Alejandro Trejos

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PROFILE

University senior pursuing BS degree in Mechatronics Engineering from Texas A&M University to be completed Fall 2020. Foundation in electro-mechanical engineering with experience developing and deploying software in web and IOT systems. Motivated to start employment in a highly collaborative, dynamic work environment.

EDUCATION

Texas A&M University, College Station, Texas   Fall 2020
Bachelor of Science in Multidisciplinary Engineering Technology, Focus in Mechatronics

Coursework Highlights: Computational Data Science, Control Systems, Mobile Robotics Systems, Embedded Systems Software, Mechanics and Power, Microcontroller Architecture, Product Design and Solid Modeling, Industrial Robotic Systems

WORK EXPERIENCE

Teaching Assistant, *Texas A&M*, College Station, Texas   August 2020 – Present
- Lab instructor for the 300 level Applied Dynamic Systems Course for the Fall 2020 semester
- Incorporate dynamic modeling and firsthand learning using MATLAB, Simulink, and various hardware
- Developing simulation platform for students in department to explore mobile robotics in Unreal Engine environment

Student Programmer, *Texas A&M Athletics,* College Station, Texas   September 2019 – September 2020

- Utilized MERN stack platforms and techniques to develop small scale web applications for clients
- Incorporated Tableau to understand and integrate business intelligence into project designs
- Designed and developed a web application for client to track and display progress of several internal processes

PROJECTS

Shell Eco-marathon Autonomous Programming Competition, USA   May 2020 – July 2020
- Developed path planning, perception, and control algorithms for an autonomous vehicle using the Robot Operating System (ROS)
- The vehicle was tested within a simulated urban environment using Microsoft's AirSim with Unreal Engine 4
- Represented Texas A&M in a team of 4, obtaining 1st Place overall with top scores in 4 categories

Micro-Powder Compaction for Binder Jetting 3D Printer, College Station, Texas   January 2020 – Present
- Developed an electro-mechanical compaction system to compress powder particles with micron precision
- Handling sensor feedback, control, and actuation communication protocols using Modbus TCP connection
- Developed user interface to control system and provide end user with feedback from load cell and system status

SCUTTLE autonomous system, College Station, Texas   January 2019 – May 2020
- Utilized LiDAR, camera, and encoder readings to perform P2P navigation and mapping in an office environment
- Program was developed on a BeagleBone Blue device operating two rear servo motors as a differential driven system
- System was modeled and simulated in Gazebo and RVIZ using ROS middleware

ORGANIZATIONS

Alpha Phi Omega, College Station, Texas   January 2018 – May 2019
- Received the John E. Russell Memorial Award, given to member with most service, fundraising, and leadership hours
- Managed group of 20 to work with Whelan Security for the 2018 NCAA Basketball Championship

MICROSOFT Insider Dev Tour, Dallas, Texas   July 2019 – Present
- Collaborate with industry members as an external developer on the latest technologies within Microsoft
- Attended multiple keynote events that highlighted important soft skills that influence technical aptitude

SKILLS

- Technical Skills: Python, ROS, Linux, C, JavaScript, Assembly, Verilog, MATLAB, LabVIEW, Creo, Altium, Additive Mfr., PolyScope, UR5, Hebi, Vention, Modbus