

**EDUCATION**

9/16 – 5/20

**B.S. Mechanical Engineering***University of Maryland, College Park***EXPERIENCE**

December 2020

**Tracking and Data Relay Satellite System (TDRSS)**

– Present

*NASA Goddard Space Flight Center*

- Support TDRS Weekly Sustaining Engineering Meetings and specifically contribute to load-shedding discussion in support of End of Mission (EOM) Planning
- Maintain Thermal models for all generations of the satellite
- Correlated annual battery calibration to Thermal Desktop model using flight data
- Integrated Boom Flex Harness standalone model into Gen II and Gen III spacecraft Thermal Desktop Models
- Increased Fidelity of South Radiator, North Radiator, Nadir and Sac Models in the Gen II model with plans of updating Gen III as well
- Used previous TDRS F8, F9 and F12 flight data to correlate the higher fidelity models
- Performed a loadshedding analysis of the SSPAs and the MAF on F8 and F9 using the Thermal Desktop Model to calculate and compare power savings to the On-orbit test
- Performed a loadshedding analysis of the MAR on F8 and F9 using the Thermal Desktop Model to calculate and compare power savings to the future on-orbit test



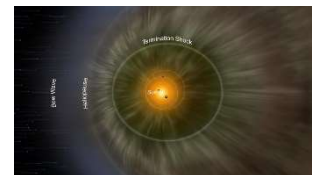
January 2021 –

**Solar Wind and Pickup Ions (SWAPI)**

Present

*Princeton University*

- Developed Reduced Thermal Desktop Geometric Math Model (GMM) and SINDA/FLUINT Thermal Math Model (TMM)
- Refreshed all analysis from PDR for CDR
- Ran trades on the Ni Film Thickness and Alpha, the MLI  $\epsilon^*$ , Optical properties, Etc.



- Responsible for providing thermal design and analysis for all electronics boards
- Performed post-processing analysis results in preparation for and supported CDR

November 2020 **Tandem Reconnection And Cusp Electrodynamics**  
– Present **Reconnaissance Satellites (TRACERS)**

*University of Iowa*

- Developed Reduced Thermal Desktop Geometric Math Model (GMM) and SINDA/FLUINT Thermal Math Model (TMM) for ACE and MEB
- Performed analysis trades to predict thermal response of isolating the ACE from the spacecraft
- Performed analysis trades to determine heater power requirements needed to stay within Survival Limits for ACE
- Responsible for providing thermal design and analysis for all electronics boards
  - Calculate case to board and junction to case interface conductance
  - Performed standalone board analysis as well as integrating the high-fidelity board into the instruments
- Integrate Instrument and Boom models into the Spacecraft model and run operational, non-operational and stowed analysis
- Assisted in post-processing analysis results in preparation for and supported PDR

November 2020 **Analyzer for Cusp Ions (ACI)**

– Present

*Southwest Research Institute (SwRI)*

- Developed Reduced Thermal Desktop Geometric Math Model (GMM) and SINDA/FLUINT Thermal Math Model (TMM) for ACI
- Performed analysis trades to predict thermal response of isolating the ACI from the spacecraft
- Performed analysis trades to determine heater power requirements needed to stay within Survival Limits for ACI
- Responsible for providing thermal design and analysis for all electronics boards

- Calculate case to board and junction to case interface conductance
- Performed standalone board analysis as well as integrating the high-fidelity board into the instruments

March 2022-  
May 2022

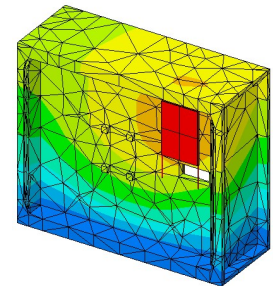
**TVAC Testing – Joint Polar Satellite System (JPSS-2)***NASA Goddard Space Flight Center/Northrop Grumman*

- Supported 12-week long TVAC test on and off in conjunction with Northrop Grumman’s Thermal team
- Monitored and updated temperatures in order to keep track of GSE requirements and contribute in the consent to proceed
- Troubleshoot adjustments that could be made if temperatures were approaching limits

