# ERICA TEVERE

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## EDUCATION

**Johns Hopkins University |** M.S.E. Robotics – Faculty Scholarship (GPA: 3.5 / 4.0)          *May 2021*

**University of Michigan - Ann Arbor |** B.S.E. Mechanical Engineering – Magna Cum Laude (GPA: 3.6 / 4.0)          *May 2019*

## WORK EXPERIENCE

**National Institute of Standards and Technology (NIST)**          *August 2020 – Present*
*Robotics Intern – Grasping, Manipulation, and Safety of Robotic Systems Group*          *Gaithersburg, MD*
- Researching and developing standard for grasp efficiency, testing methods to detect object slip during manipulation tasks
- Investigating and establishing environments for grasp efficiency testing in simulation using Gazebo, PyBullet, and Klampt

**FANUC America Corporation**          *May 2019 – August 2019*
*Robotics Intern – Motion Planning Group*          *Rochester Hills, MI*
- Developed and implemented prototype system to perform dynamic path planning using Intel RealSense D435 sensor
- Performed regression testing for 8 motion options on upcoming software release to verify function and performance

**NASA Jet Propulsion Laboratory**          *May 2017 – December 2017*
*Mechanical Engineering Intern – Planetary Sample Acquisition and Handling Group*          *Pasadena, CA*
- Designed custom parallel manipulator to simulate expected rate of compliance of a robotic arm during sample collection
- Created Python tool to automatically generate movement sequences for testbed robotic arm resulting in decrease in individual test duration by 20%, a reduced required training level of operators, and lower frequency of human error faults during testing
- Calculated machining tolerances and re-designed tool to manually actuate ball locking features on sample acquisition hardware
- Upgraded Mars 2020 testbed to characterize sample acquisition and handling hardware during routine loading interactions and magnify anomalies in flight-like conditions before manufacturing of flight model hardware

**Fiat Chrysler Automobiles**          *June 2016 – September 2016*
*Supply Chain Intern – Powertrain Production Planning Group*          *Auburn Hills, MI*
- Identified issues in supplier release system and spearheaded a task force consisting of 4 departments within FCA to develop and implement proposed solutions - executed inexpensive solutions resulting in a 2 month reduction in the project timeline

## RESEARCH AND PROJECT EXPERIENCE

**Johns Hopkins University Autonomous Systems, Control, and Optimization (ASCO) Lab**          *March 2020 – Present*
*Graduate Researcher Assistant – Rough-terrain Ground Vehicle Control Project*          *Baltimore, MD*
- Integrating depth sensing onto an unmanned ground vehicle for real-world testing of reinforcement learning control algorithm
- Investigating different deep learning methods to identify and isolate drivable surfaces for off-road/unstructured environments
- Creating pipeline to use vehicle odometry and RGBD camera data to learn and predict unfavorable driving conditions

**University of Michigan Autonomous Robotic Manipulation (ARM) Lab**          *May 2018 – December 2018*
*Undergraduate Researcher Assistant – Manipulation of Deformable Objects Project*          *Ann Arbor, MI*
- Evaluated limitations of Robotiq 3-finger gripper during grasping to produce functional requirements of replacement gripper
- Designed a parallel gripper with 7 inches less of obstacle interference and 1 inch more of travel in grasping direction
- Incorporated force sensing into gripper fingertips to improve motor control when grasping deformable objects in testing
- Performed lifecycle testing on entire gripper assembly to validate failure point of system

**SAE Michigan Baja Racing**          *September 2015 – August 2019*
*Team Captain ('18-'19), Testing Colead ('17-'18), Composite Subsystem Lead ('16-'17)*          *Ann Arbor, MI*
- Managed final design decisions, system integration, and vehicle timeline resulting in record breaking 1st place season finish
- Oversaw $100,00 budget, sponsor relations, recruitment, and community outreach of 40+ person team
- Orchestrated 6 week on-car testing period to quantify performance of vehicle and tune critical subsystems
- Reengineered front suspension component to decrease weight by 50% and increase strength in application by 60%
- Managed design and manufacturing of 10+ carbon fiber vehicle panels and rule-compliant component guards
- Created design of experiment (DOE) to quantify aluminum/carbon fiber bond characteristics, properties, and strength

## PUBLICATIONS

Yahnker, C., Shiraishi, L.R., … **Tevere, E.L.** "Introduction to Tools and Techniques for Surface Sampling on Europa." *16th Biennial ASCE Aerospace Division International Conference on Engineering, Science, Construction, and Operations in Challenging Environments*, Cleveland, Ohio, April 9-12, 2018.

## SKILLS

*Programming:* ROS, C++, Python, MATLAB/Simulink, familiar with Orocos, familiar with OpenCV, familiar with LabVIEW
*Embedded Systems/Sensors:* Arduino, stereo cameras, IMU, strain gages, linear potentiometers, infrared sensors, Hall effect sensors
*Software:* CAD (NX, CATIA, SolidWorks), Siemens Teamcenter, FEA/Optimization (Altair HyperWorks), JMP
*Manufacturing:* manual and CNC mill and lathe, 3D printing, carbon fiber layups, familiar with TIG welding, familiar with GD&T