Thomas Barlow

Mechanical Engineer

Education

2018–08 **Master of Science: Mechanical Engineering**
2020–05 *University of Michigan – Ann Arbor, MI*

- GPA–3.76, Tauber Institute for Global Operations Fellow

2011–08 **Bachelor of Science with Honors: Mechanical Engineering**
2018–08 *Brigham Young University – Provo, UT*

- Minor in Global Business and Literacy
- GPA–3.86, Full Scholarship; Weidman Scholar; Truman Scholar Nominee
- Selected as representative of Engineering College on Student Advisory Council and presented 'time to graduation' research to University President

Product Development Experience

2017-09 **Mechanical Engineer Capstone**
2018-06 *URC Mars Rover Competition, Provo, UT*

- Collaborated with cross-discipline team of 20 engineers where I designed electrical system and integrated batteries, sensors, controllers, and motors
- Conducted failure analysis tests, debugged, and implemented solutions to double field-testing time and place 5th of ~100 international teams
- Prepared sheet metal fabrication drawings, modifications and commercial specification drawings using AutoCAD

2016–09 **Product Development Technician**
2017–09 *Nexus CMF, Salt Lake City, UT*

- Led development and evaluation of innovative surgical tool using observation and user input to meet the needs of internal and external users
- Collaborated with cross-functional team and communicated visually to stakeholders using technical drawings, mockups, CAD, and motion studies
- Verified and validated medical devices per company quality design procedures
- Created customer technical documentation, internal testing and validation reports, and DFMEAs to register over 20 devices with 2 regulatory bodies

Mechanical Engineering Experience

2019–05 **Optimization Research Assistant**
Current *Design Optimization Lab – Univ. of Michigan, Ann Arbor, MI*

- Led research team in creation of system-level optimization model, building and integrating multiple existing engineering tools, models and simulations
- Optimized sustainable agriculture model using MATLAB while managing 6 researchers from different engineering disciplines

2019–05 **Engineering/Operations Intern**
2019–08 *Brose Fahrzeugteile GmbH & Co., Auburn Hills, MI*

- Developed custom machine learning tool for cost estimation of manufacturing capital equipment, saving 3 divisions ~1000 hours annually
- Enabled data driven investment planning, with $12M in cost avoidance annually
- Managed needs and expectations of internal customers in matrix organization for North America region, driving requests for global deployment in 8 divisions

2018–10 **Manufacturing Intern**
2019–04 *FlexDex Inc., Brighton, MI*

- Reduced COGS by 2% on core product through redesign and finding new vendors
- Identified root cause of long-standing problem leading to ~50% scrap reduction
- Improved efficiency and reliability by designing and manufacturing tooling and fixtures using Solidworks, traditional machining methods, and 3D printing

Contact

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E-mail

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Skills

CAD
(Solidworks, CATIA, FEA)
●●●●○ Advanced

Product Design
(DFMA, Design Thinking, GD&T)
●●●●○ Advanced

Prototyping
(Machining, 3D printing, laser cutting)
●●●●○ Advanced

Programming
(MATLAB, C++, Python, VBA)
●●●○○ Moderate

Manufacturing and Operations
(LSS Green Belt, Cost Estimation)
●●●○○ Moderate

Problem Solving
(RCA, Analytics, DOE, Research)
●●●●○ Advanced

Relevant Courses

- Front-End Design
- Impact Design
- Analytical Product Design
- Design Optimization
- DFMA
- Additive Manufacturing
- Global Manufacturing
- Survey Statistics
- Mechatronics