REX CALABRESE | *Mechanical Engineer experienced in UAV manufacturing*

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EXPERIENCE

Armada Aeronautics, San Mateo, CA
Mechanical Engineering Intern   *August 2020-Present*

- Actively involved in full design cycle of a experimental passenger aircraft, owning projects such as designing joints for airframe structure; iteratively redesigning/simulating/testing for strength and weight optimizations
- Maintaining documentation of production in per both internal quality systems and FAA AC 20-27G regulations
- Testing propulsive systems, characterizing performance, presenting results
- Developing comprehensive, parametric CFD study of aircraft in transition flight, continuously running simulations and processing results
- Inspecting final products to evaluate compliance with defined quality requirements
- Soldering of battery harnesses, XT60/90 connectors, in-line components, PCB boards
- Training new interns, creating a knowledgebase of fundamental concepts and key skills

EDUCATION

University of Vermont, Burlington, VT (ABET-accredited program)
Bachelor of Science in Mechanical Engineering (BSME), *Graduated May 2020*

CERTIFICATIONS

- FE Exam issued by NCEES, passed May 2020   *See credential*
- STK MASTER Certification issued by AGI, May 2019   *See credential*
- STK Certification issued by AGI, November 2018   *See credential*

SKILLS

Shop: 3D Printing, CNC Router/Mill, Tig/Stick welding, Riveting, Jig design, Interpreting drawings
CAD/Image: SolidWorks, Photoshop, Illustrator, GIMP
Simulation: Ansys Workbench (Fluent, CFX, Space Claim), MATLAB/Simulink
Aero/Drone: PX4, Gazebo, OpenCV, ROS, MAVROS, CAN bus, XFLR5, Rib/Spar fabrication
Electronics: Soldering, PCB layouts, High voltage circuit debugging, VESC, Oscilloscope, Arduino
Engineering: Design verification testing, Manufacturing process development, Test planning
Programming/Tech: C++, Python, Jupyter Notebooks, HTML, CSS, Markdown, JavaScript, Linux, git

PROJECTS

Satellite Dynamics Testbed   *Jan 2018- May 2019*

- Researched, designed, and built small satellite dynamics testbed with a primary goal of testing cold gas propulsion systems and a secondary goal of serving as a foundation to develop ADCS systems
- Modeled inertial characteristics of the testbed in SolidWorks, developed and executed static/dynamic validation procedures
- Designed and prototyped modular framework system to standardize component attachment (sensors, batteries, etc)

Air Bearing Research   *Aug 2018- Dec 2018*

- Utilized CFD methods alongside 3D-printing software to develop functional spherical air bearings, a strong effort was made to meet performance requirements under manufacturing limitations
- Designed framework to quickly generate and test different orifice-array-patterns
- Characterized static/dynamic behavior performance with tests
- Developed a low-cost method to obtain kinematic data with computer vision