**Steven T. Cole**
*Thermal Engineer*
scole@vertexaerospace.com

## EDUCATION

12/2016 **B.S. Mechanical Engineering**
*University of Maryland, Baltimore County*

05/2021 **M.S. Mechanical Engineering**
*University of Maryland, Baltimore County*

## EXPERIENCE

10/2020-Present **Ocean Color Instrument (OCI)**
*NASA PACE Satellite*

- Integration and Test (I&T) support to monitor component integration and conduct thermal hardware inspections
- Thermal hardware design and multilayer insulation (MLI) installation drawing creation
- Hardware tracking documenting and reporting
- Thermal and mechanical test and analysis support (thermal vacuum, venting analysis, vibration, thermal balance, contamination etc.)
- Compilation of comprehensive parts lists using information from Bills of Materials (BOMs), engineering drawings, online databases, and data from subcontractors and suppliers
- Evaluating completed designs with supervisor and other technical groups and making modifications necessary to achieve the most ideal design.
- Create testing procedures and WOA's for thermal vacuum at Goddard NASA facilities Building 5 and Building 7
- Lead and support dry TVAC tests and flight TVAC test at Goddard NASA facilities Building 5 and Building 7
- Present in design reviews for thermal team

**Lead Thermal Engineer**
*HARP 2 PACE Satellite*

- Thermal lead managing students, interns, and peers for HARP2, the Hyper-Angular Rainbow Polarimeter to be mounted on the NASA satellite PACE
- Thermal lead managing student interns for ORESat, a CubeSat for the University of Oregon with a cirrus flux camera as its payload
- Create testing procedures and control thermistor setpoints for thermal vacuum testing to qualify design at worst case hot, cold, and survival temperatures at Goddard NASA facilities

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06/2018 – 10/2020

- Work closely with NASA thermal engineers to ensure the thermal models and thermal design follow NASA guidelines and standards
- Design, develop, test and document; Mechanical systems, electro-mechanical systems, thermal systems, and mechanisms of HARP 2 to ensure NASA Do No Harm Requirements are met, as well as internal camera science requirements
- Present thermal and mechanical systems overview for NASA's Design Reviews with minimal RFAs

## SKILLS

- Proficient in Thermal Desktop and SINDA/FLUINT
- Proficient in Microsoft Office
- Proficient in Solidworks, CREO, and Inventor
- Proficient in MATLAB data analysis and visualization
- Knowledge of ITOS, ANSYS, AWS, NASTRAN, and LabVIEW
- Certified in STK (System Tool Kit) and Amazon Web Services

## OTHER WORK

Master's Thesis
05/2019-
05/2021

***Environmental Testing of Small Satellite Instruments***
*University of Maryland, Baltimore County*

- Outline procedures and defined requirements to be satisfied
  for EMI/EMC, Vibration, Thermal Vacuum and Thermal Balance testing
- Lead and Co-Lead Engineer of contamination, hardware, thermal, and mechanical engineer throughout the lifetime of the HARP 2 Instrument
- In depth analysis using Inventor, ANSYS and Thermal desktop of designing a do no harm instrument for NASA and ways to replicate the process for similar small satellite instruments.
- Numerous thermal vacuum and vibration testing to outline and simulate acceptable and unacceptable data sets and environmental boundary conditions

Controls Engineer
05/2016 – 06/2018

- Leader of the technical team to perform and teach a wide array of operations regarding designing control automation systems with PID controllers, digital inputs/outputs, and analog inputs/outputs for mechanical efficiency
- Support the programming, testing, and commissioning of building automation system

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- Review specifications of schematic drawings and suggested system improvements
- Support commissioning testing of all control hardware and software
- Worked with a team of multi-disciplined engineers using Agile & Scrum Methodology
- Designed and constructed physical casing for a custom-built tablet using Solidworks(CAD)
- Optimized design by creating multiple FEA (Mesh Finite Element Analysis) simulations in ANSYS to identify and minimize the stresses
- Performed statistical analysis on data at endpoints to ensure accuracy and reliability.
  Further, tested with pseudo data using JAVA as proof of concept