MICHIGAN TECH
AEROSPACE
ENTERPRISE

Information Session

Fall 2025

Program Manager
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Principal Investigator
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Introduction

Who We Are

Enterprise Objectives

Educate the Future Leaders of the Aerospace Industry by providing undergraduate students hands-on Space Systems Engineering project experience through the design, test, and integration of spacecraft.

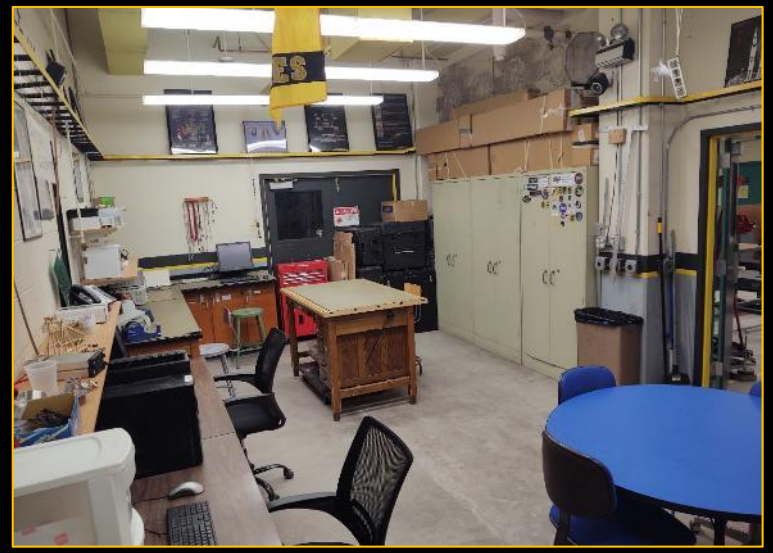
Advance U.S. Space Technology by solving real-world, challenging problems. The satellites we build aren't just a student science project. These are real satellites, with real missions, that are directly relevant to current U.S. Military and NASA needs.

Program Statistics

Statistics

- Founded by Dr. Brad King in 2001 (now over 24 years old!)
- Helped 500+ students complete a senior design project and graduate
- Currently have 90 active members and continue to grow each semester
- Proudly home to 13+ different undergraduate majors
- Operate and maintain two MEEM lab facilities: the Aerolab and Clean Room
- Actively funded by two well-established aerospace companies: AFRL and NASA

One satellite launched, with more on the way!

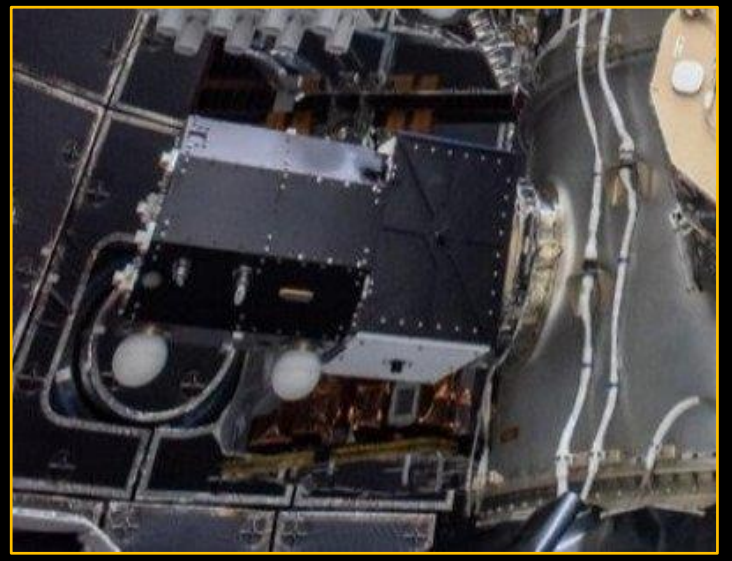


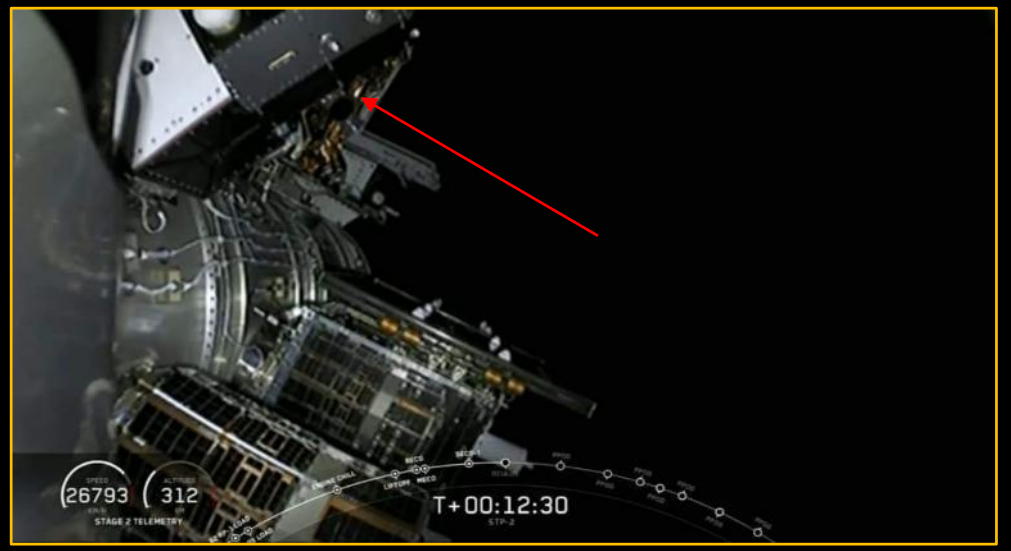
Oculus Launch on STP-2

Launch Event

In June 2019, the Oculus satellite was launched into space aboard a Falcon Heavy rocket. Hundreds of Enterprise members had a hand in the design and production of this spacecraft, some of whom are pictured below.

Click here for Oculus orbit info!

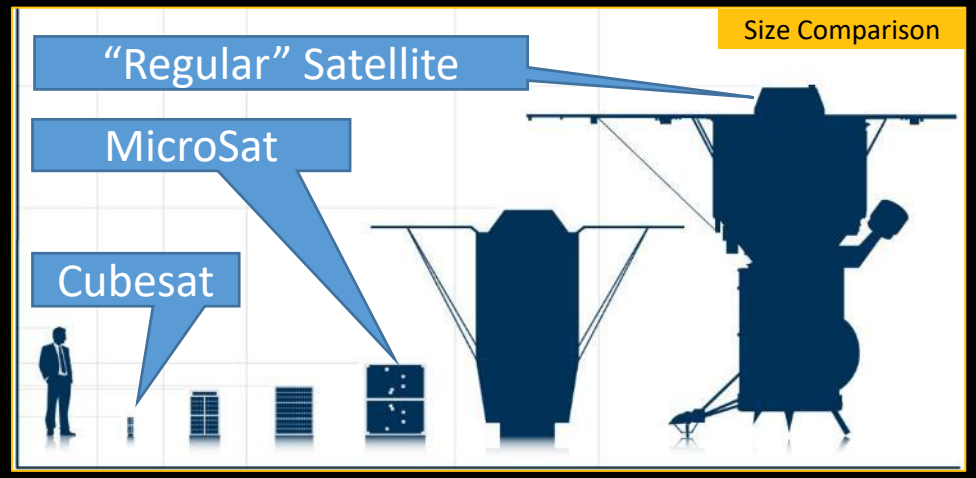


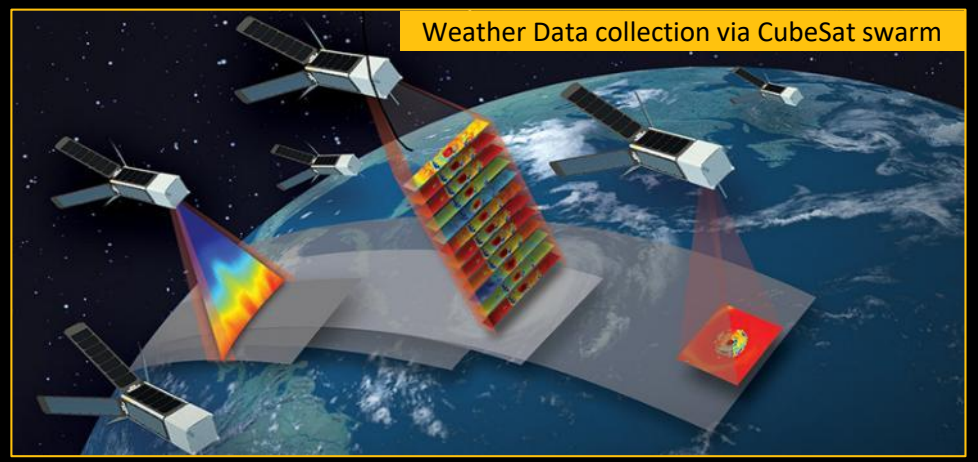


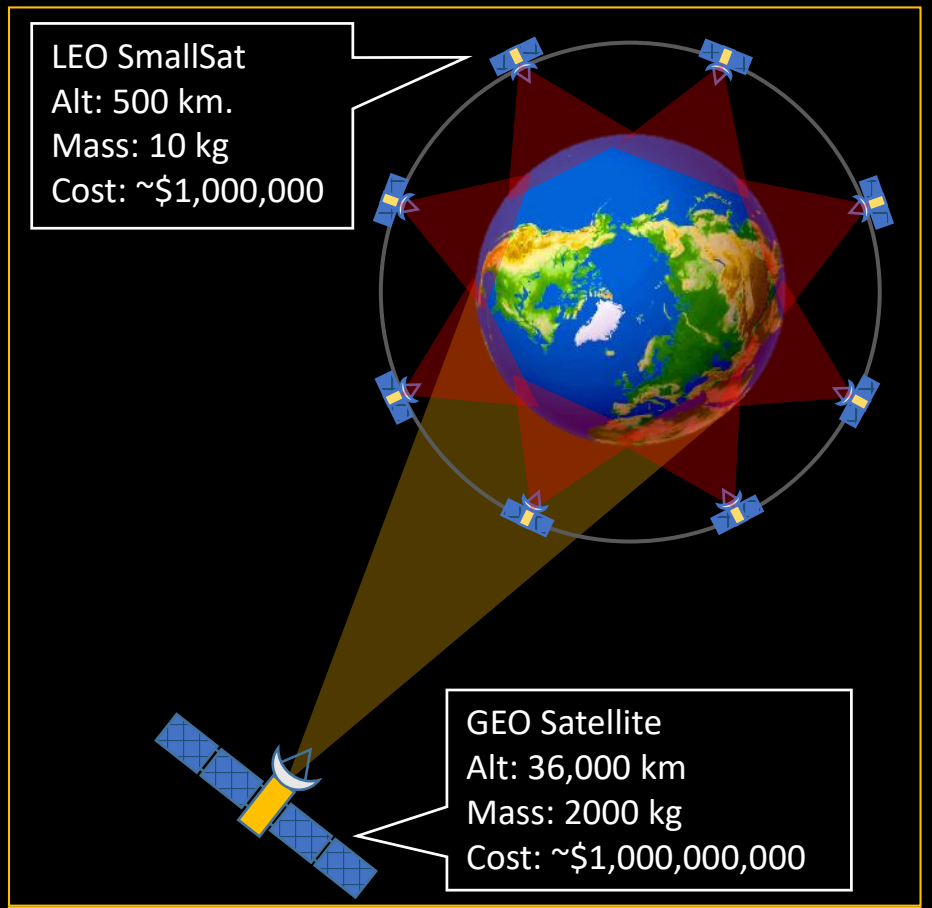
NewSpace

The NewSpace Race

The NewSpace race is driven by commercial interest, tech miniaturization, and lower costs. Space is easer to reach than ever before.





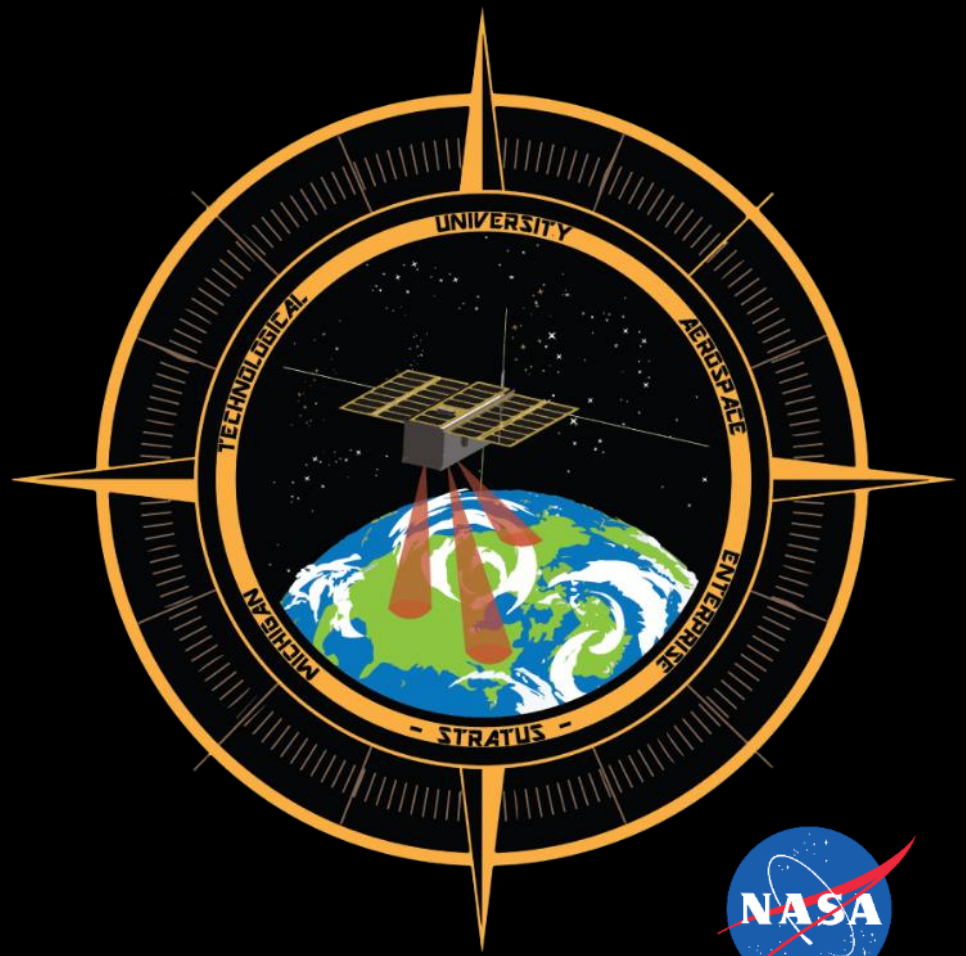


Ex: Instead of 1 very large and expensive sat, we can instead place a constellation of smaller ones that are 1000x cheaper and 200x smaller. While SmallSats have less “capability”, this is mitigated in an economy of scale by increasing coverage.

Currently Developing Missions

Auris

Explore interference potential of GEO satellites by mapping their RF emissions onto Earth and determining their locations in space



Stratus

Collect data on clouds and build 3D models of them to help climatology models.

Currently Developing Missions Cont.

Descensus

Control a descent to earth within compact size requirements while maintaining pointing requirements

Connexus

Store data and organize a locally stored database to structure the enterprise.

