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Nicholas D. Walker

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EDUCATION

Rensselaer Polytechnic Institute, *Troy, NY* Graduation May 2025
Bachelors of Science in Aerospace and Mechanical Engineering *Dual* Academic Standing: Dean's List
Economics Minor
Recent Coursework: Heat Transfer, Propulsion Systems, Aerostructures, Aeroelasticity and Vibrations, Flight Mechanics

EXPERIENCE

GE Vernova, *Schenectady, NY* **Spring 2024**
Steampath Design Intern
- Successfully ran full-scale layout simulations on steam turbine buckets using advanced FEA software and synthesized results, generating frequency plots in Excel for vibrational dynamics and structural assessment
- Led root cause analyses of steam control valve failures, using GD&T and CAD to identify issues and develop solutions
- Delivered technical reports and prepared presentations on finding to leadership peers

Structural Damage Diagnostic Research, *RPI, Walker Laboratory* **Fall 2023**
Undergraduate Researcher
- Devised numerical models of damage parametrization under uncertainty for Albatross UAV components outfitted with different sensing modalities and assessment with varying operating conditions
- Designed FEM/SEM damage diagnostic models for exploring various structural health monitoring (SHM) active approaches with respect to damage state parametrization,
- Conducted computational and lab data analysis of fatigue, with and validation from doctoral candidates

CrossCountry Mortgage LLC, *Minneapolis, MN* **Summer 2023**
- Streamlined mortgage processing workflows using Excel, improving data management and analysis efficiency
- Created detailed reports and presentations with Word and PowerPoint, enhancing team communication and documentation

PROJECTS

Autonomous Drone Simulation, *RPI, Johnson Engineering Center* **Current**
- Development of simulation environment in C++ and control algorithms for real-time path planning to model autonomous flight and for real-time path planning and obstacle avoidance
- Sensor data integration processing and feedback loops with implemented numerical methods for flight parameter analysis

Vertical Fin Array Performance, *RPI, Darrin Communication Center* **Summer 2024**
- Designed and optimized a high-efficiency finned heat sink, achieving a dramatic reduction in temperature for a thin film heater under natural convection conditions, using ICE9 Flex TPU material
- Led thermal performance study, maximizing fin efficiency and incorporating advanced modeling techniques via Rayleigh and Nusselt numbers, and presented findings to head research professors

Yonk: Rocket Design, *RPI, Walker Laboratory* **Spring 2023**
- Designed a carbon fiber rocket using CAD NX and assessed structural integrity under loading scenarios with NASTRAN FEA and Python; manufactured results for 42-inch rocket using roll-wrapping and waterjet cutting
- Incorporated SciPy for advanced analysis and simulation, optimizing launch parameters, ensuring peak performance

LEADERSHIP AND ACTIVITIES

Rensselaer Rocket Society, *Johnson Engineering Center* **Spring 2023**
- Engagement in RPI sponsored extracurricular purposed to design, construct, and launch rockets for L certifications
- Conducted project with with laboratory materials and club members for revisions of relevant work

Lambda Chi Alpha, Fraternity Financial Advisor **Spring 2023**
- Reviewed the allocation of a $10,000 budget of fraternity and participated in executive board in biweekly meeting

Volunteer Work **Fall 2022 - Ongoing**
- **Hope 7 Food Drive:** Quarterly leadership in volunteer initiatives dedicated in food donation for less fortunate
- **Bwenzi**: Contributed to student-led organization to raise funds for malaria aid for families in Africa

TECHNICAL SKILLS

- **Laboratory Skills:** Material Testing, Aerospace Flight Testing, Structural Health Testing, Plastic Thermoforming
- **Programming Languages:** Python, MATLAB, ARDUINO, C++,
- **CAD Software:** ANSYS**,** CATIA, Siemens NX, SolidWorks, Autocad, Pro/Engineer, Finite Element Methods