Aref Abdala

(786) 899-1650 arefabdala@gmail.com Orlando, Florida

Education

University of Central Florida December 2024
B.S. Mechanical Engineering and Aerospace Engineering *GPA: 3.37*
Publication: "Base Drag Considerations to Determine Equivalent Available Pressure in the Rotating Detonation Rocket Engine" - AIAA AVIATION 2023

Professional Experience

LDS Vacuum | *Machinist* January 2024 - Present
- Conducting thorough testing of manufactured components using helium leak detection devices, ensuring leak rates were below $1E-9$ mbar, consistent with high vacuum standards
- Interpreting and analyzing technical drawings, making modifications and design suggestions when required
- Applying various manufacturing processes, such as turning, tapping, threading, and milling, on stainless steel and aluminum laboratory components
- Performed TIG welding on various high vacuum components, ensuring welds met high vacuum requirements

Jet Propulsion Laboratory | *Data Analytics Intern* February 2023 - Present
- Generating Python plots streamlining data analysis from dozens of granules, each with 54,000 data points
- Detailing accessibility challenges in extracting data from NASA's PO.DAAC repository in Jupyter Notebooks
- Leading analytical efforts to understand anomalies in rising climate temperature at the coast of Florida

Propulsion & Energy Research Lab (PERL) | *Lead Researcher* November 2021 - Present
- Developing a P&ID and managing it's valves, regulators, pressure transducers, high-speed cameras, software, circuitry, and propellant supply
- Operating, maintaining, and troubleshooting test-article, test-stand, & instrumentation
- Composing 50+ test procedures for hot fire tests conducted on Rotating Detonation Engines

Boeing | *Satellite Testing and Evaluation Intern* May 2023 - August 2023
- Completed 30 scripted test procedures to verify 8 spacecraft subsystems within one week
- Calibrated and troubleshot simulators and power equipment for high-bay testing and launch-site operations
- Provided technical and troubleshooting support of 5 spacecraft's STE equipment at a time
- Identified, documented, and communicated powered spacecraft testing anomalies in an ESD controlled environment

Raytheon Intelligence and Space | *Systems Engineering Intern* May 2022 - August 2022
- Created a self-auditing directory of all employees on the Joint Polar Satellite System Common Ground System
- Facilitated data quality checks by creating dashboards and filters in Atlassian Jira
- Created a information platform in Atlassian Jira for teams to document work and desk instructions

National Security Innovation Network | *Design Engineering Intern* June 2021 - August 2021
- Supported additive manufacturing innovation by utilizing topology optimization to reduce material while maintaining structural integrity
- Increased the storage of 81mm Mortars in a Light Armored Vehicle by 150%
- Designed and documented modification to the Light Armored Vehicle that would reduce thermal detection

Project Management

Emergency Insights | *Co-Founder and CEO* January 2024 - Present
- Developed a platform that allows future home owners or property managers to access comprehensive hazard information for their properties
- Streamlined the process of creating hazard mitigation plans for government entities, enabling effective prioritization of resources and actions
- Collaborated with 3 partners to develop a problem statement, business model, value proposition, market study, and financial projections to ensure business success
- Recognized with 4th-Place at the 21st Annual Joust Venture Challenge Finals resulting in $2000 for the venture

Gaseous Rotating Detonation Rocket Engine | *Project Manager* August 2023 - May 2024
- Owned the hardware delivery timeline and success through inception, design, assembly, test and re-use.
- Designed, analyzed, fabricated, and tested experimental rocket engine hardware for sub- to hyper- sonic flight
- Leveraged additive manufacturing techniques for a combustion chamber and aerospike nozzle design
- Wrote engine testing procedures, calibrated PT/TC DAQ systems, and led testing operations

Skills & Interests

Programming: Python, MATLAB, C programming, HTML, CSS, LATEX
Software: Solidworks, ANSYS, LabVIEW, Jira, Confluence, Excel, Gantt, Teamcenter, Word, Overleaf
Fabrication: ASME Y14.5 GD&T, Band Saw, Manual Lathe & Mill, TIG & MIG Welding, 3D Printing, P&ID
Interests: Geographic Information Systems (GIS), Space Economy, Automotive Refurbishing, Volunteering