Azarias Sime

Azarias.sime@ufl.edu --- (415) 745-6161 --- LinkedIn: https://www.linkedin.com/in/azarias-sime-01823624a/

Education

University of Florida Graduation: May 2026

Bachelor of Science in Aerospace Engineering

HWCOE Scholarship Recipient GPA: 3.60 / 4.00

Dean's List Honoree

Lab work: Florida Advanced Manufacturing and Systems Integration Laboratory

Relevant Coursework: Dynamics, Compressible Flow, Mechanics of Materials

Experience

INFICON

Manufacturing Engineering Intern *Jan 2024 ~ April 2024*

- Designed and built custom fixtures using Siemens NX to enhance support, functionality, and testing efficiency for multiple value streams including Residual Gas Analyzers and vacuum sensors.
- Automated critical testing processes by developing Python scripts for high-pressure, high-temperature valve evaluations, integrating DAQ systems, pressure transducers, and thermocouples, ensuring robust data integrity and real-time operational analysis under extreme conditions.
- Drove systemic improvements in Gas Chromatography systems' reliability, implementing a comprehensive troubleshooting framework involving root cause analysis, FMEA, and real-time LabVIEW diagnostics, resulting in a 23% reduction in system failures across multiple production lines.
- Executed advanced simulation techniques, leveraging COMSOL for thermal-structural analysis and ANSYS for stress validation, ensuring mechanical assemblies operated reliably under temperature ranges of 85°C to 180°C while adhering to stringent aerospace-grade specifications.

Mechanical Engineering Intern *May 2024 ~ August 2024*

- Designed and simulated a mounting system to integrate an RGA sensor to a legged robot (Unitree Go2), accounting for dynamic loads, vibration isolation, and alignment to ensure accurate data collection during mobile operations.
- Delivered advanced sealing solutions, designing custom gaskets for unconventional applications, ensuring gas-tight and oil-tight performance critical for thin-film and aerospace systems.
- Optimized manufacturing processes through detailed tolerance stack-ups, GD&T reviews, and design validations for custom hardware and assemblies, using Siemens NX and SolidWorks to align with ASME Y14.5 standards and aerospace manufacturing best practices.
- Resolved complex engineering challenges, diagnosing and mitigating production floor mechanical failures, refining CAD models for manufacturability, and ensuring rapid implementation of corrective actions.
- Innovated snap-fit joints and clasps with injection molding considerations for materials exposed to harsh environmental conditions, enhancing durability and functional reliability.

Aerogators *September 2023 ~ Present*

- Evaluated advanced manufacturing technologies for aerospace applications, integrating techniques such as SLA based 3D printing and ceramic composites into engine component designs to meet the requirements of AIAA's supersonic autonomous interceptor competition.
- Performed high-fidelity simulations of propulsion systems using ANSYS Fluent and LMS Virtual.Lab, analyzing airflow dynamics, combustion processes, thermal effects, emissions, and acoustics to optimize the performance of autonomous aircraft engines.
- Formulated and modeled multi-variable optimizations of engine designs prioritizing thrust maximization and minimizing size and weight, aligning with the constraints of supersonic flight and operational efficiency.

Projects

- Developed a Python algorithm using Fast Fourier Transform and machine learning to analyze accelerometer vibration data for the mass spectrometer dedicated to NASA's MSolo Program, identifying early fatigue risks in critical sub-components.
- Simulated UAV tail and fuselage variations in SolidWorks Flow to evaluate short period and dutch roll damping including modeling aerodynamic moment derivatives to assess impact of passive geometries on flight stability.
- Conducted tensile testing on composite and metallic specimens using electromechanical test systems and DAQ instrumentation to extract key material properties including modulus of elasticity, yield strength (via 0.2% offset), ultimate strength, and strain-hardening coefficients.

Skills

Certifications: SolidWorks (CSWA–Mechanical Design), Class E – Driving License

Additional Skills: Siemens NX, SolidWorks, CATIA, Fusion 360 CAM, Python, MATLAB, Simulink, LabVIEW, OpenCV, Git/GitHub, COMSOL Multiphysics, SolidWorks Flow Simulation, Additive Manufacturing, CNC Machining, Arduino UNO