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Education

University of Houston Cullen College of Engineering | Houston, Texas
Bachelor of Science, Mechanical Engineering *May 2016*

- Magna Cum Laude, Honors in Major, Mathematics Minor

Northwestern University | Evanston, Illinois
Master of Science, Robotics *December 2018*

- Course Subjects: Robotic Manipulation, Machine Dynamics, Robot OS, Mechatronics, Machine Learning, Computer Vision, Internet of Things

Experience

Mechanical Engineer, McFarland Pump Company LLC *December 2016 – August 2017*

- Decreased duplicate production time by producing accurate package models in Solidworks
- Prevented future chemical compatibility issues by correcting pump seal material choices
- Increased company efficiency through overhaul of QA/QC and documentation process

Engineering Intern, Lockheed Martin | Houston, TX *May 2013 – August 2013*

- Collaborated with engineers and professionals on the Lockheed Martin Cargo Mission Contract
- Accelerated battery testing by creating new quality exceptions and standards
- Tested methods to secure absorbent material in space suit helmet following a helmet leak
- Inspected, tested, and packaged electronics for delivery to the International Space Station

Projects

Force Control

- Built ROS package interface industrial robots with an external end-effector force-torque sensor
- Package enables robot to follow projected 2D Cartesian paths on any 3D textured surface

Bottle Cap

- Collaborated in team tasked with programing a 7-DOF industrial robot to both remove and replace a bottle cap
- Program recognized AR tags to locate and position the robots end effector over the cap
- Project involved ROS, Python, OpenCV, and Rethink Robotics' Baxter

Rainbow Road

- Created a robotic cart to follow a rainbow path around a test track
- Used PIC32 microcontroller to communicate with custom android application
- Designed PIC32 microcontroller board in Eagle and programmed using C and Android Studio

Image Stitch

- Wrote program to stitch two images of a scene into a single panoramic image
- Programmed in Python using OpenCV

Object Tracker

- Created a high-speed object tracker using servo motors coupled with high-rate, global shutter camera
- Programmed in ROS using Python and OpenCV

Human Power Input

- Team lead on design and build of power input measuring bike
- Programmed Arduino to measure motor output across power resistors to calculate power generation
- Engineered electronic and structural design assembly

Skills

MLC CAD SolidWorks Training *June 2016*

Software: **Design** (Solidworks, Autocad, Eagle), **Programming** (Python, C, ROS, Linux, Matlab, Mathematica, Arduino IDE, Android Studio, Git/GitHub, OpenCV, TensorFlow, scikit-learn, weka), **Microsoft** (Excel, Project, Office)

Prototyping: 3D Printing, Laser Cutting, hands-on mechanical experience