EDUARDO ANDRADE

13125 Stern Avenue • La Mirada, CA 90638
(562)335-3392 • eandrade.0010@gmail.com

SUMMARY

Mechanical engineering graduate student seeking to perform challenging work in an empowering and growth-oriented environment.

RELEVANT EXPERIENCE

Summer Research Intern, **MIT Lincoln Laboratory**, Lexington, Massachusetts, May 2018 - August 2018

- Developed and rendered a low-fidelity multi-agent environment using OpenAI Gym's framework and Python to facilitate testing of reinforcement algorithms for robotic swarms.
- Constructed an integrated environment constituted by OpenAI Gym and ROS/Gazebo as a platform for simulating multi-agent reinforcement learning algorithms using quadrotors.
- Created a ROS package that integrates QR code reading and writing capabilities, along with the OpenCV library to enable visual communication between quadcopters of encoded data.

Engineering Intern, **National Aeronautics and Space Administration**, Langley Research Center, Hampton, Virginia, January 2018 - May 2018

- Performed the 3D reconstruction of a structural object in Python using the OpenCV library and AprilTag fiducial system (University of Michigan).
- Implemented a robust bundle-adjustment algorithm to perform the simultaneous refinement of estimated camera parameters and pose estimation of the aforementioned object.
- Produced a real-time pose estimation algorithm in Python of a two-tag object from a live video stream to provide visual servoing capabilities to a long-range robotic manipulator to be used in autonomous in-space assembly demonstrations.

Engineering Intern, **National Aeronautics and Space Administration**, Langley Research Center, Hampton, Virginia, August 2017 - December 2017

- Designed a fixture in PTC Creo required for structural testing of a prototype of the Tension Actuated Long-reach In-Space Manipulator (TALISMAN).
- Conducted a design trade study to compare fixture design candidates through finite-element analyses (FEA) generated in PTC Creo Simulate.
- Performed testing and documentation of results for a novel cable brake arrestment system to be implemented on future iterations of TALISMAN.

Engineering Intern, **National Aeronautics and Space Administration**, Marshall Space Flight Center, Huntsville, Alabama, September 2016 - December 2016

- Improved a VI (virtual instrument) using LabVIEW that allows a user to design a magnetic topology and then upload and replicate that pattern on an electromagnetic array.
- Integrated the VI with a Python GUI (graphical user interface), in conjunction with an Arduino Uno and a 3D printer, to automate a testing procedure to record measurements of the array.
- Developed and simulated a robust PID controller in Simulink for an electromagnetic rotational dynamic system that is capable of tracking reference angles.
- Provided wireless uploading capabilities to CELA (correlated electromagnetic levitation actuator) board prototypes using Xbee wireless modules.

Manufacturing Engineering Intern, **Brasstech, Inc.**, Santa Ana, February 2015 - August 2017

- Designed tools and fixtures in PTC Creo to aid in assembly and manufacturing processes.
- Wrote work instructions for manufacturing procedures in English and Spanish.

EDUCATION

Masters of Science: Mechanical Engineering, *December 2018.*
California State University, Long Beach, California
GPA: 4.0/4.0

SKILLS

OS and Software- Windows, Linux, ROS, Gazebo, MS Office Applications, PTC Creo/Pro-E, CATIA, Solidworks, AutoCAD, COMSOL Multiphysics, Abaqus
Programming - Python, Matlab, Simulink, Bash, SQL, LabVIEW, C++, Visual Basic
Tools - Windchill, Git, OpenCV, OpenGL, Xbee, TCP/UDP
Certifications - NCEES Licensed Professional Engineer-in-Training, California
Miscellaneous - Fluent in Spanish