ERICA TEVERE

ETEVERE@UMICH.EDU • (908) 328-7517 • ETEVERE11.GITHUB.IO

EDUCATION

Johns Hopkins University | MS Robotics – Faculty Scholarship, Intuitive Surgical Best Project Award (GPA: 3.6/4.0) *Dec 2020*

University of Michigan - Ann Arbor | BS 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 and test methods to detect object slip during manipulation tasks
- Investigating and establishing environments to model robotic manipulators in simulation and perform grasp testing using Gazebo

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 – Dec 2017*
Mechanical Engineering Intern – Planetary Sample Acquisition and Handling Group *Pasadena, CA*

- Produced early-stage prototypes of excavation devices in 2-week cycle turnarounds and tested on varying surface conditions
- 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

Fiat Chrysler Automobiles *June 2016 – Sept 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 deep learning methods to perform semantic scene understanding for drivable surfaces of off-road environments
- Designing a scene understanding algorithm that is robust to change in environment and environment contents
- Creating pipeline to use vehicle odometry and RGBD camera data to learn and visually predict unfavorable driving conditions

University of Michigan Autonomous Robotic Manipulation (ARM) Lab *May 2018 – Dec 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 *Sept 2015 – August 2019*
Team Captain, R&D Lead('18-'19), Testing Colead ('17-'18), Composite Subsystem Lead ('16-'17) *Ann Arbor, MI*

- Iterated through early-stage design concepts in 2-month period to determine impact on vehicle performance and set project goals
- Managed final design decisions, system integration, and vehicle timeline resulting in record breaking 1st place season finish
- Interfaced with contract manufactures, acquired materials and tooling, and managed and contributed to in-house manufacturing
- 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

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, Python, C++, MATLAB/Simulink, Gazebo, OpenCV, PyTorch, familiar with TensorFlow, familiar with Orocos
Embedded Systems/Sensors: Arduino, Raspberry Pi, stereo cameras, lidars, IMU, strain gages, 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 GD&T, familiar with TIG welding