

Blake Wiley
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Mechanical Design Engineer with experience in product development, manufacturing and product testing. MSME 2019.

DEMONSTRATED QUALIFICATIONS

- *Mechanical Design Engineer- Braun Northwest, 2021 - Current*
 - In this multidisciplinary role, I have led multiple projects designing new features for emergency vehicles, from conception to delivery, using 3D CAD and DFM. Many originated by working closely with customers to understand their design requirements and current issues. In one case, customers reported door failure at a rate of about 1/mo. I led the redesign, improving the internal structure and load geometry using cycle testing, load path analysis, and worked with external vendors to source a custom gas shock. Since implementation in June of 2023, there have been zero reported failures.
 - I led the selection and integration of new manufacturing equipment to increase capabilities and reduce manufacturing time. In one \$70k project, I rebuilt the controls for our industrial paint booths, increasing production by 30%, and reducing potential down time from months to days. In another, I incorporated 3D scanning/printing to our manufacturing process, allowing the design on complex curves where we could not before.
 - Finally, I also lead the internal product testing lab, evaluating new designs and purchased products. To aid in this, I developed multiple product testing devices including an automated pneumatic load cycle testing machine, a vibration table, and an automated electrical load bank. Using these devices, we have greatly reduced the number of warranty claims after delivery.

- *Hardware Engineering Intern - Facebook Reality Labs, Fall of 2019*
 - I developed thermal gradient characterization hardware for IMU sensors in augmented reality headsets. This hardware successfully made it possible to determine headset package requirements to reduce offsets in the position sensor fusion algorithm.
 - I designed a low-power, wearable, head kinematic characterization device. This device allowed us to measure typical angular rates and accelerations that a headset would encounter in daily wear; critical in selecting a sensor with optimal range and resolution.

- *Thesis Research - Washington State University, 2017-2019*
 - Successfully developed a novel magnetorheological fluid damper utilizing permanent magnets, reducing potential power requirements by a factor of 10.3.

Software: Inventor/Fusion, SolidWorks, Siemens NX, ANSYS, Simulink

Manufacturing: Sheet Metal, CNC, Casting, 3D Printing, Electrical Wiring, Electronics

Programming: MATLAB, C/C++, Python

EDUCATION/PUBLICATIONS

- *Master of Science in Mechanical Engineering - Washington State University* Vancouver, WA - 2019
- *Bachelors of Science in Mechanical Engineering - Saint Martin's University* Lacey, WA - 2017
- *Associates of Science - Centralia College* Centralia, WA - 2015

- Wiley, Blake, Magneto-rheological actuator with permanent magnets for low-power activation, 2020
Journal of Intelligent Material Systems and Structures
- MSME Thesis: http://wileys.space/assets/files/BlakeWiley_Thesis_WSU.pdf 2019
- EIT Certified (No: 36035) 2017