

# 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

### ENGINEERING

Analysis:

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

Part Design:

FPCs • Machined enclosures  
Magnets • Stamped sheet metal  
Ultra-wideband (UWB) antenna

Die cuts • Micro-fasteners

Injection-molded plastic

Software:

Creo Parametric • SolidWorks

Windchill PDMLink

Prototyping:

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

### LANGUAGES

Python • MATLAB •  $\text{\LaTeX}$   
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 | MECHANICAL ENGINEER I & II

Aug 2019 - Present | Redmond, WA

- Lead engineer for upper half of next-gen Surface Laptop; designed machined enclosures & led integration of subsystem components (enclosure, display, camera/mic array, logo, magnets, hinges, cables, etc.)
- Designed all magnets, micro-fasteners, and hall effect sensing in Surface Laptop Studio, driving product from first concept through EV/DV validation builds to mass production under OEM/CM model
- First named inventor on pending patent for magnetic Surface Slim Pen docking
- Designed magnets & hall effect sensing for Surface Laptop 3
- Collaborated with cross-functional teams— including industrial design, EE, UX/human factors, DFA, reliability, and RF— to establish product architecture, define & validate specifications, & ensure end-to-end mechanical performance
- Traveled overseas for supplier visits & troubleshooting

### MICROSOFT | MECHANICAL ENGINEERING INTERN

June - Aug 2018 | Redmond, WA

- Executed redesign of a mechanical subsystem to control user opening force of Surface Laptop 3 within strict tolerances, enabling seamless laptop opening 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 Application, 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