August 2020 –  
October 2021

**LISA Laser***Design Interface*

- Developed Thermal Desktop and SINDA/FLUINT model of LISA laser from STEP files and component specifications
- Performed worst case hot/cold thermal analysis and post-processed component temperatures
- Created presentation package summarizing results and supported presentation to customer
- Developed a reduced Thermal Desktop model that was correlated to the detailed model and
- Updated Thermal Desktop Model Geometry and refreshed analysis when a new step file was delivered



July 2020 –  
August 2021

**Archinaut 1***Made in Space*

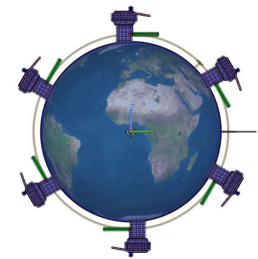
- Support engineering team in creating the Thermal Desktop and SINDA/FLUINT model(s) of the Archinaut Instrument
- Updated Thermal Desktop instrument model as mechanical and structural changes are received
- Post processed results and updated presentation package that was well received by the customer Assist preparing the Payload preliminary Thermal Design (PDR) presentation



May 2020 –  
September  
2020

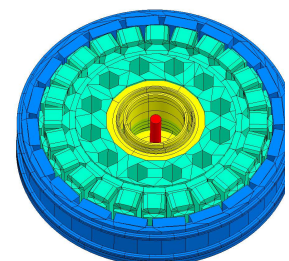
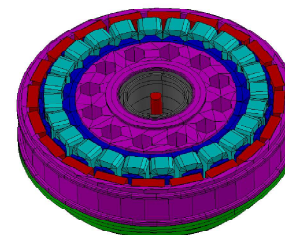
**Polarimeter to Unify the Corona and Heliosphere (PUNCH)**
*Southwest Research Institute*

- Developed Thermal Desktop Geometric Math Model (GMM) and SINDA/FLUINT Thermal Math Model (TMM) for PUNCH instrument Central Electronics Box (CEB)
- Performed CEB worst case hot/cold thermal analysis comparing results against requirements
- Developed CEB preliminary thermal design using passive radiators and thermal isolators to regulate conductive paths
- Performed trades to predict the thermal response of power left on Solar Arrays
- Updated Thermal Desktop satellite models as mechanical and structural changes are received
- Performed launch analysis to predict the thermal response of Initial Post Tip-off power
- Assisted in post-processing analysis results in preparation for the Engineering Peer Review (EPR)


 June 2020 –  
September  
2020

**Dragonfly**
*MOOG*

- Developed Thermal Desktop and SINDA/FLUINT model of the MOOG Dragonfly rotor motor
- Supported engineering team in conducting operational worst case hot/cold steady state analysis and transient preheat analysis
- Calculated conductance through coupled components to predict temperature gradients for comparison against preliminary test results
- Performed analysis trades to predict thermal response of adding insulation to motor components
- Performed analysis trades to determine warm up heater power requirements needed to reach operational temperatures
- Post processed results and updated presentation package that was well received by the customer
- Delivered Thermal Desktop models and analysis results to customer as outlined in SOW


**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
- Supported TVAC Testing

**OTHER WORK**

Fall 2019

**Soft Pneumatic Robotic Fingers***University of Maryland, College Park*

- Developed multi-material finger-like structures, in Solidworks, that could deflect when pressure was driven through internal cavities
- Performed software simulations to gain theoretical results and refine design elements
- Tested the deflection to pressure ratio of several designs that were printed and processed using poly-jet additive manufacturing methods
- Worked in a team of 5 to write a journal manuscript discussing the field soft robotics and the experimental results of the fingers

Spring 2019

**3D Printed Prosthetic Foot***University of Maryland, College Park*

- Designed a prosthetic foot for an adult with an amputation, in Solidworks, using knowledge of anatomical, biomechanical and engineering principles
- Used Fused Filament Fabrication to 3D print a prototype foot that was subjected to loading tests associated with gait