David A. Perez

Doral, FL 33166 * (305)-710-3392 * dalejandroperez@outlook.com * www.linkedin.com/in/dalejandroperez

PROFESSIONAL SUMMARY

Detail-oriented Mechanical Engineering Master's graduate with a specialization in robotics, machine learning, and a solid foundation in mechatronics. Proficient in designing, simulating, and implementing control systems, particularly for autonomous driving applications. Demonstrates a proven track record in sensor and actuator integration, and optimization of control algorithms, supported by collaborative interdisciplinary teamwork. With practical experience in programming and operating the UR10 robotic arm, I am committed to expanding my expertise in robotics. Skilled in troubleshooting with a comprehensive understanding of electrical schematics and a dedication to quality management. I am eager to apply my analytical abilities and passion for innovation to contribute to the advancement of automation technologies in a collaborative, dynamic environment.

EDUCATION

Master of Science in Mechanical Engineering - Miami, FL

Florida International University,

- GPA: 3.92/4.0
- Specialized in robotics and machine learning with experienced in designing, testing and implementing automated systems.
- Analyzed vibration response of several systems using MATLAB.
- Utilize C++ and Python to create nodes for autonomous driving and object detection.
- Use Robot Operating System for autonomous driving for UGV designed and manufactured in class.
- Apply Linux command line with ROS to format master Raspberry Pi.
- Learned and implemented kinematics of UR10 robot for precise arm control and object manipulation, integrating camera-based position estimation algorithm.
- Coded microcontrollers and microcomputers for motor actuation and sensor integration to ensure efficient system operations.
- Researched and developed a method for determining damage on sample metal and plastic parts using machine learning and neural networks presented at FCRAR.

Bachelor of Science in Mechanical Engineering - Jacksonville, FL

Jacksonville University,

- GPA: 3.71 and made Dean's list since 2017.
- Learned microcontroller programming, 3D printing (200 + hours), basic machine shop equipment (CNC, Bridgeport, Lathe, table or vertical saw, and manual tools).
- Designed a PV/T cooling system that storages excess energy for Fluid Dynamics.
- Searched and generated possible conceptual solutions to improve future knee braces and selected the best one according to determined criteria for Manufacturing.
- Worked on a health screening device for COVID-19 that was presented in NCUR on spring 2021.

PROFESSIONAL EXPERIENCE

Chief Technology Officer - Miami, FL

Sargasolution – Startup,

- Instrumental in the ideation and conceptualization of an autonomous robotic system for sargassum removal, contributing significantly to the company's innovative vision and product roadmap.
- Essential in the design and manufacturing of the conveyor system's control using stepper motor and microcontroller for optimized sargassum handling.
- Successfully identified and procured an ideal boat for transformation into a working prototype, balancing foundational requirements with financial considerations.
- Programing Roboclaw 2x60A with ROS on NVIDIA Jetson Nano for autonomous navigation.
- Developed and refined a sargassum detection algorithm, achieving an accuracy rate of 85% or higher, showcasing strong capabilities in machine learning and artificial intelligence.
- Actively involved in the hands-on manufacturing process of the prototype, translating conceptual designs into a tangible, operational model.
- Tasked with designing the control systems for the vessel, applying engineering principles to ensure reliability and efficiency in autonomous operations.

Graduate Research Assistant - Miami, FL

Florida International University,

June 2023 – Present

August 2021 - May 2023

August 2017- May 2021

- Coordinated the development of the Autonomous Asphalt Laying Machine (AALaM), leveraging ROS for autonomous driving and machine learning for obstacle detection, culminating in a functional prototype.
- Established communication protocols between Arduino and ROS Master to integrate material compacting mechanism using several Stepper motors, enhancing the AALaM's capabilities.
- Dedicated over 150 hours to the maintenance and operation of a variety of 3D printers, mastering the intricacies of both polymer and metal printing technologies to ensure peak machine performance.
- Directed multiple senior design teams, providing project management expertise to ensure the timely delivery of high-quality prototypes, aligning with project goals and deadlines.
- Played an important role in the preparation and submission of significant grant proposals, particularly a \$5 million application for the CMA-MNuR consortium, facilitating research advancement through strategic funding acquisition.

Engineer Intern - Doral, FL

Eastern Engineering Group,

- Interacted with 30 clients to generate a well-detailed proposal with drawings.
- Calculated the different loads of the structures drawn to ensure the system worked.
- Completed the proposal and calculations and sent them to supervisor.

ADDITIONAL SKILLS

- Bilingual in Spanish and English. Speak and write both languages fluently.
- Proficient in Microsoft Office, AutoCAD, SolidWorks, and Fusion 360 and MATLAB. Also used Ansys and LabView.
- Programming in C++, Python and use Robot Operating System (ROS).
- Excellent communicating, detailed-oriented, strong team player with leadership experience working to make an impact.
- Captain of the Jacksonville University Sailing Team 2020-2021.

May 2020 – *July* 2020