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Auris Mission Overview

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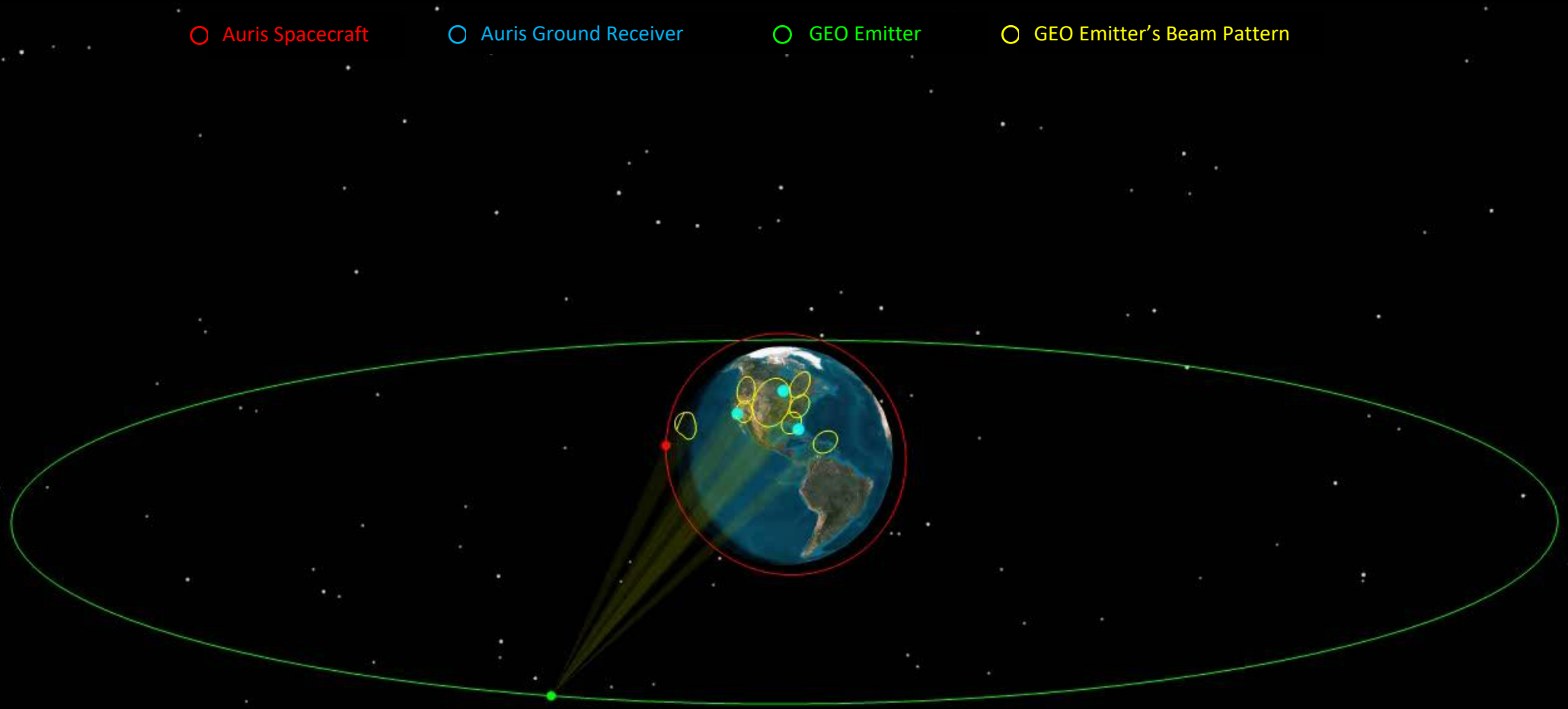
Mission Statement

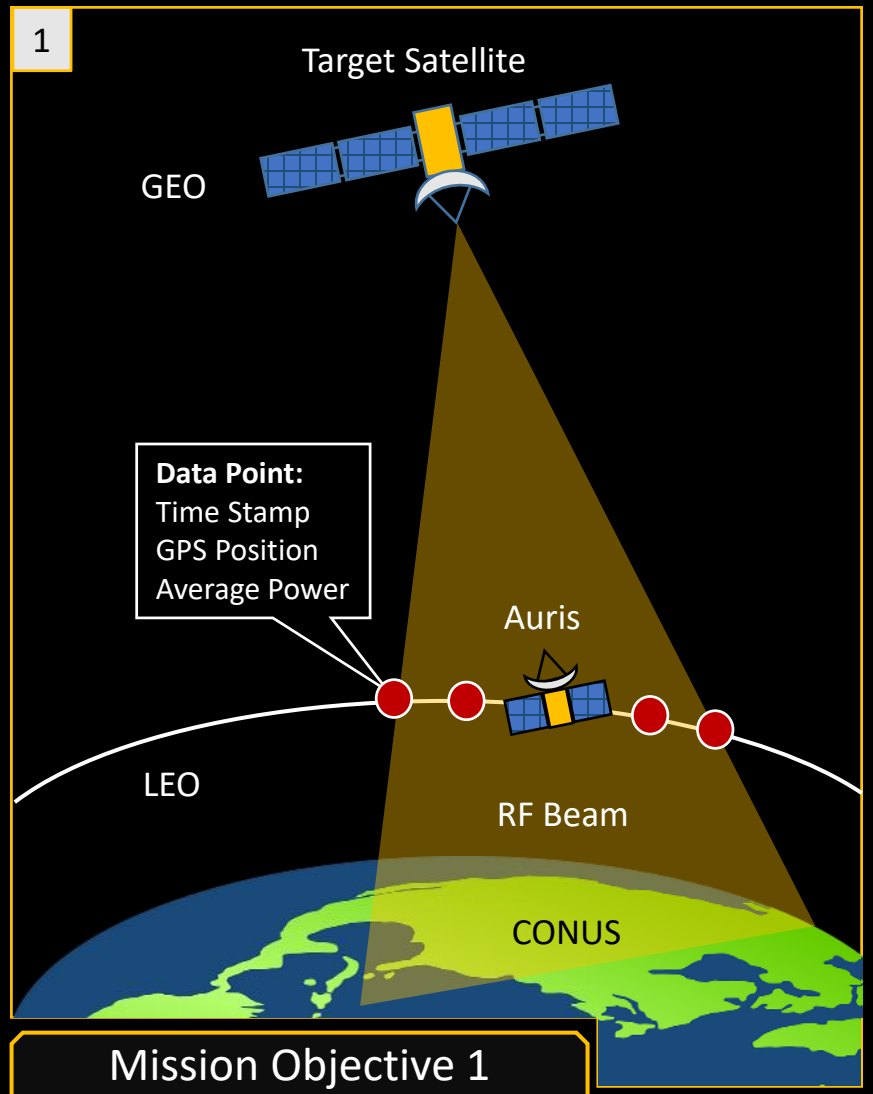


Mission Statement

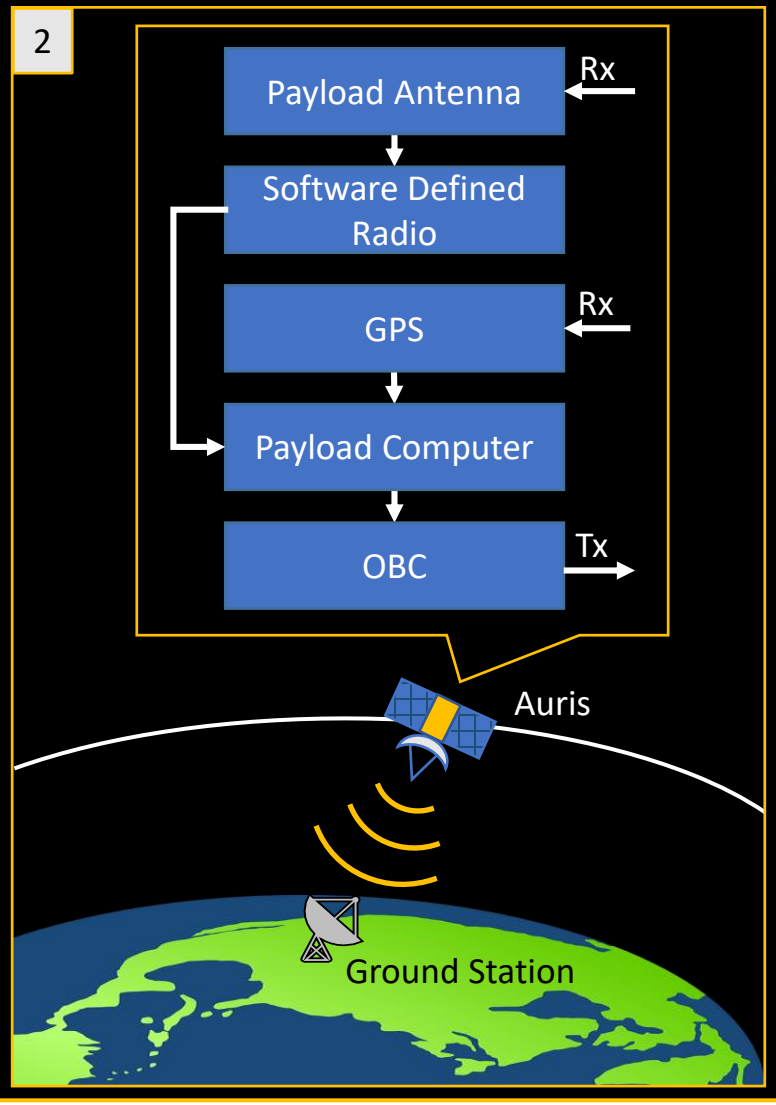
Auris is a pathfinder mission whose goal is to demonstrate a low-cost platform capable of exploring the interference potential of GEO satellites.

Mission Objective 1

1

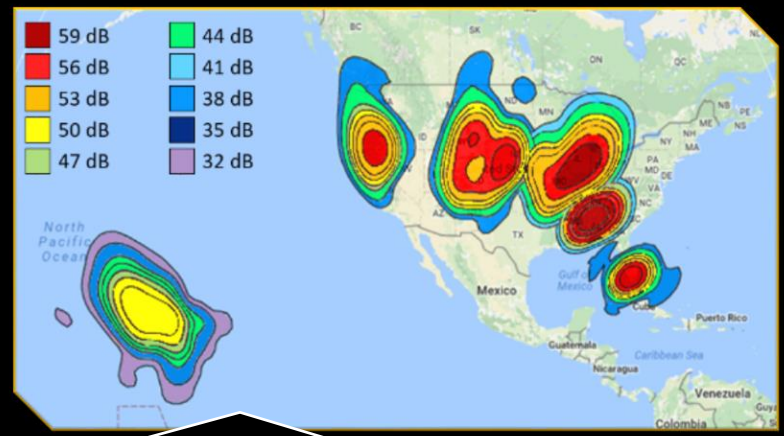


2



3

Collection passes over CONUS after 30 days of operation
Altitude: 450km, Inclination: 63°



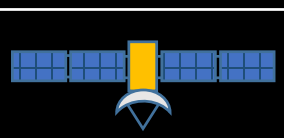
True EchoStar 14 Transponder 17 EIRP Map over CONUS
(SatBeams.com)

Mission Objective 1

The Auris Mission shall produce, as a final data product, spatial maps of the antenna beam patterns radiated by EchoStar 14 Transponder 17 over the Contiguous United States (CONUS).

Mission Objective 2

1



A GEO satellite emits a signal at an unknown time and location.

A

GEO Emitter

t_e, X_e, Y_e, Z_e

unknown

LEO Receiver

t_1, x_1, y_1, z_1

B

Auris receives signal from the GEO Emitter first at a known position and time. Data are stored and forwarded to ground.

C

Three ground assets (GroundSats) receive signal from the GEO emitter at known positions and times. Data are aggregated and forwarded for post-processing.

2

$t_1 \pm \varepsilon,\ x_1 \pm \varepsilon,\ y_1 \pm \varepsilon,\ z_1 \pm \varepsilon$

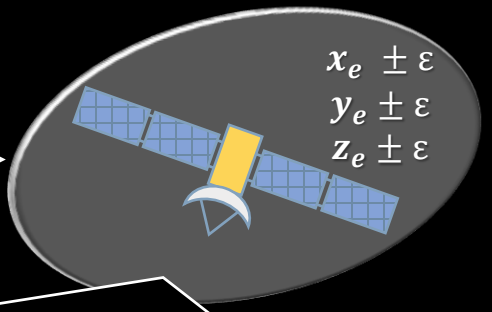
$t_2 \pm \varepsilon,\ x_2 \pm \varepsilon,\ y_2 \pm \varepsilon,\ z_2 \pm \varepsilon$

$t_3 \pm \varepsilon,\ x_3 \pm \varepsilon,\ y_3 \pm \varepsilon,\ z_3 \pm \varepsilon$

$t_4 \pm \varepsilon,\ x_4 \pm \varepsilon,\ y_4 \pm \varepsilon,\ z_4 \pm \varepsilon$

Ground Post-Processing

Constrained Optimization



Position and timing data are used to “backtrack” source of RF emission to a location in space within an ellipsoid of confidence.

Mission Objective 2

The Auris Mission shall utilize Multilateration (MLAT) to provide location knowledge of EchoStar 14.

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Stratus Mission Overview

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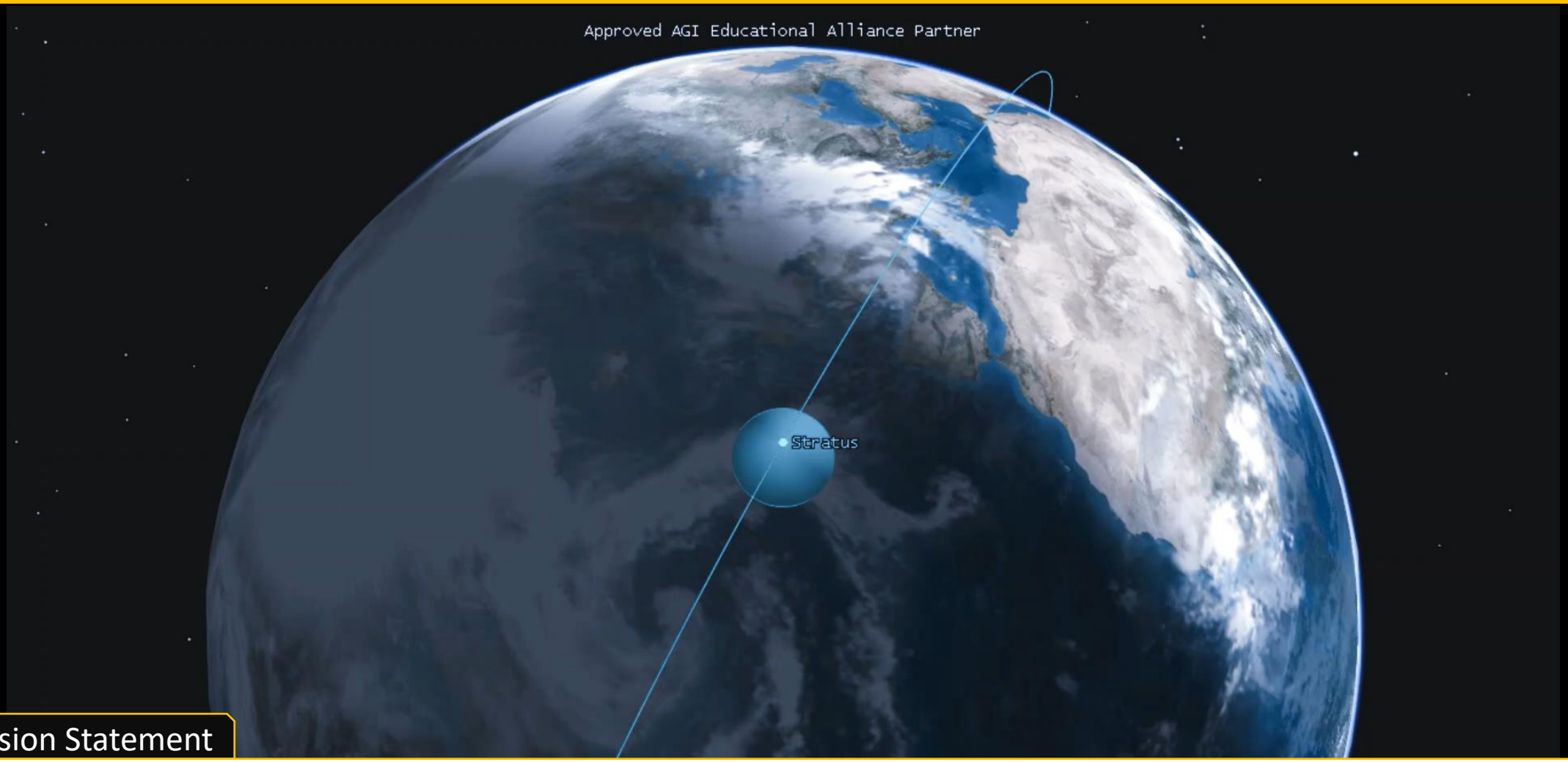
Mission Statement



Mission Statement

The Stratus mission shall demonstrate an inexpensive, upwardly scalable architecture capable of imaging clouds and generating usable data for validating and improving existing solar irradiation models.

Mission Objectives and Motivation

Mission Objective #1

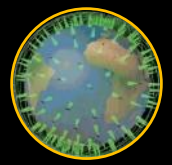
Capture high-resolution images of cloud cover over the Keweenaw Peninsula and successfully downlink to Earth.

Mission Objective #2

Process Stratus images taken to calculate cloud fraction over the Keweenaw Peninsula for one year.

Mission Objective #3

Assess the solar viability of regions by using the Stratus cloud fraction data in conjunction with solar irradiance models.

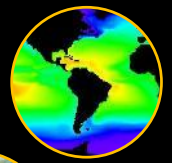


Scalability

The Stratus Mission can be scaled upwards to increase frequency of data collection and coverage due its modular CubeSat body and efficient design. Hardware can be upgraded frequently with each new addition to a Stratus constellation

Cost

"It was a billion-dollar spacecraft on a $110 million rocket, not counting the cost of the instruments and algorithms"*. Large satellites (such as the Terra Spacecraft) are expensive to produce. CubeSats such as Stratus offer a route to accomplish similar goals, but at a greatly reduced cost. Stratus is projected to cost $200,000.



