Andres Pulido

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Education

University of Florida, Gainesville FL

Ph.D. in Mechanical Engineering. 3.67 / 4 G.P.A	August 2021 - May 2026
MS in Mechanical Engineering. 3.67 / 4 G.P.A	**August 2021 - December 2023**
Bachelor of Science in Mechanical Engineering. 3.53 / 4 G.P.A	August 2018 - May 2021

Relevant Coursework and Skills

Autonomous Robots | Nonlinear and Optimal Controls | Intro to RL | Applied ML | Optimization | Formal Methods
Skills: Python, Linux, MATLAB, GitHub, ROS, Gazebo, C++, TensorFlow, PyTorch, SKLearn, Jira, SolidWorks

Internship Experience

Autonomous Vehicle Lab, UF REEF - Robotics Software Engineering Intern   May 2022 - August 2022
- Implemented a particle filter to estimate the state of a robot target tracked by a quadcopter
- Derived a new information-driven guidance for target tracking in occluded environments using ROS
- Designed Markov chain-like road network and programmed a PID control on a TurtleBot to follow the network

Aurora Innovation - Systems Engineering Intern   May 2021 - August 2021
- Wrote a Python tool to perform a time interval safety analysis on excessive longitudinal acceleration fault scenarios of a self-driving car. The tool will help to design safety mechanisms robust to safety violations
- Derived one dynamic and three static 2D models of a self-driving truck in Python with different parameters which served as the groundwork to do a safety analysis and impose motion planning limits to prevent rollover

Cummins Inc - Product Validation Engineering Co-Op   August 2020 - December 2020
- Wrote a User Interface using MATLAB App Designer to safely and quickly execute lift bracket testing
- Designed a tool to determine the optimal engine temperature in vibration testing by analyzing field data
- Performed statistical analysis of testing costs over two years using MATLAB to better estimate future tests

Research Experience

Active Perception and Robot Intelligence Lab, UF - Graduate Researcher   August 2021 - Present
- Created a 6DOF Gazebo simulation for sonar bathymetry of a tethered drone and boat system and implemented to it a Kinodynamic RRT that generates trajectories to get full coverage of a lake in C++ and python
- Designed and implemented a sparse 3D point cloud generation algorithm from side-scan sonar image
- Implemented Automatic Object Detention (ATR) using the YOLOv4 neural network on side-scan sonar images

Machine Intelligence Lab, UF - Research Assistant
Team Lead and Software Team member in the autonomous boat and submarine tea   August 2018 - Present
- Led a team of five and nine students in the 2022 and 2019 RoboSub competitions in CA and MD
- Wrote a Concurrent Learning-based adaptive controller for the boat that learns systems parameters over time
- Performed system identification techniques to estimate inertia and drag parameters in the dynamic model of the submarine with data collected on pool experiments

School of Science, Miami Dade College (MDC) - Undergraduate Research Assistant   January - August 2018
- Derived the forward and inverse kinematics of a 3DoF robotic planar manipulator to draw geometrical shapes
- Implemented a PID controller in LabVIEW to achieve a desired angular speed and position with DC motors

Volunteering

- Venezuelan Student Association (VENSA)   Fall 2018 - Present
- Society of Hispanic Professional Engineers (SHPE)   Fall 2018 - Present

Awards and Skills

- **International Scholar Laureate**: Selected in Summer 2018 by the MDC Honor Society to travel to three cities in mainland China to attend engineering workshops from Pratt & Whitney, Lenovo, and BOE employees
- Languages: **Spanish (native), English (fluent)**