

# Makenzie Brian

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## EDUCATION: OREGON STATE UNIVERSITY

MSc Robotics:  
2018 – 2019

**Classes:** Robotic Perception, Linear Multivariate Control Systems, Social Robots  
**Master's Thesis:** "Patient Compliance Effects on Simulated Ebola Medical Care Delivery with a Telepresence Robot"

Honors B.S. Electrical Engineering  
2014 – 2017  
Magna Cum Laude

**Classes:** Microcontroller System Design, Power Electronics, Intelligent Robots, System Dynamics and Control and Applied Robotics  
**Honor's Thesis:** "Design and Implementation of a Ride-On Car with Data Tracking for Use by Young Children with Developmental Differences"

## WORK EXPERIENCE

**Graduate Research Assistant**, OSU Personal Robotics Group, Corvallis, OR January 2018 – June 2019

- Designed test fixtures for manufacturing robots for Precision Castparts Corp.
- Studied compliance differences when patients are instructed via a telepresence robot vs. a human in protective equipment
- Helped revamp the Robot Operating System wiki framework by using site analysis of the previous documentation
- Investigated issues with current smart-wheelchair research to compose a workshop paper, which facilitated discussion on how to better aim research toward user-centered design

**Graduate Teaching Assistant**, ME 451: Instrumentation and Measurements, Corvallis, OR January 2018 – March 2018

- Taught electrical fundamentals, Arduino programming, and sensor integration to mechanical engineering students
- Mentored students to assist in design development and appropriate scoping of projects

**Robotics Engineering for Manufacturing Intern**, ESCO Group LLC, Portland, OR June 2017 – September 2017

- Developed small part inspection process that looked for shrinkage defects, parting line flashing, and incorrect riser height
- Established a set of work instructions detailing the maintenance procedures, safety policy, normal operating protocols, and troubleshooting guide for the Fanuc robotic arm and surrounding cell
- Improved riser removal process by removing excess material and providing operating instructions for inspectors
- Communicated with expert inspectors in order to improve parts inspection and adapt in accordance with robotic limitations such as those present in dexterity and sensing at the level a human inspector would be able to perform

**Undergraduate Research Assistant**, OSU Personal Robotics Group, Corvallis, OR September 2016 – December 2017

- Built and validated a data collection system that tracked the use of a modified commercial Ride-On Car for children with developmental hindrances
- System can be used to relate frequency and duration of use with good developmental outcomes for these children

**Undergraduate Research Assistant**, CreateIT Collaboratory, Corvallis, OR September 2015 – September 2016

- Tested and debugged system hardware for a wireless water level sensor that alerted city residents to possible flooding
- Designed new class projects for School of Electrical and Computer Engineering's junior year projects courses

## SKILLS

- Computer Programming: Robot Operating System (ROS), Python, C, C++, L<sup>A</sup>T<sub>E</sub>X, Arduino, and System Verilog
- Software: PyTorch, Git, MATLAB, PSpice, and LTSpice
- Experience with Machine Learning, Solidworks, OpenSCAD, Eagle CAD, Linux, and Assembly

## ACHIEVEMENTS

- Tektronix Commercialization Award, Senior Capstone, 2017
- Grand Team Challenge for Student Scholars, Water Level Project, 2016

## PUBLICATIONS

- J. Dawes, M. Brian, H. Bialek, and M. L. Johnston, "Wireless smartphone control using electromyography and automated gesture recognition," vol. 2018. IEEE, Engineering in Medicine and Biology, 2018, pp. 5390–5393
- B. Narin, M. Brian, and W. Smart, "A critical look at smart wheelchairs," *International Conference on Intelligent Robots and Systems (iROS)*, 2018