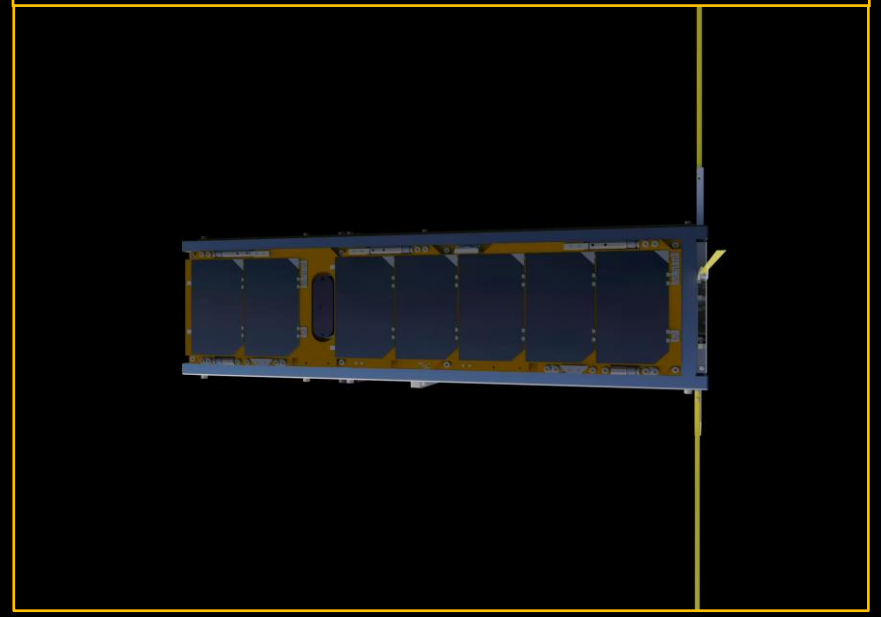
Research

Understanding and predicting how regional cloud cover influences solar viability and climate adaptation is essential—both economically and societally. Stratus can capture high-resolution cloud fraction data, thereby significantly bridging gaps in existing solar irradiance and critical climate research models.

Education

The Michigan Tech Aerospace Enterprise exists to offer students a means of gaining hands-on experience in space systems engineering. The development of Stratus and other satellites will give participants the experience required to lead successful careers in the Aerospace field.

Spacecraft



Stratus Mission

Join Us!

Why Join Us?

- Launch Date SOON!
  - End of 2026
- Need more people to make that happen

Majors of Interest:

- Software Engineering
- Computer Science
- Electrical Engineering
- Any others are welcome!

What needs to be done?

- Finish the Mission Code to make satellite mission ready
- Battery Testing and battery analysis
- Develop Mission Operation Plan
- Finalize Imager code to conduct research with
- Launch!!!

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Connexus Mission Overview

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Chief Engineer
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Connexus

Mission Overview

Mission Statement

Connexus shall be a secure remotely accessible workflow management database facilitating collaborative development, task management, and lab based test and equipment.

Outcomes

- Connexus database and software package
- Server and Database Management (SDM) subteam

Features

- Remote accessible through website GUI
- Database on server that stores and organizes data
- Workflow management system
- Simulation Computer
- Host Enterprise GitLab
- Finance tools and budgeting

Connexus Subsystems

- Centralized File System
- Project Management
- Simulation ✓
- Financial Manager
- Personnel Tracker
- Onboarding
- Inventory Management
- API Integration
- Mission Station ✓
- SDM Subteam
- User Interface
- Gitlab Server ✓

Connexus

Phases

Phase A

Minimum Viable Product (MVP)

Estimated Completion Date: End of Spring 2026

User Trade Studies
- Interviews with each subteam
- SRR

New Features:
- Sharepoint drive
- Personnel trackers
- Simulation Computer + Station
- Basic GUI

Phase B

Fully Functional Product

Estimated Completion Date: End of Spring 2027

Connexus satisfies all requirements

New Features:
- Fully operational GUIs
- Finance Manager
- Project Management

Phase C

Upkeep and Maintain

Estimated Completion Date: **Never**

Launch of SDM

New Features:
- SDM Task Group (IT team)
- Periodic updates
- Bug fixes

Connexus

Softwares

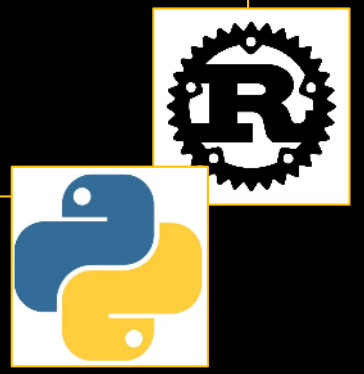
File System

Sharepoint,

Active Directory

Server Scripts

Python, Rust



Interface

PHP , HTML, CSS,

Javascript

Database

SQL

Connexus

Our Servers

Server Rack

Dell 740

The Potato

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Descensus Mission Overview

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Dr. Brad King
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Chief Engineer
Alex Wright
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Program Overview

What is Cansat?

Fast-paced, competitive year long experience participating in a complex engineering project from conceptual design to operation and conclusion.

- Run by the American Astronomical Society (AAS)
- Design a payload to attach to the front of a rocket according to competition guidelines
- Perform science objectives while in flight

Competition Sponsors

U.S. NAVAL RESEARCH LABORATORY

KRATOS

American Astronautical Society

SIEMENS

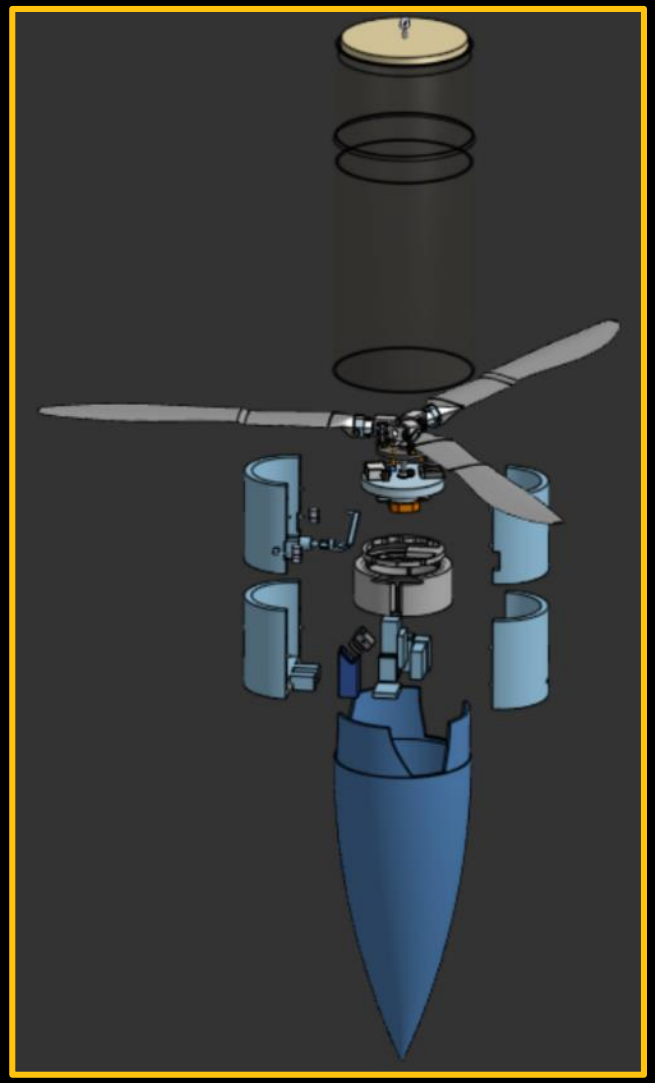
PRAXIS INC.

NASA

VAST Valley AeroSpace Team

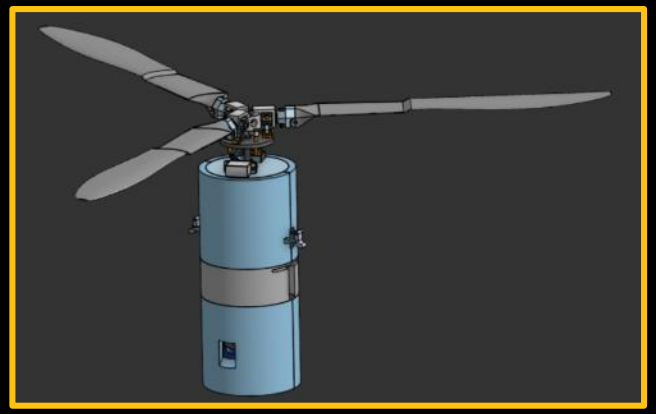
LOCKHEED MARTIN

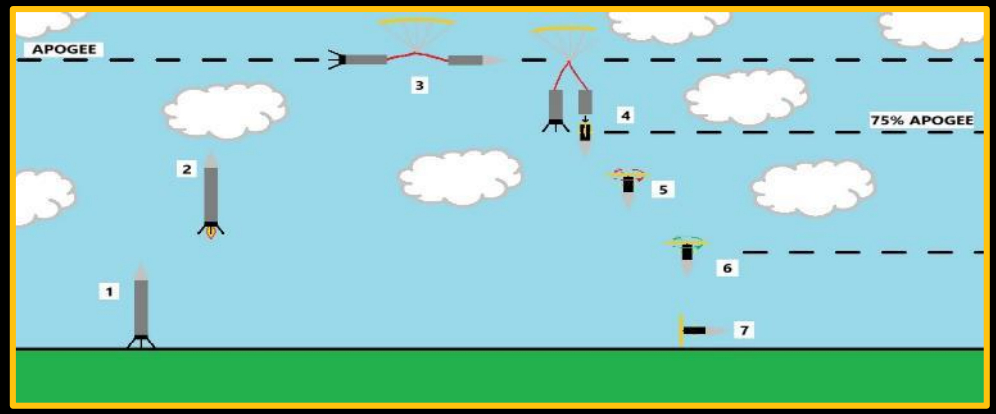
Who are we?



What We Do

- Ten month, annual schedule focused on the development of a payload
- New program for the Enterprise - 2024 start
- Overview: Yearly scientific/performance objective to compete in a pool of 40 international teams.





Descensus Info Session

Join CANSAT

Why join CANSAT?

- Hands on experience from the start
- Variety of skills available to learn & develop
  - Design, software, basics of rocketry, electrical, etc.

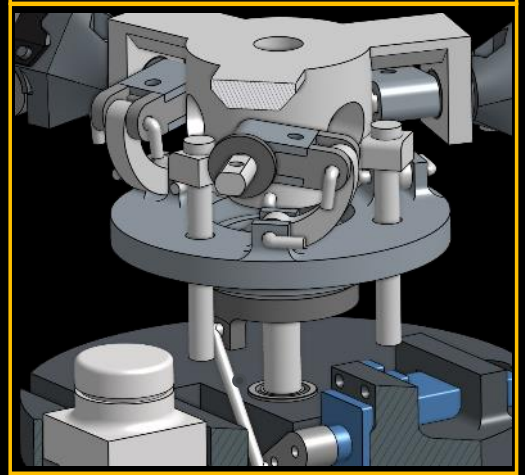
Key skills we are looking for:

- CAD - OnShape or relevant suite.
- Simulation - FEA, CFD
- Robotics
- Electronics
- Model Rocketry
- Multi-language, back & front-end software work

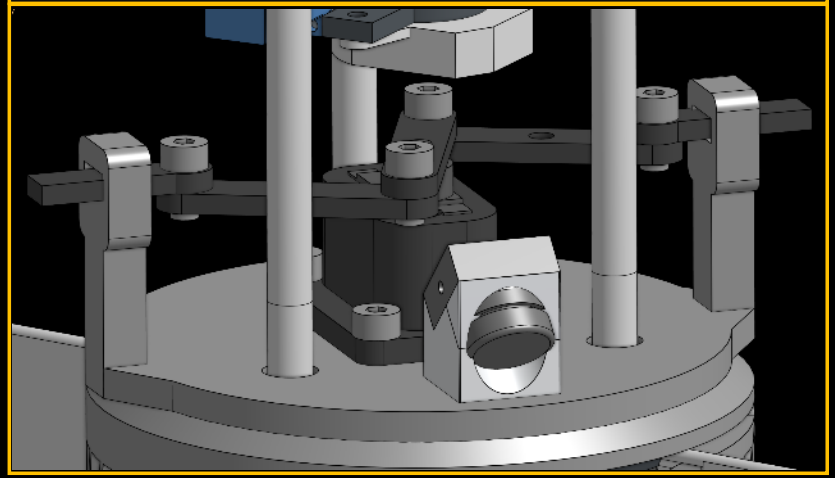
Descensus Info Session

2025 Design Summary

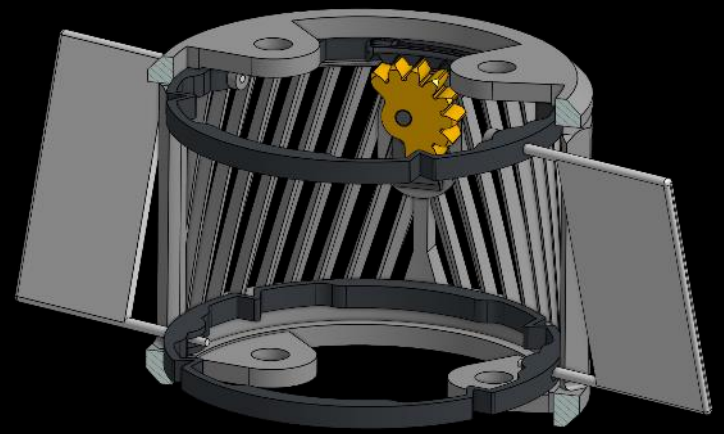
Mechanical Subsystem - Rotor



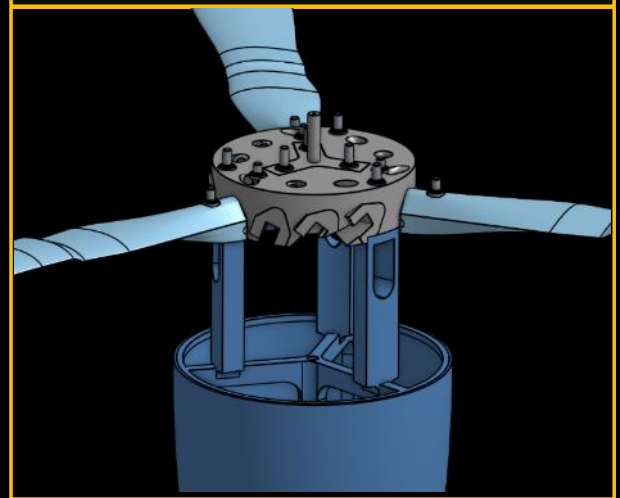
Mechanical Subsystem - Release Pins



Mechanical Subsystem - Yaw Fins



Mechanical Subsystem - Test Descender



Descensus II

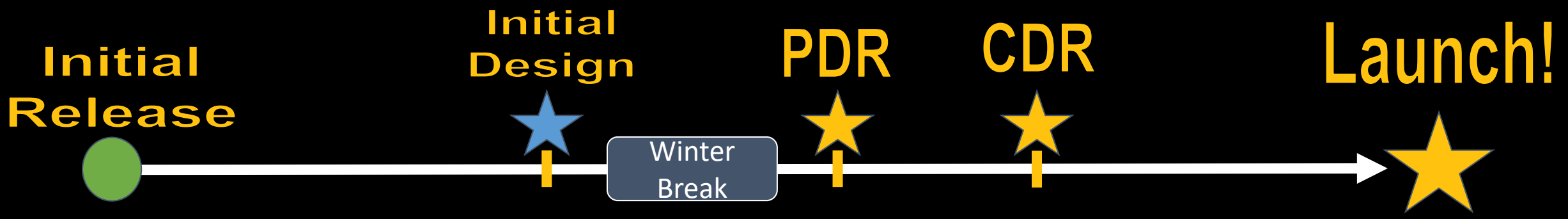
This Year - 2026 Competition - Descensus II

"It's a bird! it's a plane! it's a paraglider?"

- We are tasked with developing a paraglider system for the delivery of a "sensitive instrument" (egg) to a target drop zone.
- Drop zone distinction has been identified as a set of coordinates - around 200 meters from launch site
- Flight Stages: ascent -> apogee + shell separation via rocket charge -> first 20% of apogee is parachute descent within shell -> @80% peak altitude the glider separates for navigation to the target zone -> 2 meters of altitude above the target, the egg compartment shall be released for final descent onto the target.

Descensus Info Session

Timeline



Mid-August	Before Fall Finals	End Of January	End Of March	After Spring
Guidelines posted by AAS	Internal deadline for basic designs	Document & present initial design	Revise design. Present complete project	Travel to Monterey, Virginia for competition launches & presentations.

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Program Scope

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Chief Engineer
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Project Scope

What can I do on the team?

Mission Sciences

- Data Analysis/Science
- Error Budgets
- RF Simulations & Design
- Requirement Definition
- Mission Design
- Payload Development
- Risk Analysis
- Orbital Mechanics

Fabrication & Assembly

- 3D Printing
- Clean Room Operations
- Support Equipment
- Machining
- Structural Assembly
- Hardware Assembly

Modeling and Simulation

- FEMAP Nastran
- SolidWorks
- Thermal Desktop
- Matlab/Simulink
- LabView
- Python
- STK (Orbital Simulations)

Business & Leadership

- Presentations & Reviews
- Leading a team
- Financial management
- Hardware Procurement
- Recruitment & Outreach
- Schedule Management
- Marketing

Software

- Embedded systems
- Hardware-level Drivers
- Mission Code
- User Interfaces
- Web Design

Hardware

- Antennas
- FPGAs
- Power Electronics
- PCB Design & Fabrication
- Thermal Imagers
- Software Defined Radios
- Control Systems
- Signal Processing
- Hardware Testing
- Etc.

