Erica Tevere

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EDUCATION

Johns Hopkins University | MS in Robotics – Intuitive Surgical Best Artificial Intelligence Project Award (GPA:3.6/4.0) Dec. 2020

University of Michigan – Ann Arbor | BS in Mechanical Engineering (GPA:3.6/4.0) May 2019

WORK EXPERIENCE

National Institute of Standards and Technology | Gaithersburg, MD August 2020 - Present
Robotics Intern – Grasping, Manipulation, and Safety of Robotic Systems Group

- Researching and developing standard for grasp efficiency and test methods to detect object slip during manipulation tasks
- Converting 3+ robotic arms and hands to interface with ROS and creating simulation environments in Gazebo for testing

FANUC America Corporation | Rochester Hills, MI May 2019 - August 2019
Robotics Intern – Motion Planning Group

- Developed and implemented prototype system to perform dynamic path planning using Intel RealSense D435 RGBD camera
- Performed testing for 8 motion options on upcoming software release to verify function and performance

NASA Jet Propulsion Laboratory | Pasadena, CA May 2017 – Dec. 2017
Mechanical Engineering Intern – Planetary Sample and Acquisition Handling Group

- Produced early-stage prototype 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 | Auburn Hills, MI June 2016 – Sept. 2016
Supply Chain Intern – Powertrain Manufacturing

- 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 Lab | Baltimore, MD March 2020 - Present
Graduate Researcher Assistant – Rough-terrain Ground Vehicle Control Project

- 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 surfaces

University of Michigan Autonomous Robotic Manipulation Lab | Ann Arbor, MI May 2018 – Dec. 2018
Undergraduate Researcher Assistant – Manipulation of Deformable Objects Project

- 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

SAE Michigan Baja Racing | Ann Arbor, MI Sept. 2015 – August 2019
Team Captain, R&D Lead('18-'19), Testing Colead ('17-'18), Composite Subsystem Lead ('16-'17)

- 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