Evan Bosia

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OBJECTIVE Full-time position in multidisciplinary engineering

EDUCATION

Worcester Polytechnic Institute (WPI), Worcester MA, August 2013 - May 2017
Bachelor of Science in Mechanical Engineering
Bachelor of Science in Robotics Engineering Cumulative GPA: 3.75

EXPERIENCE

Dynamic Systems Engineering Intern, Alpinax, Worcester MA May - August 2016

- Designed in SolidWorks several electromechanical systems to improve filming and surveying capabilities
- Analyzed different manufacturing methods for custom parts to optimize function and cost
- Checked tolerances on custom parts to ensure the correct fits with off the shelf components
- Generated part drawings for custom parts to enable production

Mechanical Engineering Intern, RSA, The Security Division of EMC, Bedford MA June - August 2015

- Dismantled out-of-use product manufacturing robots for spare parts
- Created ladder logic driven robot to test salvaged pneumatic actuators and replacement parts
- Designed and prototyped an alignment tool in SolidWorks to improve speed and quality of product assembly
- Produced parametric models in SolidWorks from part drawings to aid with other modeling efforts

PROJECTS

Major Qualifying Project, August 2016 - May 2017

- Built active temperature-controlled package for vaccine transportation via drone on a team of 4
- Created thermodynamic model in MATLAB to optimize the mechanical parameters of the system
- Developed in-depth Simulink model to accurately predict expected system response
- Programmed microcontroller to run temperature-control feedback loop and user interface
- Ran lab tests on package to generate results and determine failures

Mechatronics January 2017 - March 2017

- Modeled quadcopter to determine its flight characteristics
- Developed bond graph model of all components of system, from voltage input to body velocity
- Determined state equations using the bond graph of the system
- Verified model using MATLAB to solve the resultant system of differential equations

Unified Robotics IV, October 2016 - December 2016

- Developed high-level logic for a mobile robot to autonomously map an unknown area on a team of 3
- Programmed set of Python modules to control map data interpretation and path planning
- Utilized set of preexisting ROS nodes to control movement and SLAM mapping
- Programmed rostopics to interface with GUI to display current map and robot path

Unified Robotics III, August 2016 - October 2016

- Programmed a 2 DOF arm to pick and sort weighted blocks from a mock assembly line on a team of 2
- Implemented PID control on the arm using digital encoders zeroed by potentiometers
- Used SPI interface to read arm potentiometer values from ADC and control motors from DAC
- Linked microcontroller with MATLAB using USART to display program states and run inverse kinematics

Software Engineering, March 2016 - May 2017

- Programmed a puzzle game to allow the user to play different tile based games on a team of 5

- Brainstormed use cases to determine program functionality
- Set up a entity boundary controller based UML to outline all necessary classes
- Ran test cases to maximize code coverage and minimize errors

Interactive Qualifying Project, August 2015 - October 2015
- Worked with ZHAW University in Switzerland to Swiss improve Nature Park volunteering rates
- Researched corporate volunteering in the US to develop strategies targeting US companies in Switzerland
- Analyzed Swiss Nature Park current targeting methods and volunteering events to identify potential changes
- Created an easy-to-use tool to help ZHAW identify which companies would be more likely to participate

Unified Robotics II March 2015 - May 2015
- Built fully autonomous robot to locate and extinguish a candle in a maze on a team of 4
- Designed complete model of the robot in SolidWorks to ensure correct dimensions
- Worked out necessary sensors and their placement to fully complete the task
- Programmed high-level process logic in C to govern the robot's tasks

Unified Robotics I January 2015 - March 2015
- Built fully autonomous robot to move rods between designated zones on a team of 4
- Designed model of the robot in SolidWorks to examine manipulator movement
- Determined necessary sensors and their placement to fully complete the task
- Integrated design with team to fully develop a working prototype

SKILLS

Engineering: Mechanical Analysis, System Modeling, Circuit Design, Embedded Programming
Programming Languages: Java, Python, C, C++, Ladder Logic, MATLAB & Simulink
Applications: SolidWorks, ROS, Multisim, Eclipse, Git, LabVIEW, LaTeX, Microsoft Office Suite
Prototyping: Mill, Lathe, 3D printer, Lasercutter, Hand tools, Soldering

ACTIVITIES

Underwater Hockey, Secretary, WPI, January 2014 - May 2017
Tau Beta Pi Engineering Honors Society, WPI, March, 2016 - Present
Rho Beta Epsilon Robotics Honors Society, WPI, September, 2016 - Present
Water Polo Club, WPI, February 2016 - May 2017
Green Team Sustainability Club, WPI, August 2015 - May 2017