There is meaningful work for almost **every** major that wants to join!

Project Scope

How is the Work Distributed?

We have ***nine*** current subteams on the Enterprise, each with unique project work!

A-PYL

Mission Science & Data Processing

RF Engineering, Signal Processing, Software and Network Engineering

Mission Specific, Auris

ADC

Attitude Determination & Control

Physics, Orbital Mechanics, Systems Engineering, Optics

COM

Telemetry Communications

RF Engineering, Communications, Signal Processing, Software

EPS

Power Collection, Storage, & Dist.

Power Engineering, Test Engineering, PCB Design

GSE

Ground Testing & Facilities Support

Electrical Engineering, Mechanical Engineering, Power Engineering

All Missions, Connexus

OPS

Mission Planning & Operations

Mechanical Engineering, Orbital Mechanics and Simulations

SFW

Mission Software & Data Handling

Mission Code, Subsystem Drivers, Command & Data Handling

STR

Spacecraft Structure & Support

3D Modeling, Mechanical Drawings, Finite Element Analysis

THM

Thermal Simulations & Management

Thermal Engineering, Simulations, 3D Modeling

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Auris-Payload

(A-PYL)

Team Leader
Kellen Minyon
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Systems Engineer
Matthew Holwerda
msholwer@mtu.edu

Auris-Payload Overview

What do we do?

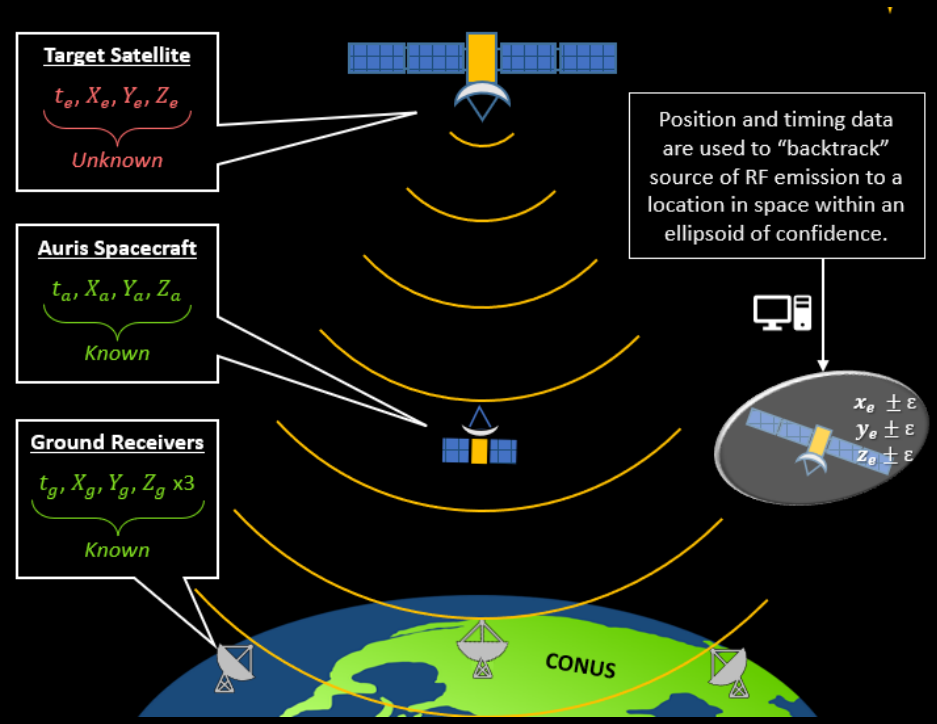
- Figure out the underlying mission science
- Develop the payload subsystem
- Coordinate with the other subteams on the enterprise
- Perform relevant tests

What kind of work do we do?

- MATLAB Simulation
- C/C++, Python Programming
- RF & Antennas!
- Systems Engineering
  - Requirements & Verification
  - Test Design
- Assembly, Integration, and Testing (AI&T)
- Mission Science Analysis
- Signal Processing & Communication Systems
- Electrical Design

Who are we looking for?

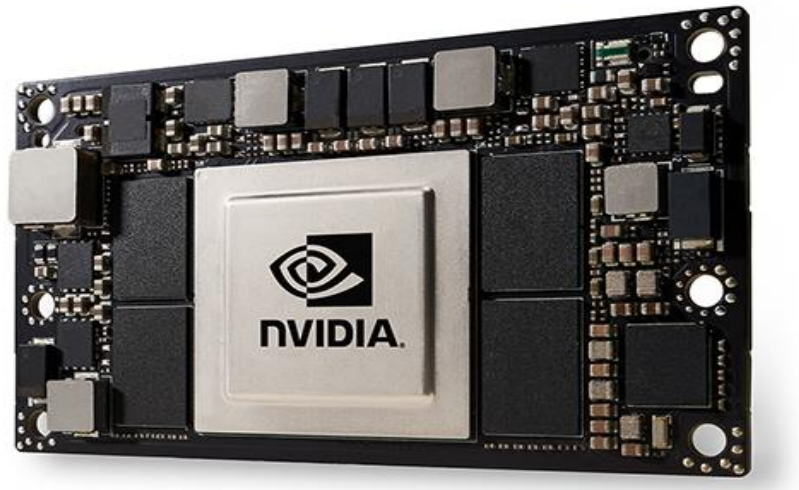
- Electrical Engineers
- Computer Engineers
- Computer Science
- Or anyone who is interested and willing to participate in our work!



Auris-Payload Projects

Software

Program an NVIDIA Jetson TX2i to control the payload and crunch some *serious* numbers!



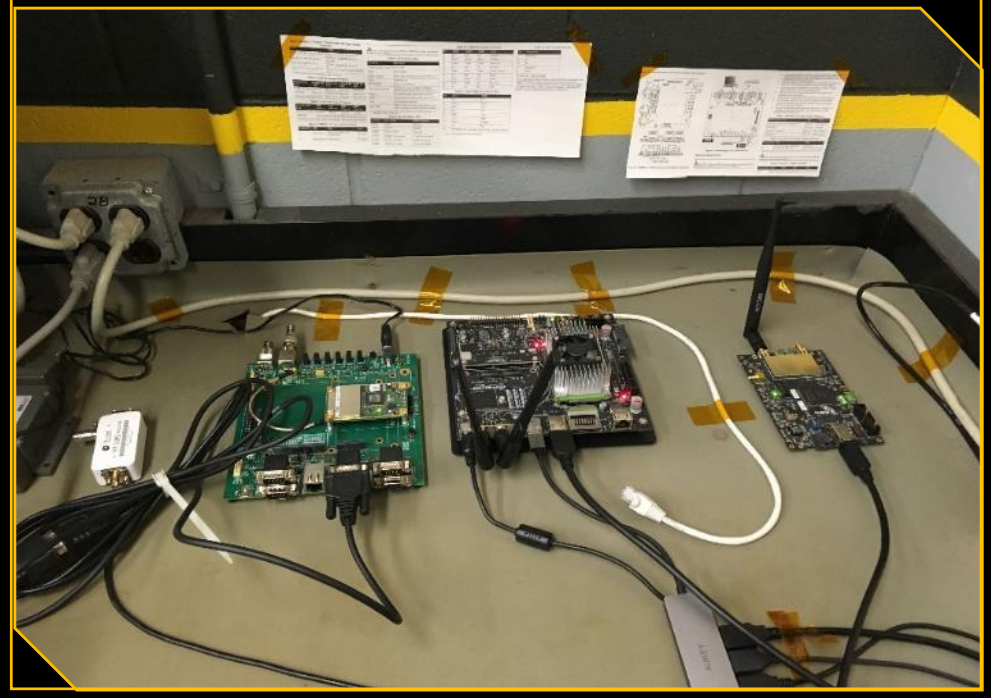
Ground Satellite

Make a Ground Satellite system that will be distributed across the continental US!

Auris-Payload Projects

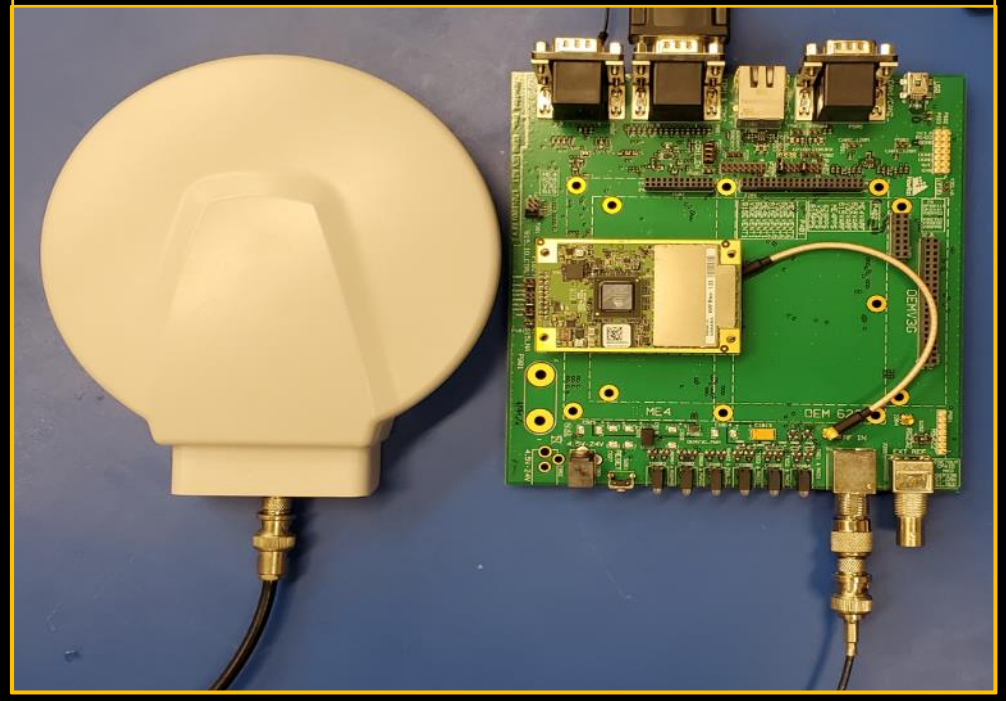
Radios & Signals

Command a Software-Defined Radio to capture signals from other satellites!



GPS

Program and wire up a GPS unit to provide position info and nanosecond timing accuracy!



And Much More…

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Attitude Determination & Control

ADC

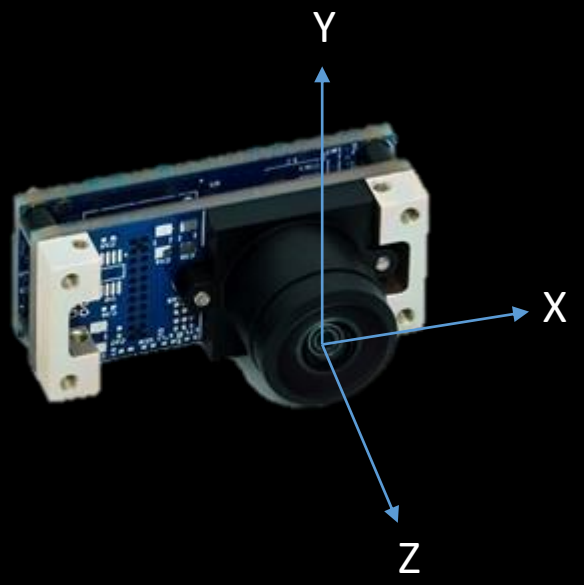
Team Leader
Isaac Oldenburg
ijoldenb@mtu.edu

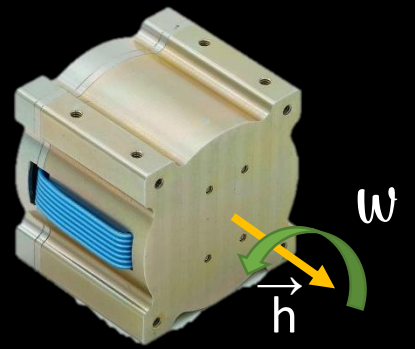
Systems Engineer
Henry Berghoef
hberghoe@mtu.edu

ADC Overview

Main responsibilities of ADC:

- Identify where the satellite is pointed
- Change and maintain the orientation of the satellite to achieve target position



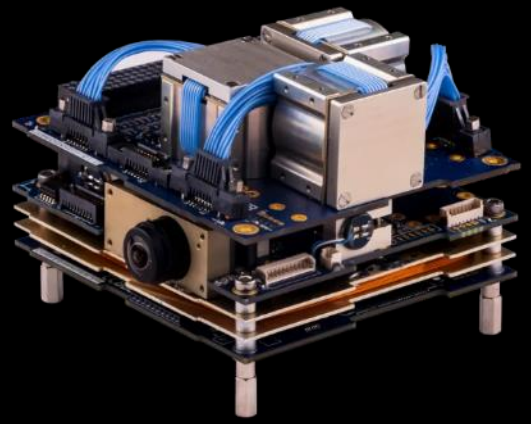


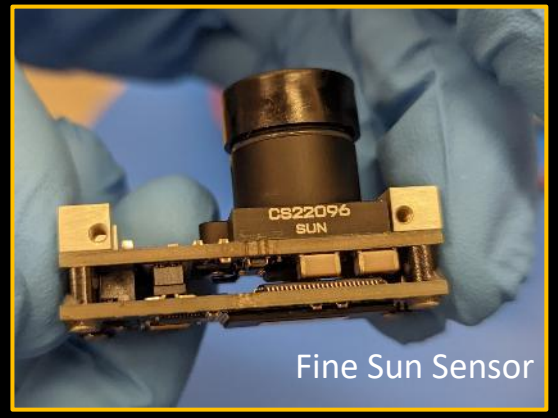
ADC Responsibilities

Potential Projects:

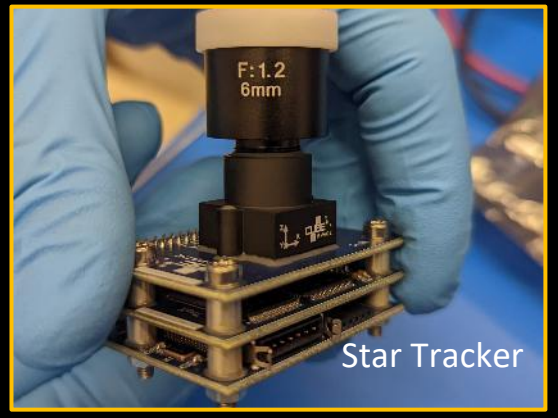
- Determine ADC hardware for future satellites
- Verify proper control to meet requirements using simulations and astrodynamics analyses
- Work with numerous different complex sensors and actuators
  - ★ Fun Fact – ADC has the most components in the enterprise!
- Conduct hardware testing

ADC Components



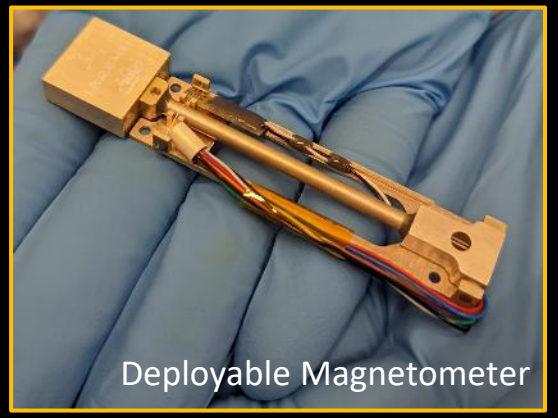


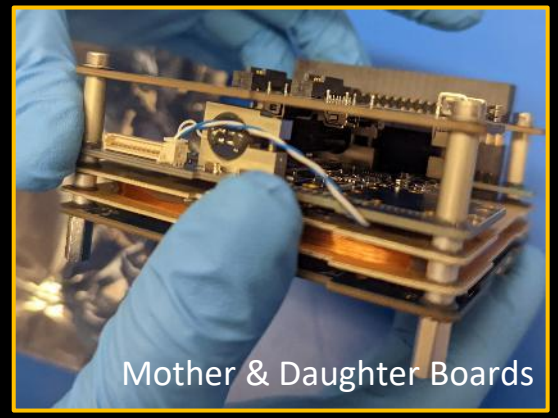
Fine Sun Sensor

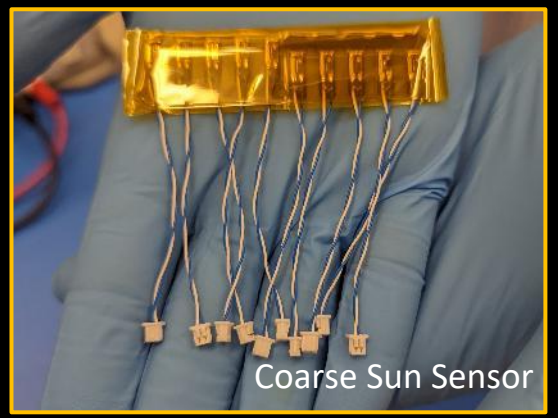


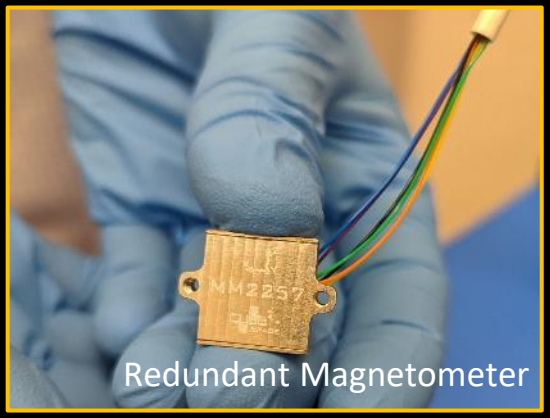
Star Tracker

IR Nadir


Deployable Magnetometer


Mother & Daughter Boards


Coarse Sun Sensor


Redundant Magnetometer

ADC

Join Us and Elevate your Potential

ORBION SPACE TECHNOLOGY

HUSKYWORKS PLANETARY SURFACE TECHNOLOGY DEVELOPMENT LAB

SAS WHO DREAMS WINS

NASA

Open to all majors!

