Madee Haworth

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EDUCATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

BS in Mechanical Engineering
June 2019 | Cambridge, MA
GPA: 4.8 / 5.0

SKILLS

CAD
Creo Parametric • SolidWorks

Analysis
Tolerance analysis • Six Sigma • GD&T • DFM/DFA • FAI • FMEA

Part Design
Machined enclosures • FPCs • PCBs • Stamped metal • Magnets • Injection-molded plastic • Die cuts • Micro-fasteners

Prototyping
3D printing • Laser cutting • CNC & manual milling • Turning • Injection molding • Soldering • Thermoforming • Woodworking

Languages
Python • MATLAB • LaTeX • English • Spanish

COURSEWORK

PROFESSIONAL

DFSS Green Belt Course
Dale Carnegie Effective Communication
WWU Injection Molding & Design Seminar
Microsoft Accessibility in Action

UNDERGRADUATE

Product Engineering Processes
Design & Manufacturing I & II
Electronics for Mechanical Systems
Artificial Intelligence
Toy Product Design

EXPERIENCE

MICROSOFT | Product Design Mechanical Engineer, Surface

Aug 2019 - Present | Redmond, WA

- Lead engineer for top half of next-gen Surface Laptop; led system integration (touch display, enclosure, camera/mic array, hinges, cables, magnets, etc.) and owned/designed machined enclosures, new antenna module, and plastic parts
- Owned mode transition experience on Surface Laptop Studio; designed all magnets & hall-effect sensing to enable & sense 3 device postures on a unique first-gen form factor. Also owned all micro-fasteners, driving product from first concept through EV/DV builds to mass production under CM model
- Collaborated with cross-functional teams (including industrial design, EE, human factors, DFX, reliability, RF) to establish product architecture, define & validate specifications, & ensure end-to-end mechanical performance
- First named inventor on pending patent for magnetic Surface Slim Pen docking
- Designed magnets & hall effect sensing for Surface Laptop 3, 15”
- Traveled overseas for supplier visits & troubleshooting

MICROSOFT | Product Design Mechanical Engineering Intern

June - Aug 2018 | Redmond, WA

- Executed redesign of a mechanical subsystem to control user opening force of Surface Laptop 3 within tight tolerances, enabling seamless laptop opening experience with one finger
- First named inventor, US Patent # 11,119,535 for subsystem design
- Performed simulation & analysis using ANSYS and Creo to determine optimal geometry and reduce tolerance stackup
- Traveled overseas to suppliers & CMs to ensure manufacturability

RIGHTHAND ROBOTICS | Mechanical Engineering Co-op

Feb 2018 – June 2018 | Somerville, MA

- Optimized mold designs for 6 ReFlex robotic hands in SolidWorks, enabling faster, easier fabrication of adaptive fingers
- Performed independent robotic hand testing and assembly for customers

ATLAS DEVICES | Engineering Micro-Intern

Jan 2018 | Charlestown, MA

- Designed mechanical assembly for land-based tactical robot in SolidWorks
- Led fabrication and verification of prototype within tight 4-week timeline

NORTHROP GRUMMAN | Systems Engineering Intern

June - Aug 2017 | San Diego, CA

- Supported development of functional architecture for aerial refueling UAV
- Created & implemented closure plan for system architecture traceability gaps
- Updated systems architecture artifacts using object-oriented modeling

INVENTIONS & AWARDS

2022 Patent pending, Repelling input device from improper location
2019 US Patent # 11,119,535, Opening force control for foldable electronic devices
2018 Martin Prince Innovation Award, Talon self-retracting utility knife
2018 Provisional Patent Application, Talon self-retracting utility knife
2018 Tea-Licious automatic tea machine, MakeMIT & MakeHarvard 2018