsu.com**

## SUMMARY

Process engineer working in semiconductor manufacturing. Mechanical engineering background with experience in rapid prototyping, design and development of consumer and industrial products. Experience includes some electrical engineering and software engineering giving me the ability to work effectively with integrated product development teams.

## RELEVANT ENGINEERING EXPERIENCE

**Intel Corporation, Mask Operations | Santa Clara, CA** Aug 2019 -Present

*Technoology Development Module Process Engineer – EUV Pellicles*

- Operated and oversaw a 24/7 module (5+ tools), worked with technicians to integrate and ensure quality of manufacturing process of semiconductor EUV photomasks. Ramped up module output by 230%.
- Led DOE, SPC analysis, root cause analysis, and implemented permanent corrective actions with cross module teams to meet specifications for manufacturing processes. Increased product yield by 40%.
- Worked with internal groups and/or equipment supplier to identify shortcomings, proposed and evaluated hardware modification to mitigate issues, supported preventative maintenance/repairs, and developed next-gen tool to support customer product requirements.
- Designed, built, and tested in house jigs/fixtures and tools to exploit the understanding gained in research. Responsible for building mechatronics module and front-end UI of automatic in-house inspection tool that decreased processing time by 30%.

*Skills: SolidWorks, FEA, Python (Data analysis/visualization, Mechatronics), SQL, SPC, rapid prototyping, DOE*

**Senior Capstone Project, University of Michigan | Ann Arbor, MI** Sept 2018–Dec 2018

**All-Terrain Wheelchair**

- In team of 7, designed & built a complete all-terrain electric wheelchair allowing more access to the wilderness. Wheelchair capable of going over snow, sand, and rough terrain. Gathered requirements from project sponsor & met weekly. Responsible for managing large SolidWorks assembly and designing & building control system with open-source Arduino microcontroller. Utilized various manufacturing methods including milling, lathing, welding & 3d printing. Completed within budget ($2k). *Tools: SolidWorks, Hypermesh, C* **(See portfolio)**

**Transportation Research Institute, University of Michigan | Ann Arbor, MI** Sept 2018–Dec 2018

*Engineering Intern*

- Designed, built & tested canine crash test dummies for commercial pet restraint products. Created first prototype with moveable joints within 4 months. *Tools: SolidWorks* **(See portfolio)**

**UVFAB Systems | Walnut Creek, CA** Jul 2018–Aug 2018

*Mechanical Engineering Intern*

- Researched & created conceptual design for a new consumer air purifier using titanium oxide photocatalytic reaction for air purification. Created conceptual 3D models & 2D detailed machine shop drawings for manufacturing. *Tools: SolidWorks*

**GM/University of Michigan Smart Materials and Structures Lab| Ann Arbor, MI** Sept 2017–Dec 2017

*Research Assistant*

- Designed & built a high-speed CNC bladder maker capable of producing heat- sealed inflatables up to 4'x4' for General Motors. Assessed printer quality by testing 11 samples with different geometry. *Tools: SolidWorks, G-code* **(See portfolio)**

**Institute of Oceanography, National Taiwan University | Taipei, Taiwan** May 2017–June 2017
*Mechanical Engineering Intern*

- Lab has weather buoys around the island. Developed a data visualization application that displayed ocean/wind currents in a Google-earth style globe. Learned JavaScript & HTML to complete project. Analyzed/tested the application. *Tools: JavaScript/Python/HTML/JSON.*

**CK-12 Foundation | Palo Alto, CA** Oct 2014–Apr 2015
*Content Intern*

- Educational non-profit for STEM subjects in K-12 classes. Created over 50 interactive math and physics games using web-based design program on the CK-12 platform.

## EDUCATION

**University of Michigan | Ann Arbor, MI** 2019
**B.S.E in Mechanical Engineering, Magna Cum Laude**
**Coursework:** Controls, Circuits, Statics, Dynamics & Vibrations, Thermodynamics, Heat Transfer, Fluids, Project Management, Life-cycle analysis, Statistics.

**Tecnun, Universidad de Navarra |** San Sebastián, Spain Summer 2016

## SKILLS

***Engineering Skills*:** Design for Manufacturability (DFM), geometric dimensioning & tolerancing (GD&T), engineering drawings, machine shop (milling, lathing, welding), 3D printing, microcontrollers, lab equipment, Design of Experiments (DOE), heat transfer analysis, structural analysis, thermodynamics, FEA, Data Analysis.

***Computer Skills*:** MATLAB, SolidWorks, Simulink, C++, Java, Python, G-Code, HTML, Linux, JSON, ADAMS, Hypermesh, MS Excel, PowerPoint, JMP, SQL.

***Languages*:** English (native), Mandarin (fluent), Spanish (beginner)

## OTHER ACTIVITIES

**Apparel Chair, Alpha Tau Omega Fraternity:** Designed, ordered and managed budget for apparel in fraternity with over 70 members.
**FRC Robotics Team, Mountain View High School:** Created small SolidWorks models and manufactured metal parts for the team.
**California Philharmonic Youth Orchestra:** Violin.
**Hobbies:** graphic design, embedded electronics.