- Prior experience not necessary
- Learn how to build a satellite
- Gain experience in design, documentation, hardware testing, and simulations
- Apply what you have learned in classes
- ADC members have obtained valuable internships and jobs with experience gained working with the Enterprise

Astronautics

Halla Mechatronics

NATIONAL AIR AND SPACE INTELLIGENCE CENTER

Talk to ADC leadership if you are interested, we would love to bring you on our team!

MICHIGAN TECH
AEROSPACE
ENTERPRISE

Communications
(COM)

Team Leader
Martin Wilkens
mdwilken@mtu.edu

Systems Engineer
Conner Larson
cdlarson@mtu.edu

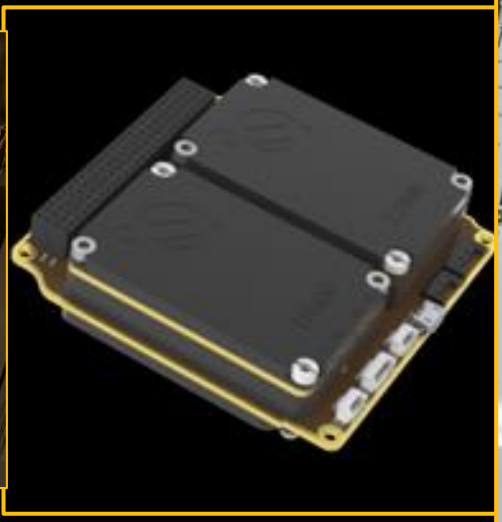
COM Overview

What does COM do for the satellites?

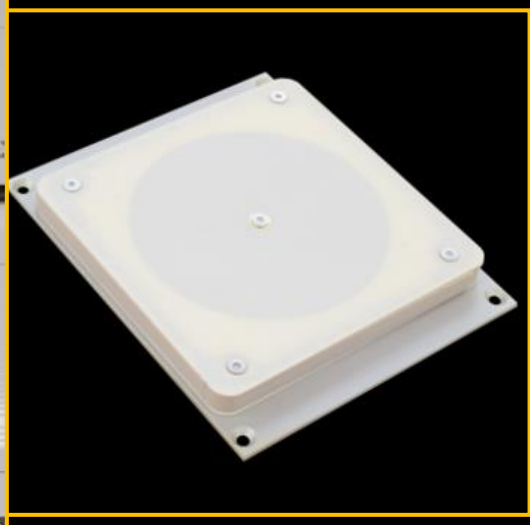
- We make sure that the satellite can:
  - Receive commands from the ground
  - Send telemetry and mission data to Earth

How does COM do that?

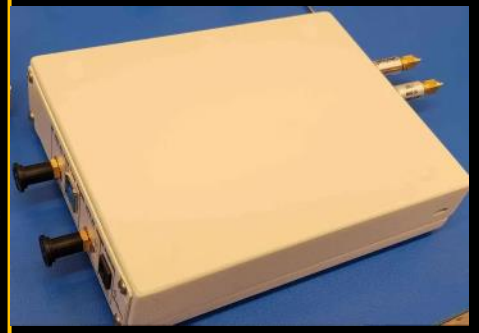
- With our radio and antenna!
- We prove that we can do this in space with:
  - Long-distance wireless testing



COM SR2000 Radio

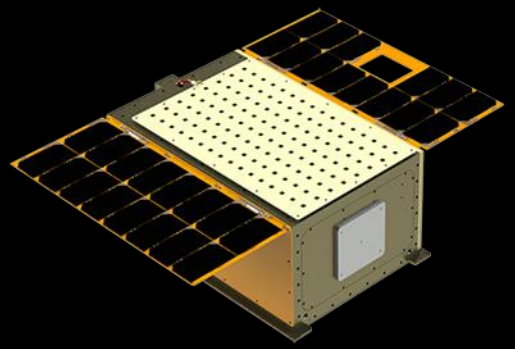


COM Patch Antenna



USRP Mock-GS SDR

On Earth Simulated Communications Test



Assembled Satellite

Long-distance Channel

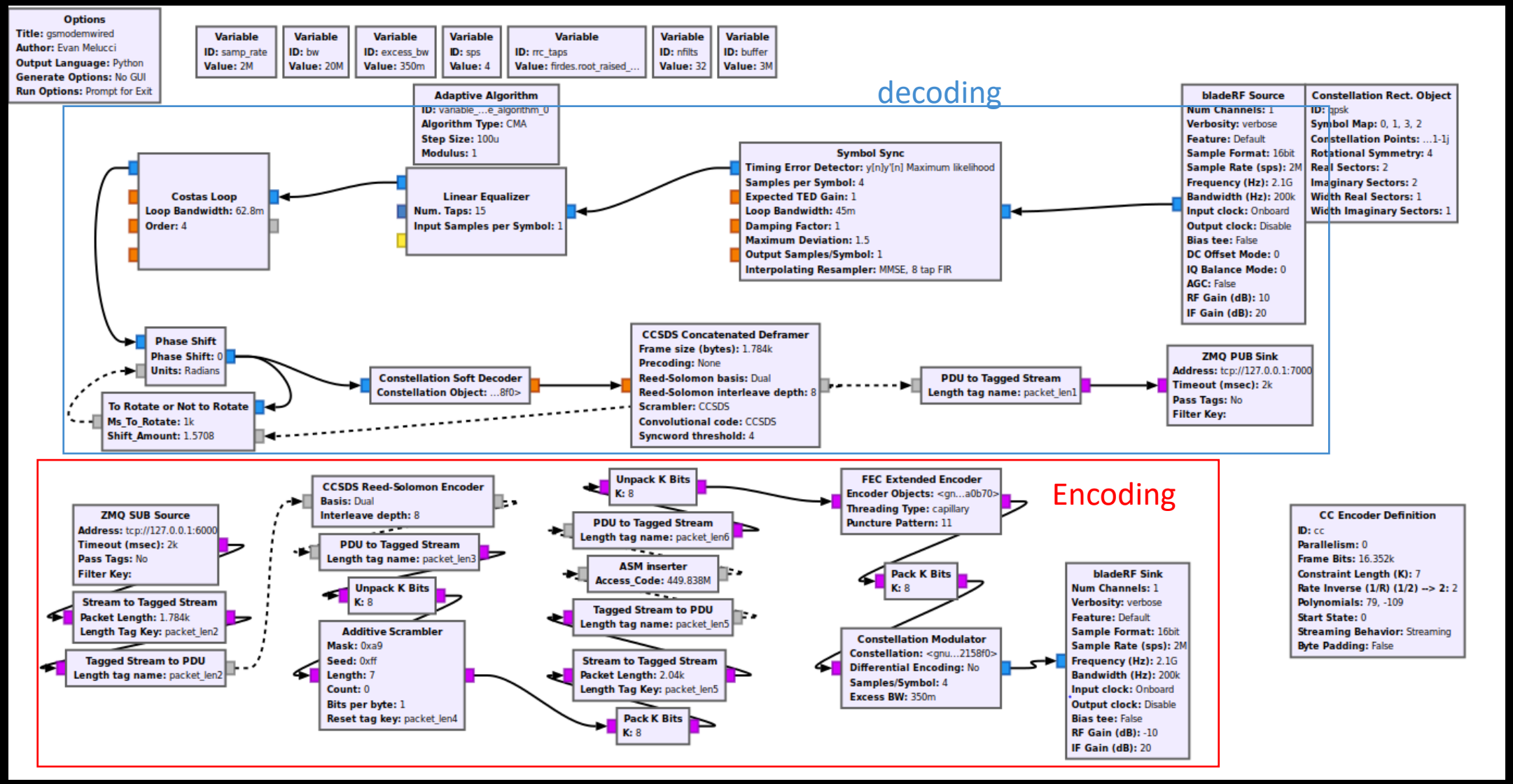
Modulated Radio Waves

Ground Station Radio

What's our job here?

- We need to:
  - Make sure the satellite can send/receive data over-the-air without error
- How?
  - Write software that allows the ground station radio to communicate with the satellite
  - Check if the satellite responds to commands and sends error-free data to the ground

Long-Distance



GNU Radio Testing Flowgraph

COM

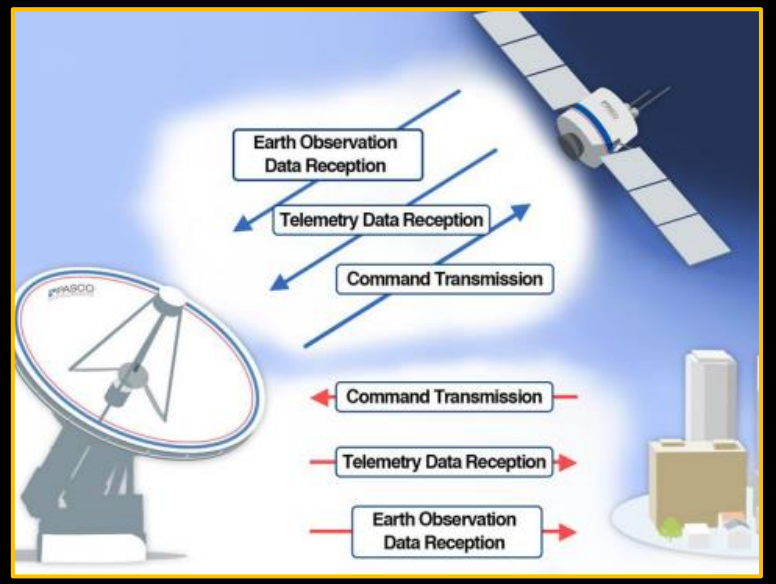
Why pick Communications?

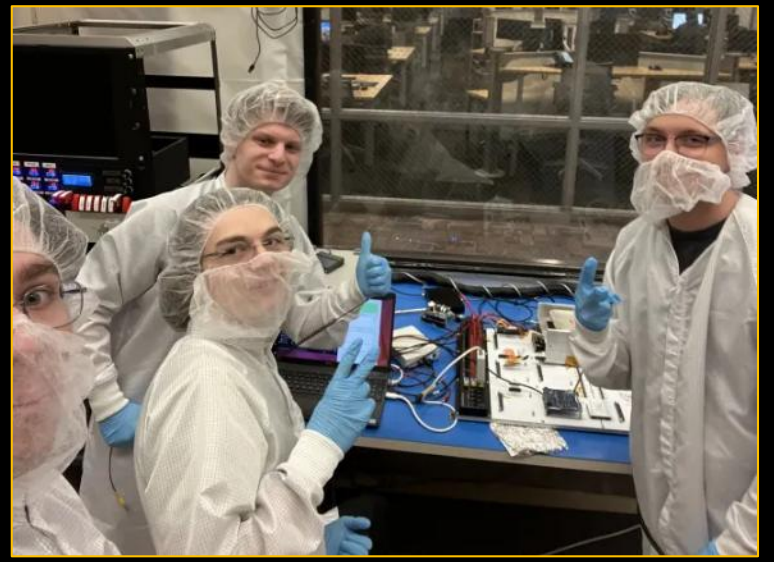
You should pick COM if…

- You are interested in, or want to learn more about:
  - Radio frequency (RF) design
  - Software Defined Radios
  - Testing physical RF equipment and hardware

Who are we looking for?

- EE, ME, CpE, and CS students, anyone interested in Radio-Frequency technology, electromagnetics and internet protocol configurations





MICHIGAN TECH
AEROSPACE
ENTERPRISE

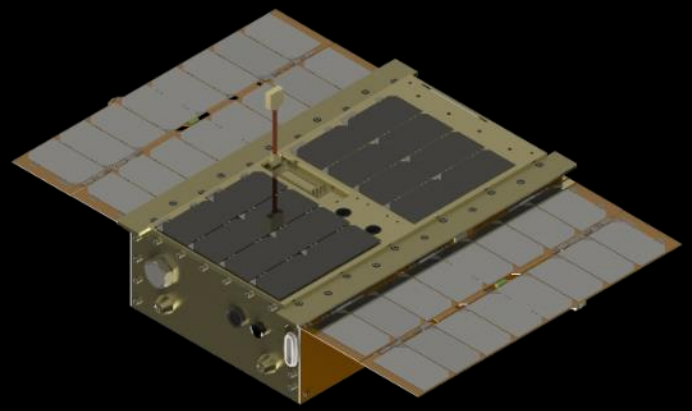
Electrical Power Systems
(EPS)

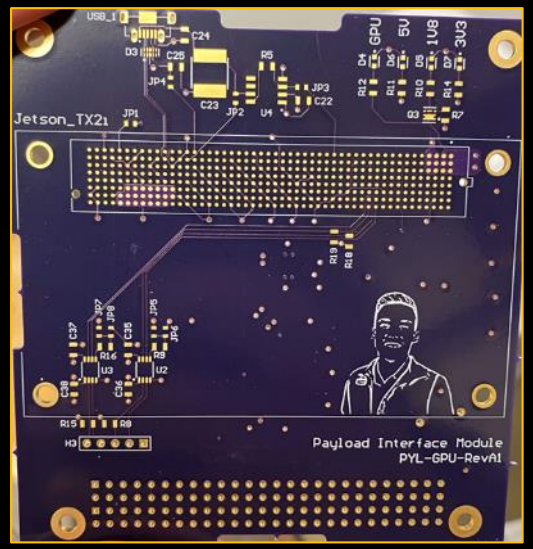
Team Leader
Luke Funk
lafunk@mtu.edu

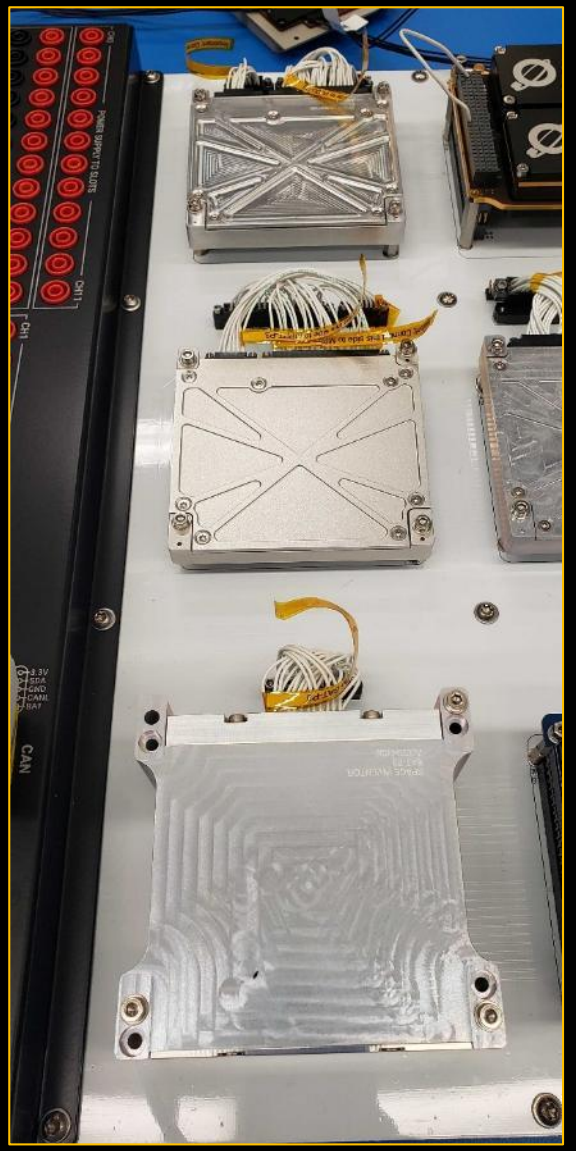
Systems Engineer
Sidney Draper
sndraper@mtu.edu

What is EPS?

