**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 a new journey 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 – December 2020

* Lab instructor for the 300 level Applied Dynamic Systems Course for the Fall 2020 semester
* Incorporated 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 – December 2020

* 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, TexasJanuary 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, TexasJuly 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, Universal Robotics systems, Modbus TCP/IP, Exploratory data analysis, Data visualization
* Portfolio: <https://alextrejos.netlify.app/>