



**Mark Aukerman**

*Jr. Thermal Engineer*

maukerman@vertexaerospace.com

## EDUCATION

8/17 – 8/21      **B.S. Aerospace Engineering**  
*University of Maryland, College Park*

## EXPERIENCE

1/2022 – Present      **Polarimeter to Unify the Corona and Heliosphere (PUNCH)**  
*Southwest Research Institute (SwRI)*

- Reduced the thermal mathematic model (TMM) in Thermal Desktop™ and SINDA/FLUINT to deliver to the launch vehicle operator for their analysis
- Performed trades with a focus on pad and launch cases to understand which components were exceeding temperature maximums and minimums
- Processed the results in excel to get the temperature margins and delivered presentations to the customer

1/2022 - Present      **Dragonfly/SQRLi Main Electronics Box (MEB)**  
*NASA/Goddard Space Flight Center (GSFC)*

- Constructed geometric mathematic models (GMM) and TMM of various circuit boards in the MEB
- Performed worst case hot steady state analysis to explore the need for underfill, heatsinks, and other cooling/heating options
- Conducted testing to verify/correlate data for a potential thermoelectric cooler (TEC) to use in the MEB
- Created a Thermal Desktop™ and SINDA/FLUINT model of the TEC to correlate to the test data

## SKILLS

- Proficient in Thermal Desktop™ and SINDA/FLUINT
- Proficient in Microsoft Office
- Proficient in Matlab and C++
- Proficient in Solidworks
- Proficient in Cameo Systems Modeler

## OTHER WORK

Fall 2020- Spring 2022      **Design, Build, Fly – Senior Capstone**  
*University of Maryland, College Park*

- Designed and manufactured small RC aircraft to maximize the mission parameters of carrying a certain cargo and towing and deploying a sensor for the annual AIAA Design, Build, Fly competition
- Designed fuselage/airframe to minimize weight and maximize cargo space while maintaining strength and integrity using Solidworks
- Designed, executed, and processed tests to experimentally find important structural characteristics of the materials to be used in the airframe

Successfully built the competition aircraft and wrote the technical report placing 11<sup>th</sup> out of 50+ entries



**Mark Aukerman**

*Jr. Thermal Engineer*

maukerman@vertexaerospace.com

Sept. 2018 –  
Jan. 2021

**Terp Rockets**

*University of Maryland, College Park*

- Researched and designed a hybrid sounding rocket for the purpose of competing in the Spaceport America Cup
- Designed the propulsion system and led the thermal design and analysis of it using Siemens NX, ANSYS, and Matlab
- Tested a small-scale combustion chamber that showed proof of concept
- Initialized research and design into an automatic air braking system to help the rocket reach a desired altitude using concepts of aerodynamics and control theory

Summer 2019

**Mechanical Engineer Intern**

*Westinghouse Electric*

- Explored mathematical models in ANSYS, Matlab and Excel to correlate a pipe outer wall temperature to the inner wall during a thermal shock transient to monitor for pipe fatigue in nuclear power plants
- Built a ANSYS model recreating an experiment to correlate the testing data to our mathematical model
- Verified in-house fatigue monitoring software using Excel