- Electrical Power Systems collects, stores, and distributes power throughout the satellite
- Involves work with components such as solar panels, batteries, and custom printed circuit boards



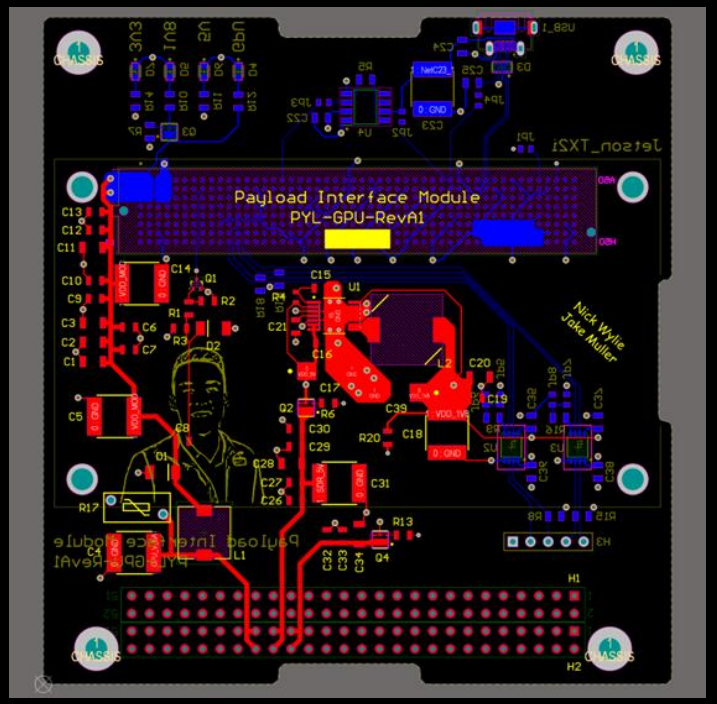




What do we do?

Our team is currently:

- Testing components for integration within the clean room
- Designing, assembling, and testing printed circuit boards
- Creating wire connections between circuit boards, and components



Join EPS

Who are we looking for?

Looking for 4-5 new members:

Electrical Engineers

Computer Engineers

Mechanical Engineers

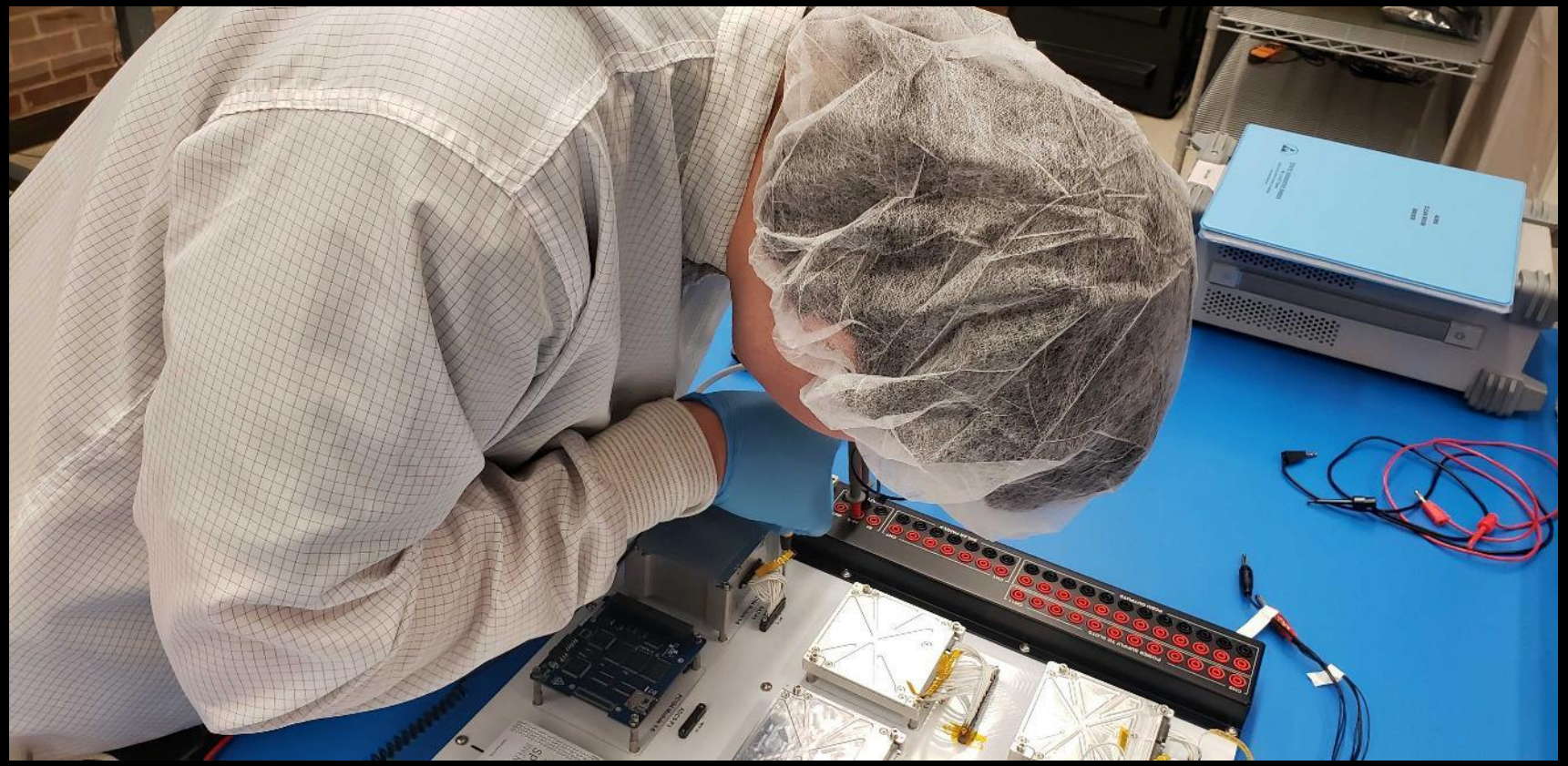
Anyone Willing to Learn

Benefits

You can learn:

- Altium PCB Design
- Wire Harnessing
- Soldering
- Hardware Testing

No prior knowledge or experience is needed!



MICHIGAN TECH
AEROSPACE
ENTERPRISE

Ground Support Equipment
(GSE)

Team Leader
Ella Adams
epadams@mtu.edu

Systems Engineer
Melissa Rochon
mlrochon@mtu.edu

Ground Support Equipment Overview

EGSE

Electrical Ground Support Equipment (EGSE) – Supports testing of subsystem hardware and functionality tests.

GSE

Clean Room – Manage the behind-the-scenes operations of our clean room, including humidity, maintenance, and upgrades.

GSE

Ground Support Equipment Overview

We will accept any major, but are specifically looking for:

- EE's
- ME's

We have hands-on work with hardware this semester as well as design work!

GSE Activities

- Satellite communication during testing
- Maintaining/improving clean room
- Testing the EGSE
- Operating the EGSE during satellite testing
- Creating and supporting satellite test procedures
- Electrical schematic design

Ella Adams

MICHIGAN TECH
AEROSPACE
ENTERPRISE

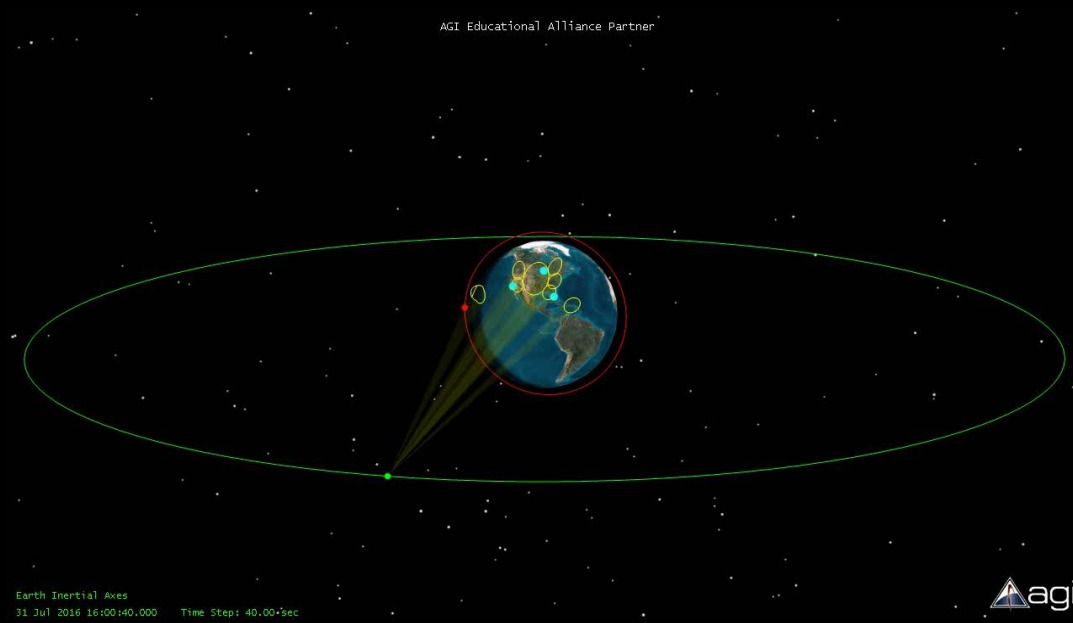
Operations
(OPS)

Team Leader
Zack Blazejewski
zablazej@mtu.edu

Systems Engineer
Brady Doyle
brdoyle2@mtu.edu

OPS Overview

- Define Mission's Concept of Operations (ConOps)
- Outline mission data handling / processing
  - Command Delivery
  - Telemetry Monitoring
  - Fault Handling
- Use simulation to assist other teams
- Manage Ground Stations
- Maintain Mission Level Requirements



OPS

What are we working on?

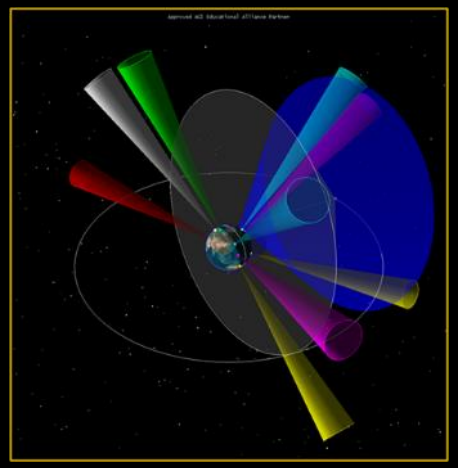
Current Projects

- Finalize Day-In-The-Life test
- Building tools for operators to use while Auris is in orbit
- Developing command and control software (COSMOS) to work with all sub-teams, our ground stations, and satellites
- FCC Licensing

MICHIGAN TECH AEROSPACE ENTERPRISE

Day-In-The-Life Test

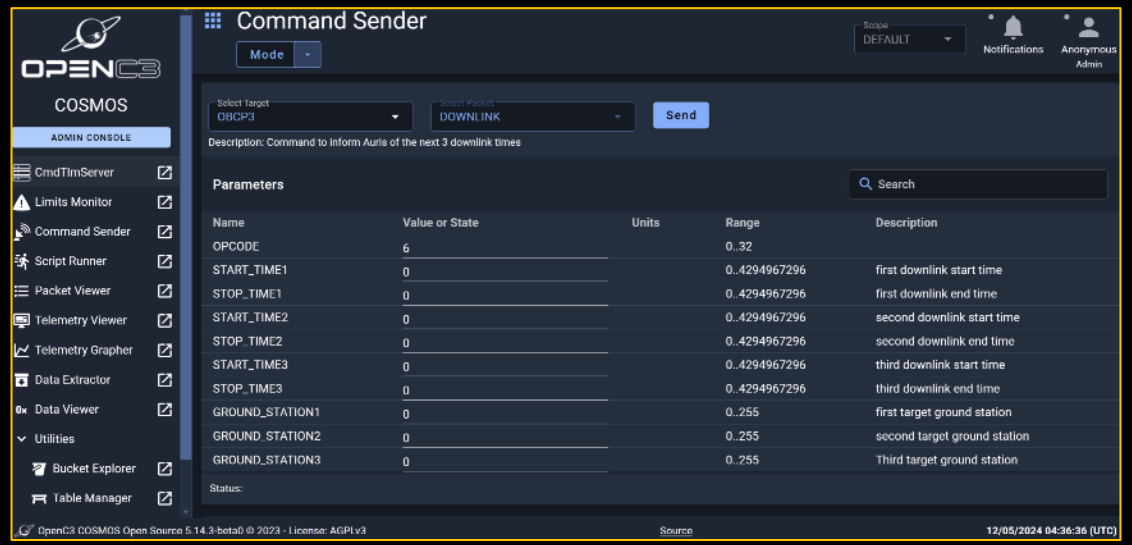
Auris Spacecraft Program

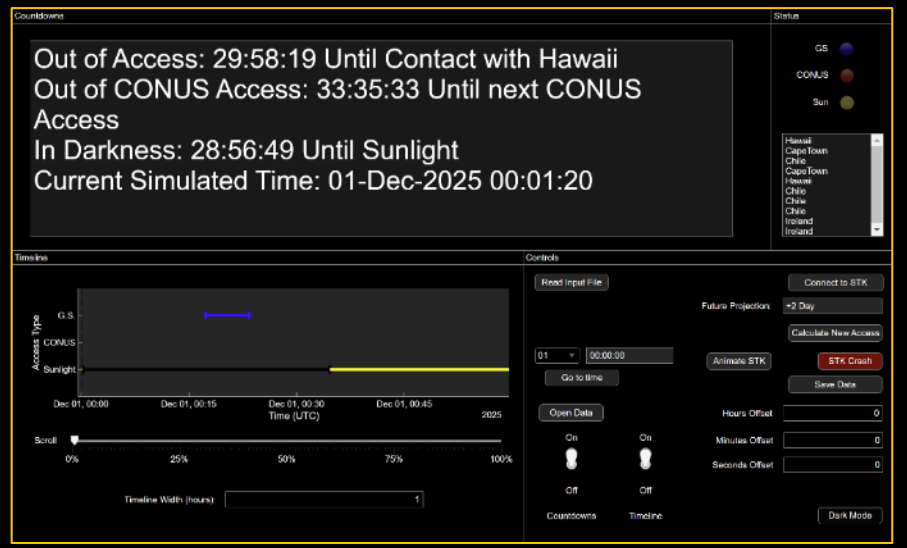


OPS

What is the DiTL?

- 24 Hour Duration
- Tests Auris's daily operation
- Most important test
- Uses COSMOS and SMART
- Integrates every subteam





OPS

Join the team!

Who are we looking for?

Regardless of your major, we are looking for anyone who is a self-starter who does not need external motivation. Our team likes to get our work finished and then have fun.

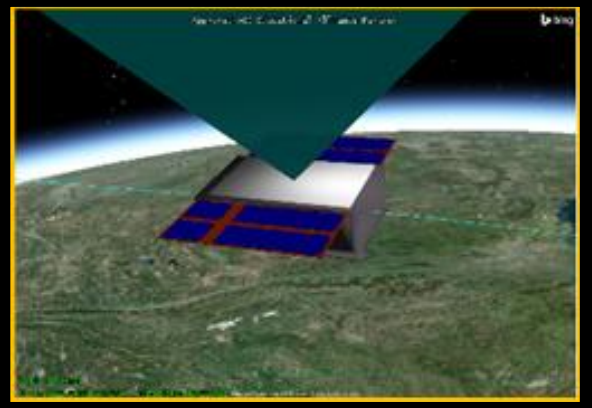
Skills Required

- Excellent Communication Skills
- Problem Solvers
- Big-Picture Thinkers
- Organized

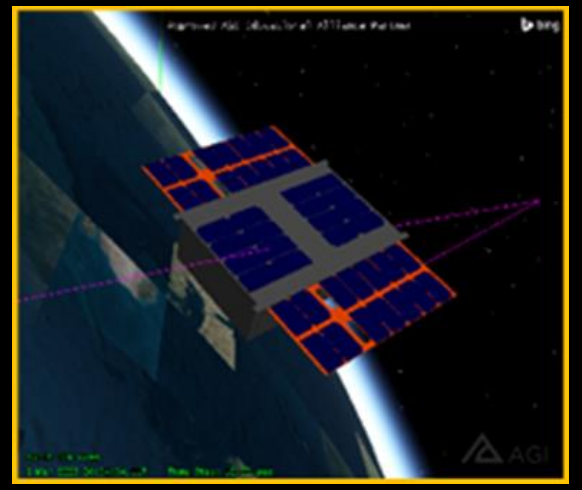
Skills Appreciated

- **Technical writing experience**
- MATLAB
- Knowledge/Willingness to learn Ruby/Docker
- Knowledge/Willingness to learn orbital mechanics

