

## EDUCATION

9/16 – 5/20 **B.S. Mechanical Engineering & B.S. Economics**  
*University of Maryland, College Park*

## EXPERIENCE

January 2022 -  
 Present

**Roman Space Telescope (RST)**  
*NASA/Goddard Space Flight Center*

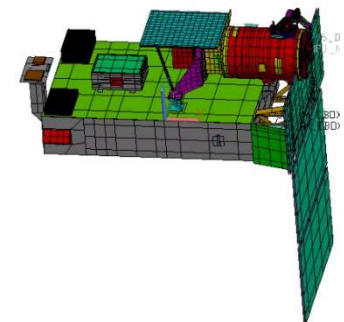
- Ordered heaters used for test and flight for the Instrument Carrier
- Monitor hardware orders made for Instrument Carrier
- Documented components on the Instrument Carrier near joints that take up significant volume to note for blanket templating
- Compiled a list close clearances and other stay-out-zones on the Instrument Carrier to note for harnessing
- Estimated the amount of MLI needed for the tubes and joints on the Instrument Carrier
- Created mnemonics for the sensors on the Instrument Carrier
- Provided TVAC support for tests related to the Instrument Carrier



July 2021 –  
 December 2021

**Polarimeter to Unify the Corona and Heliosphere (PUNCH)**  
*Southwest Research Institute (SwRI)*

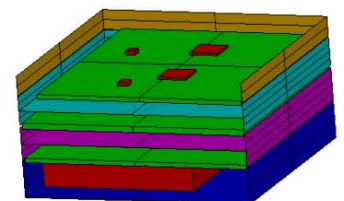
- Integrated updated instrument models into the spacecraft model
- Ran off-nominal orbits (+/-10° Yaw and Pitch) to determine the worst-case orbits
- Provided updated temperature margins for components based on updated heater design & orbits
- Created Launch Cases to analyze the spacecraft before it reaches orbit
- Created presentation package summarizing updates and results and supported presenting this information



August 2021 –  
 October 2021

**SWC-300 and ECU-400**  
*Innoflight*

- Developed Thermal Desktop Geometric Math Model (GMM) and SINDA/FLUINT Thermal Math Model (TMM) for two Electronic Boxes
- Performed steady state analysis at two boundary temperatures to determine the margins for



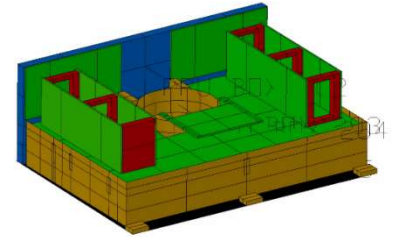
components to the derated temperature and maximum temperature limits.

- Created presentation package summarizing results and supported presentation to the customer

June 2021 – July 2021

**Power Distribution Unit Thermal Model Reduction***Orbion Space Technology*

- Reduced a 3000-node Electronics Box detailed model to a 200-node reduced model while maintaining heat flow between components to below a 10% difference.
- Created presentation package summarizing results and supported presentation to the customer

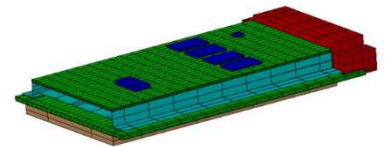


April 2021 – May 2021

**VPX CFC-400***Innoflight*

- Developed Thermal Desktop Geometric Math Model (GMM) and SINDA/FLUINT Thermal Math Model (TMM) for two PCB Boards
- Performed steady state analysis at a low/medium/high power level to determine the maximum Wedgelock temperature where one component first reached its derated junction temperature limit

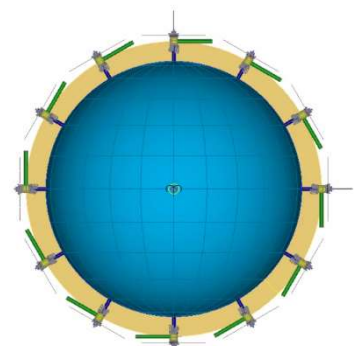
Created presentation package summarizing results and supported presentation to the customer



March 2021 – June 2021

**CHECKMATE***York Space Systems*

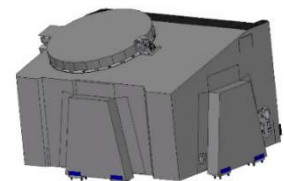
- Developed Thermal Desktop and SINDA/FLUINT models of three Payloads based on STEP files
- Updated Thermal Desktop model of bus to reflect changes made to internal components
- Updated Thermal Desktop models of payloads to reflect structural changes
- Conducted analysis of three different orbits to predict temperature gradients for each payload
- Post processed component temperatures
- Created presentation package summarizing results and delivered presentation to customer



March 2021

**Destiny Optical Head Assembly (DOHA)***ATA Engineering Inc.*

- Support engineering team in creating the Thermal Desktop and SINDA/FLUINT models of the Destiny Optical Head Assembly



August 2016 –  
April 2020

**Mechanical Engineering Gemstone Project***University of Maryland*

- Four-year program for students to develop research, teamwork, and leadership skills in teams
- Developed a software platform enabling users to implement their own swarming strategies for autonomous vehicles
- Completed a review of previous literature to determine the state of the software currently available
- Wrote a thesis documenting the team's research and presented to an audience of professors whose research was relevant to the project

Spring 2019

**DeWalt Impact Driver Redesign Project***University of Maryland, College Park*

- Designed attachment for impact driver to increase heat dissipation during use
- Led heat transfer analysis providing theoretical values demonstrating increased heat dissipation
- Provided analysis on data collected during testing of redesign to confirm increased heat dissipation

**SKILLS**

- Proficient in Thermal Desktop and SINDA/FLUINT
- Proficient in Microsoft Office
- Proficient in Solidworks
- Proficient in Autodesk Inventor
- Proficient in CreoParametric
- Proficient in MATLAB data analysis and visualization
- Proficient in Arduino

**OTHER WORK**

Spring 2020

**Mechanical Engineering Capstone Project***University of Maryland, College Park*

- Designed a wearable device for hard of hearing individuals to wear to help alert them to their surroundings
- Created a survey for hard of hearing individuals to complete determining the current problems they face and their preferences for a solution
- Led the design and assembly of the device, utilizing Creo Parametric for 3D modeling
- Performed Finite Element Analysis in Creo Parametric to evaluate the design



**Matthew R. Patsy**

*Jr. Thermal Engineer*

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- Summer 2019      **Intern, Regional Distribution Engineering**  
*Baltimore Gas and Electric*
- Created automated system to organize incoming forestry estimates
  - Analyzed storm data to identify areas of interest for vegetation trimming of overhead lines
  - Compiled feeders close to hitting departmental metrics to determine immediate preventative measures
  - Analyzed and wrote a guide to use the Microsoft Power BI dashboard used within the department
  - Led a team of fellow interns in determining the feasibility of replacing company vehicles with electric vehicles
- Summer 2018      **Intern, Transmissions Engineering**  
*Baltimore Gas and Electric*
- Performed simulations on updated software to determine changes in cable capability relative to previous results
  - Updated remote alarm systems for underground cable lines utilizing PI Processbook
  - Documented and organized historical maintenance data for underground cables
  - Worked with a team of interns in determining the feasibility of creating an online database of the records kept in each substation in the BGE territory