MATLAB® & SIMULINK®



STK®



MICHIGAN TECH
AEROSPACE
ENTERPRISE

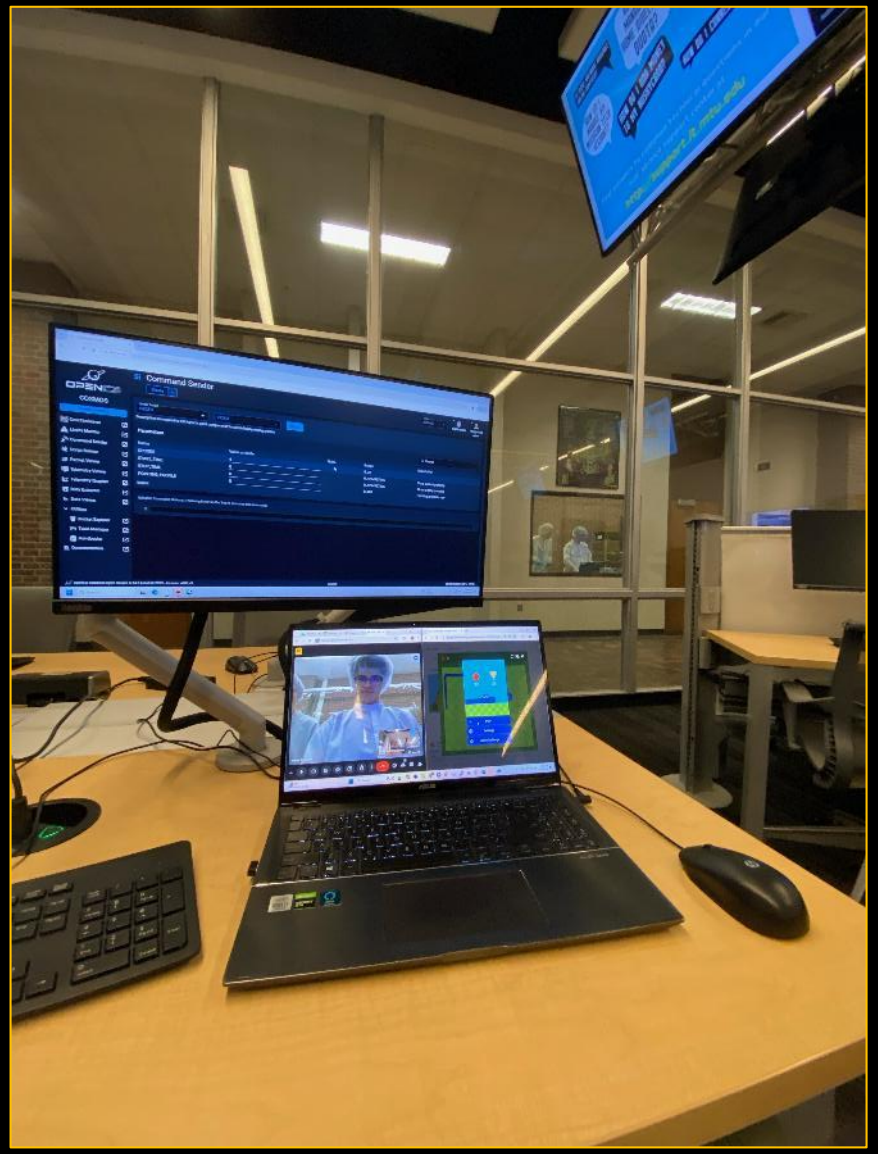
Software
(SFW)

Team Leader
Sebastian Adams
ssadams@mtu.edu

Systems Engineer
Evan Weitzel
edweitze@mtu.edu

SFW

Overview



Remote Testing with ADC Team

- SFW develops the “brain” of the spacecraft that coordinates the functions of all other components
  - Drivers, test procedures, and mission code
  - Run test procedures on active hardware
  - Maintain and image the OBC

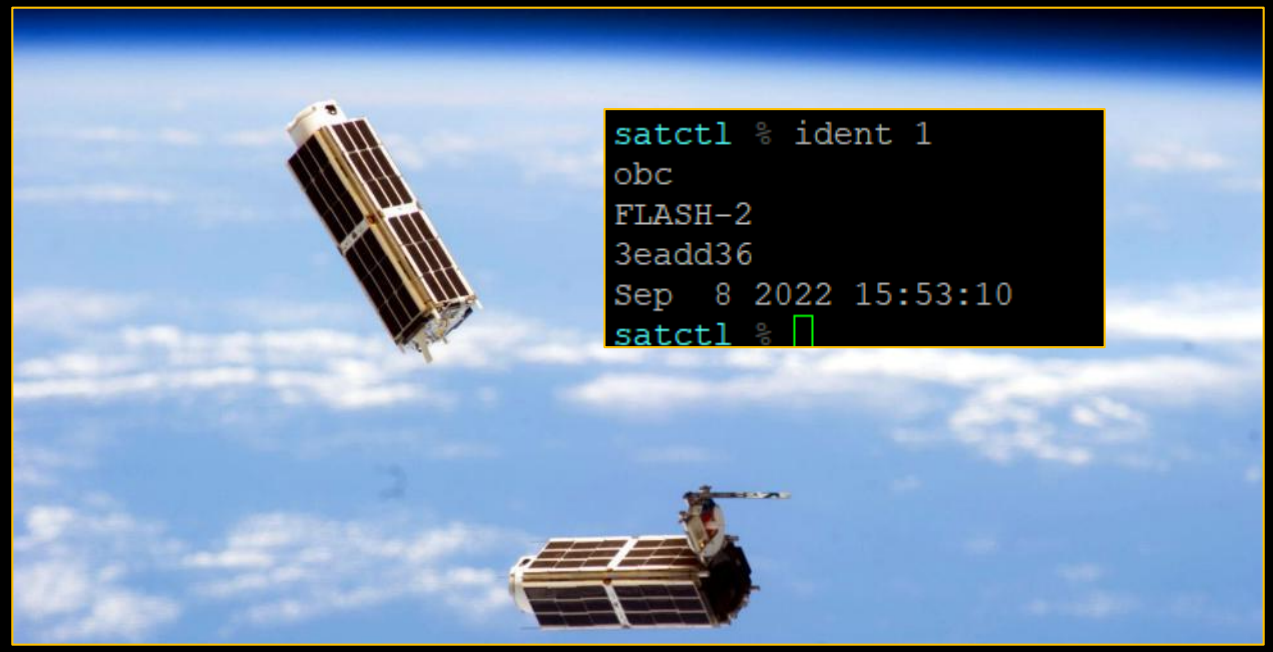
How the Software Team Does It

- FreeRTOS (Real Time Operating System)
  - Common in embedded systems
  - Not taught in any classes!
- Using libraries to develop drivers for integrating different subsystem parts
  - Interdisciplinary learning – learn how to integrate subsystems from many different engineering disciplines
- Applied systems and embedded programming, primarily written in C
- Technical documentation
  - Test procedures, interface control

SFW

Why Join Software?

- Develop code with practical applications for the Air Force and NASA
- Learn methods and paradigms used in the industry and gain experience working on an interdisciplinary team
- Gain connections in the Aerospace industry
- Looking for Computer Science, Computer Engineer, Software Engineer, and any interested developers



MICHIGAN TECH
AEROSPACE
ENTERPRISE

Structures
(STR)

Team Leader
Eli Greenwald Baldwin
bbaldwin@mtu.edu

Systems Engineer
Jacob Bruesch
jcbruesc@mtu.edu

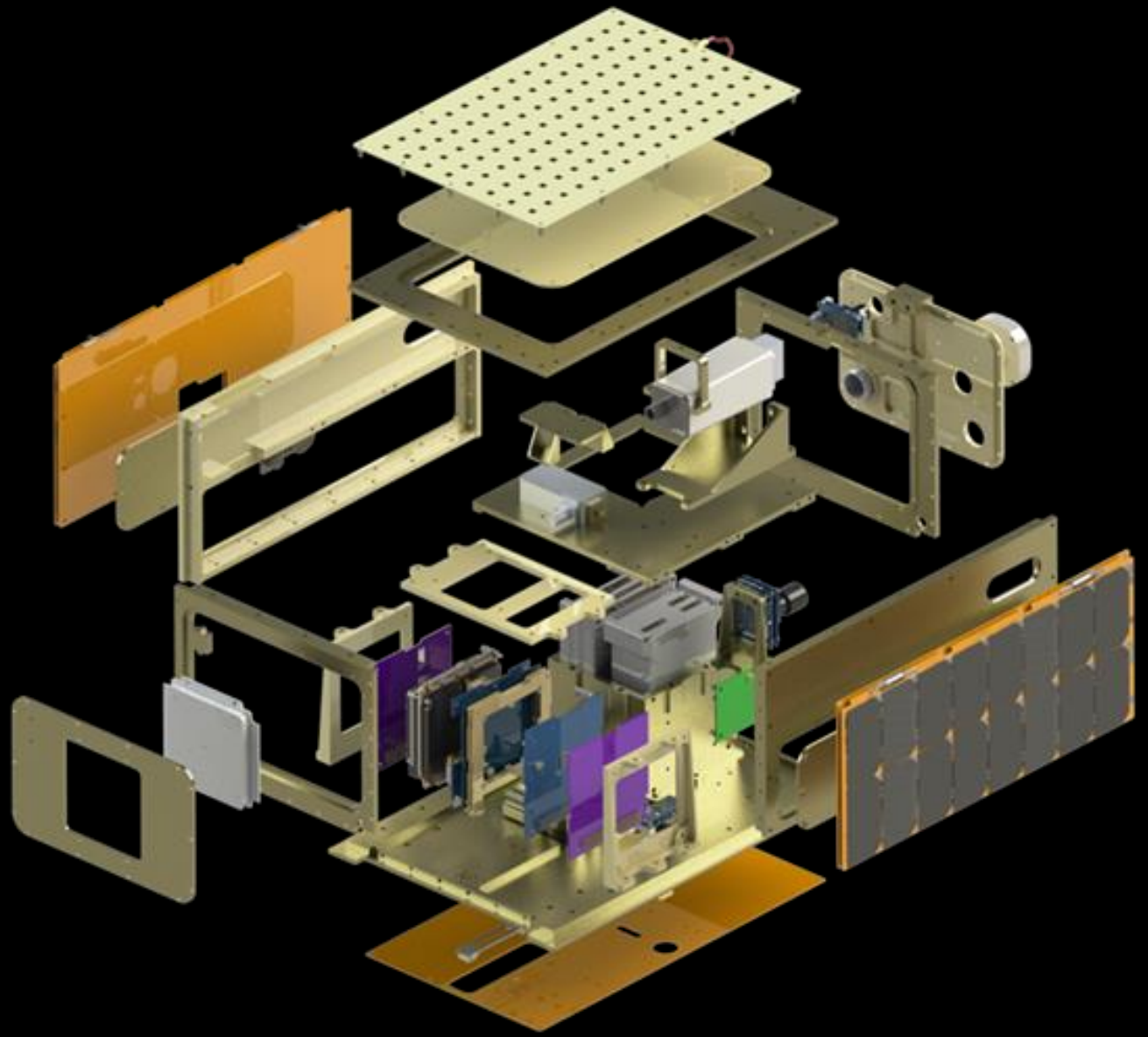
STR

What is Structures?

What We Do

- Make a metal box that can survive a rocket ride, survive space, and then make sure it completes the mission

- Spacecraft design
  - Successfully interface with all subsystems
  - Analyze structure through software & testing
  - Make prototypes, learn, and repeat

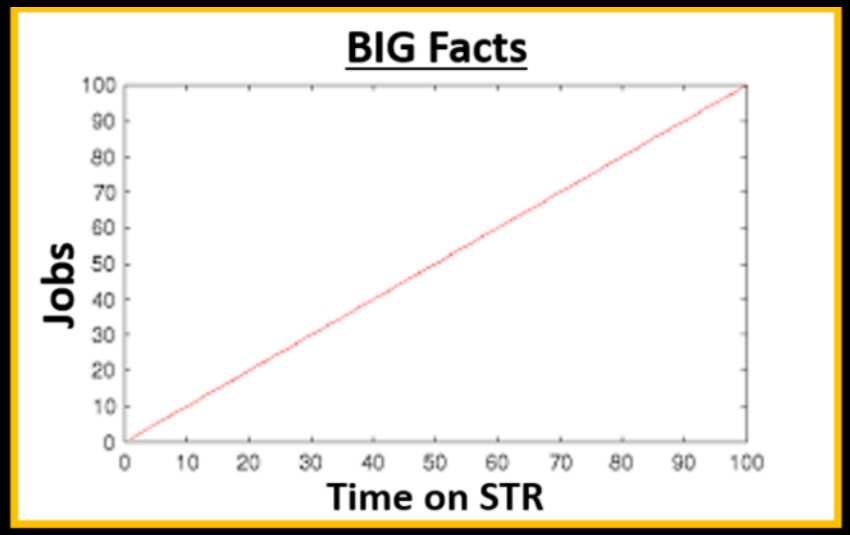


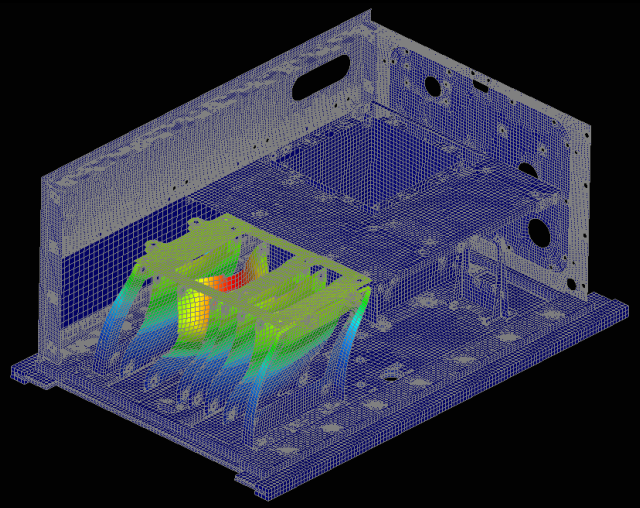
STR

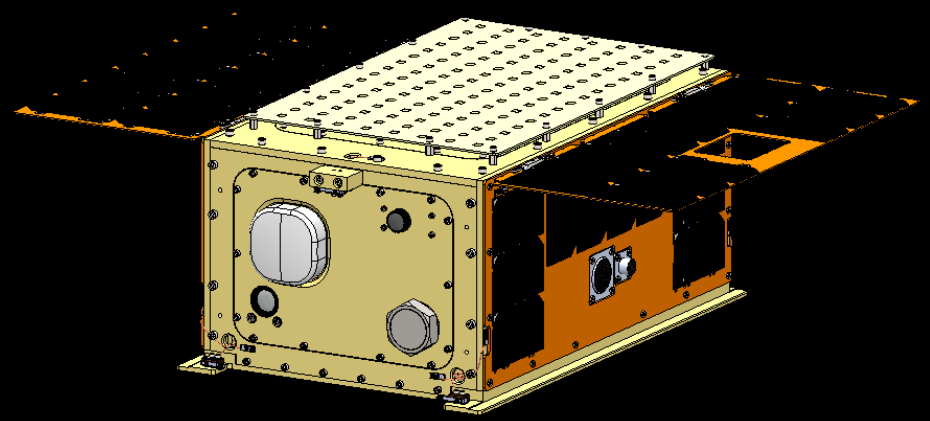
Why Join Structures?

What would you do?

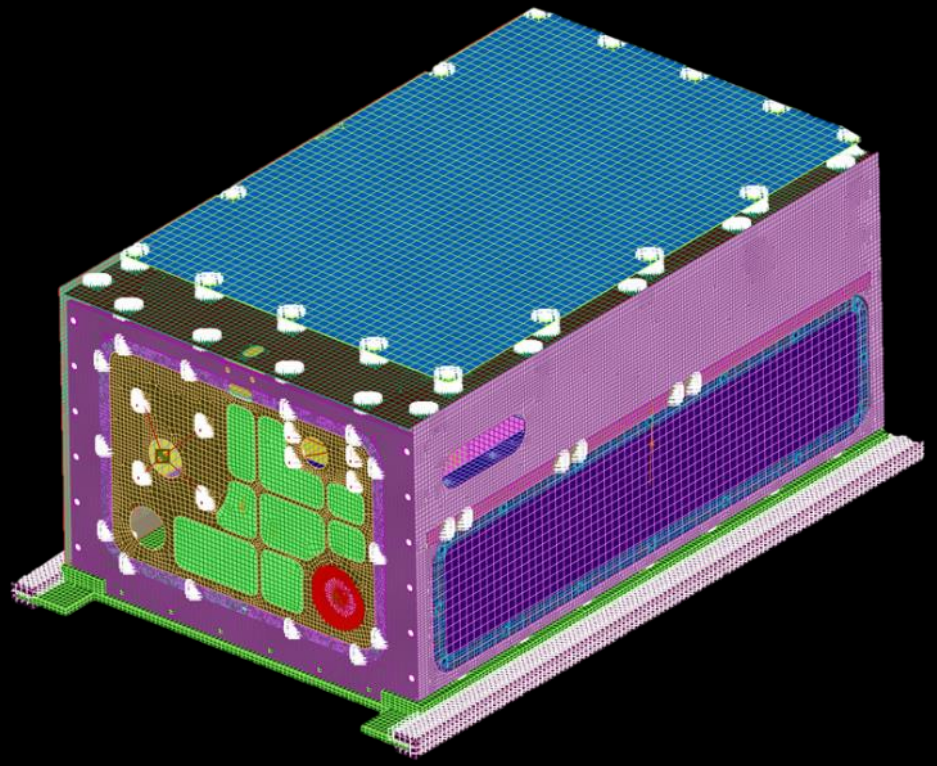
- CAD Design
- Technical Drawings
- 3D Printing
- Machining
- Satellite Fabrication
- Finite Element Analysis
- Component testing
- Assembly testing
- Hands-on learning
- Career Opportunities



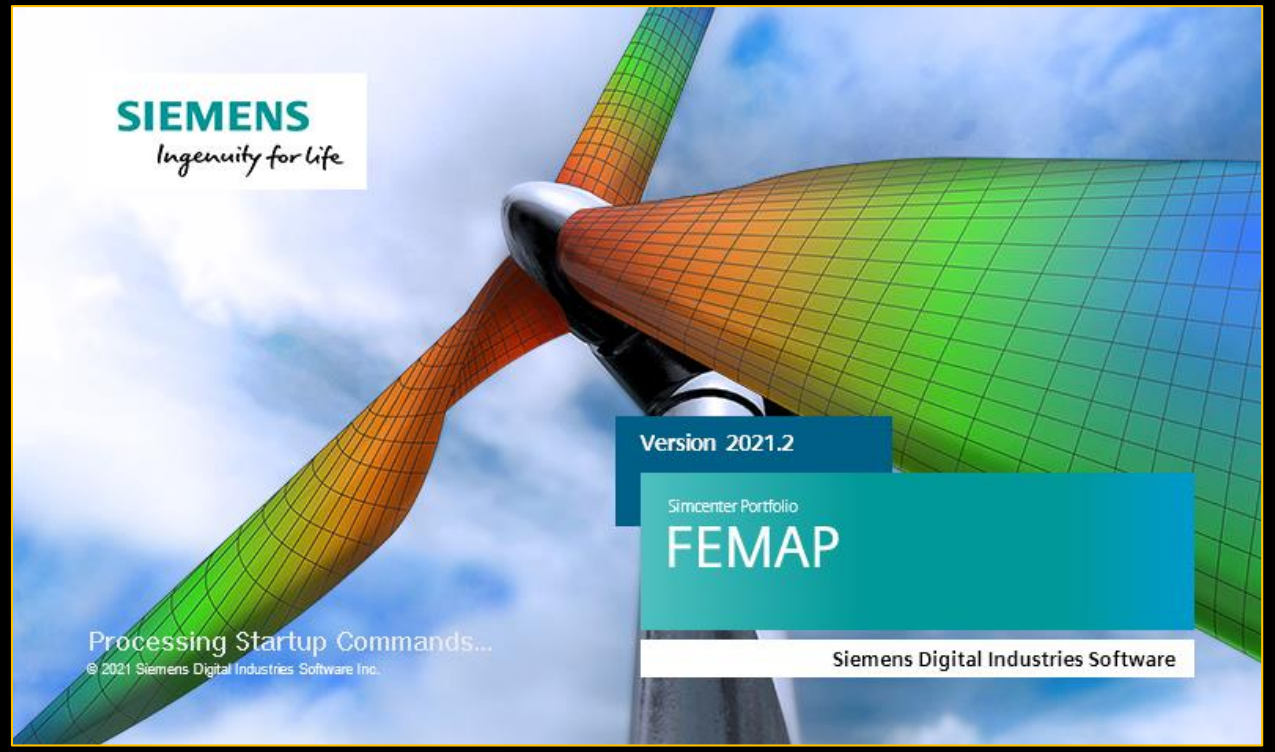




How We Do It?



SOLIDWORKS



Have prior experience with CAD/FEA?
Just plain excited about metal boxes?
Email Jacob or Eli with Questions!

bbaldwin@mtu.edu | jcbruesc@mtu.edu

MICHIGAN TECH
AEROSPACE
ENTERPRISE

Thermal

[THM]

Team Leader
Mack Klatt
jklatt@mtu.edu

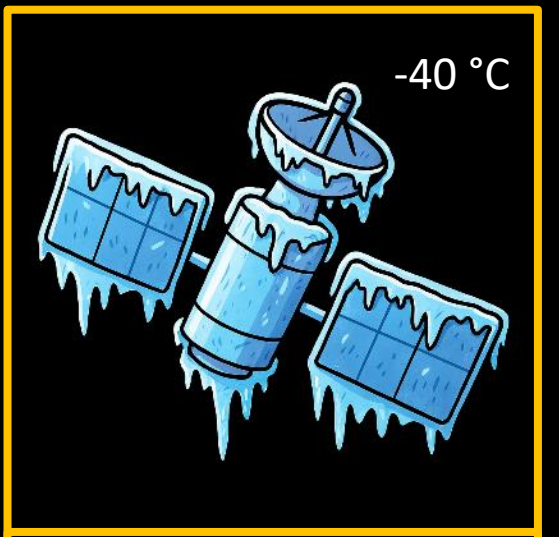
Systems Engineer
Noor Saini
hssaini@mtu.edu

THM

Overview

The Harsh and Unforgiving Environment of Space

- In Earth's shadow heat can escape quickly into the vacuum of space
- Lack of atmosphere means very little protection from the sun
- CubeSats are small and experience extremely fast temperature swings



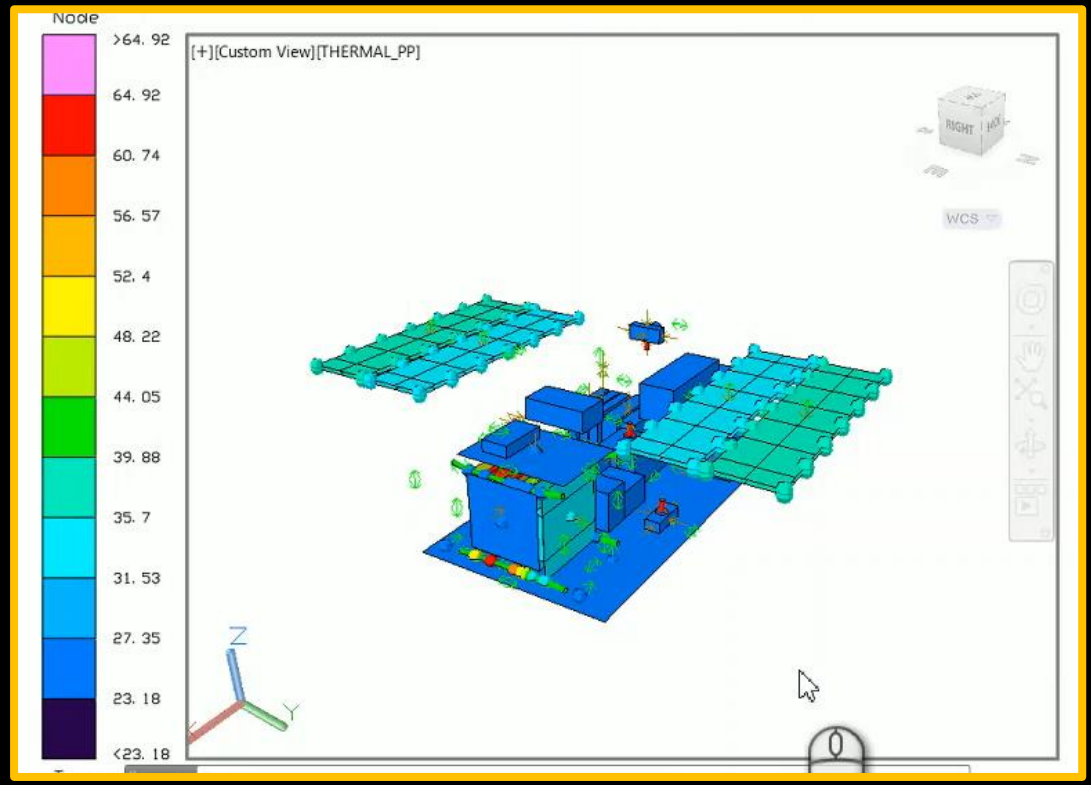
What does THM do?

- Simulation focus to identify issues before they happen
- Work with STR, EPS, and other teams for solution integration
- Temperature sensors and thermistors to identify issues
- Thermal control systems, such as insulation, thermal interface materials, and heat sinks

Overview

How do we do it?

- **Ansys Thermal Desktop**
  - Industry standard simulation software used for thermal analysis of spacecraft
- **Autodesk AutoCAD**
  - Modeling software used with Thermal Desktop to create simulation models
- **MATLAB**
  - Programming designed for engineers to compare analyze simulation and experimental data
- **Physical Testing**
  - Testing thermistors to ensure accurate data is being gathered



THM

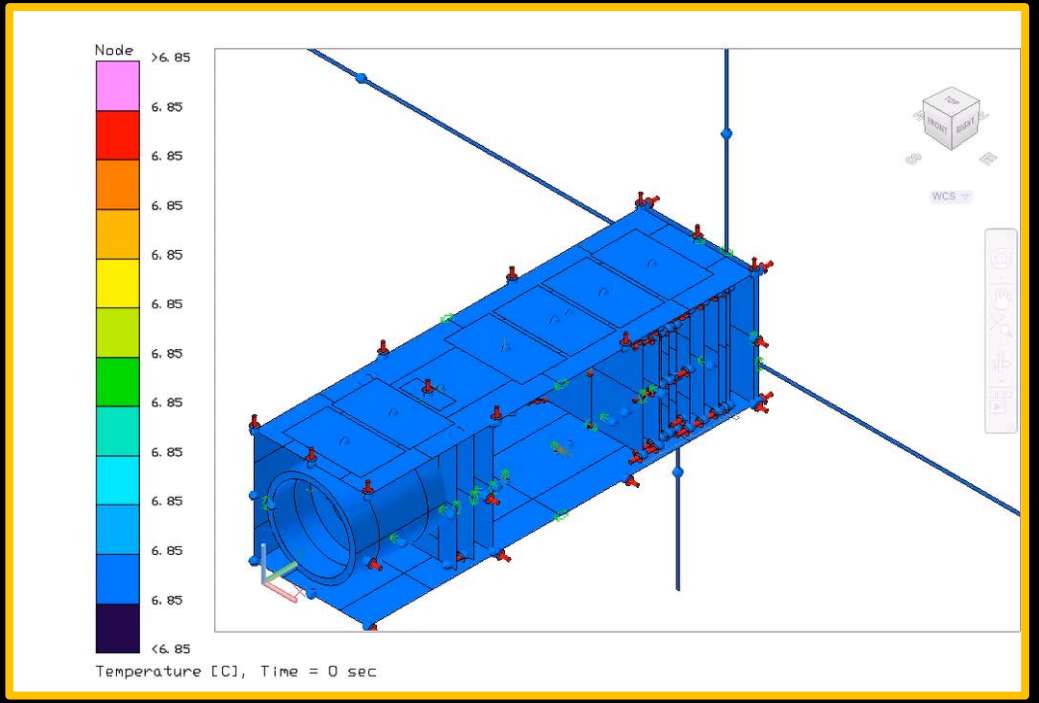
Opportunities

Majors

- Majority have Mechanical Engineering
- **All majors** welcome! We offer training in all our software!

Why You Should Join THM:

- Aerospace industry standard software that are huge resume boosters
- Gain advanced knowledge of FEA simulation techniques
- Hands-on testing and integration of temperature sensors and thermistors



Interested?

- Feel free to email any questions to

Mack Klatt jklatt@mtu.edu

Harnoor Saini hssaini@mtu.edu

MICHIGAN TECH
AEROSPACE
ENTERPRISE

Why Us?

Program Manager
Sean Bennink
scbennin@mtu.edu

Principal Investigator
Dr. Brad King
lbking@mtu.edu

Chief Engineer
Alex Wright
alwrigh2@mtu.edu

Benefits

BUILDING A SATELLITE ISN'T EASY

- We're Undergrads working on insanely complex projects usually done by large corporations and governments
- There is never a shortage of work and there's always a new hurdle to get over

BUT IF YOU WORK HARD…

- You can see your work end up in Space
- You gain extensive systems engineering training in a rapidly growing field
- You can work at companies/agencies like ones that our alumni have worked at…

Why Us?

Companies

MICHIGAN TECH
AEROSPACE
ENTERPRISE

How Do I Join?

Program Manager
Sean Bennink
scbennin@mtu.edu

Principal Investigator
Dr. Brad King
lbking@mtu.edu

Chief Engineer
Alex Wright
alwrigh2@mtu.edu

Application Process

Joining the Team

MEMBERSHIP REQUIREMENTS

- Must be an **Undergraduate Student** at Michigan Technological University
- Students must have completed **one entire semester at Michigan Tech**
- Students must be enrolled in an **Enterprise Project Work Course**
- Students must be a **U.S. Citizen**

STEP 1

Attend an Information Session

Learn about the Enterprise and the different subteams

STEP 2

Complete the Application Process

Scan/Take a picture of the QR Code!

Applications for Fall 2024 will be due <u>Sunday, Oct. 26th at midnight!</u>

Please fill out the application form apply to our program!

Application Process

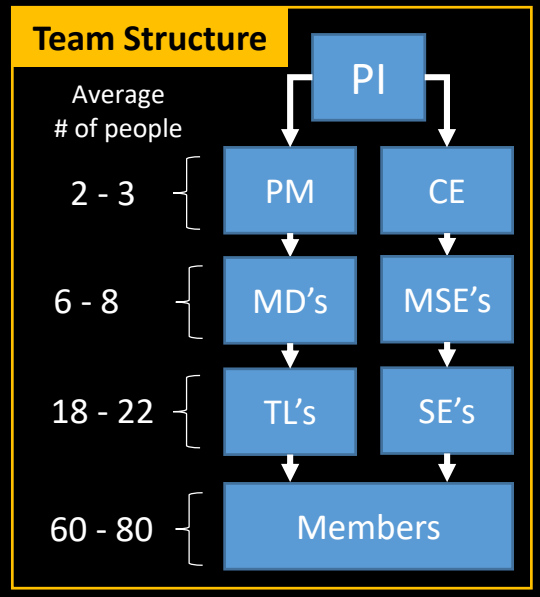
FAQ's

What does the application process look like?

1. **Application Submission**: Submit your resume and fill out the application form
2. **Leadership Review**: Leadership team reviews the above submissions and selects people to interview
3. **Interview Process**: Leadership team interviews potential candidates and ask more in-depth questions of the applicant to gauge team fit
4. **Acceptance/Rejection**: Once leadership review and all interviews are complete, notification emails will be sent out to all applicants. Those who were accepted will be automatically enrolled.

How bureaucratic is the Enterprise?

- We have a well-defined layout, organizational structure, and set projects.
- This structure exists because a satellite is incredibly complex, and everything is interconnected. We are required to keep an extensive body of documentation to prove adherence to design requirements and demonstrate compliance with safety regulations.
- We are modeled very close to an actual aerospace firm. What you do here will echo what is done in the actual aerospace industry.
- Our team has access to controlled information & Technology. We are required to observe U.S. Law and International Regulations.
- Like all companies, we also make a lot of great friends and connections!



FAQ's Cont.

How likely am I to get an aerospace job?

- That depends on how much work you put into the team and how well you differentiate yourself.
- Students who put over 8 hours a week into the enterprise while maintaining good academic standing have a very high chance of getting aerospace/defense internships, co-ops, and jobs. *General* employment rate from our team is ~95%.
- Alumni regularly reach out to us asking for students on the team (that stand out) to work at their company or agency.

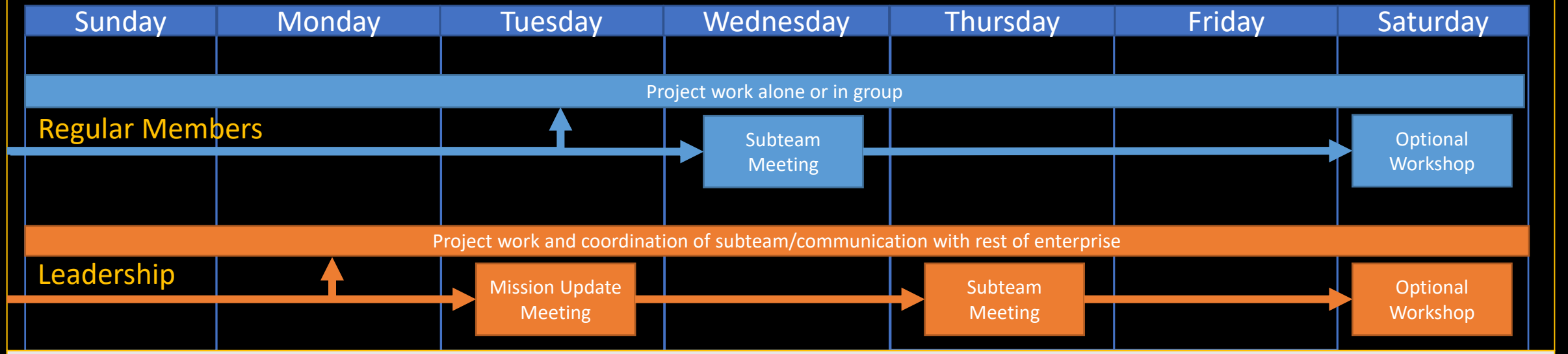
How much work will I do?

- The enterprise is what you make of it. As long as you maintain a BC or higher and put 3-5 hours per week, you'll tread water alright, but won't learn much.
- There is always room for you to pick up more responsibility if you want. Let us know and we'll fill your plate. You get more important work as you gain experience.
- If you somehow still want more work, leadership roles become available every few semesters. These positions usually require 8 or more hours per week and involve leading a group of 3-20 people.
- Members of the leadership team also get to travel to conferences and technical reviews to represent our team and our University in public settings.

Application Process

FAQ's Cont.

What does a regular week look like?



- Note that the above is very generalized and does not include random events like hardware testing, design reviews, and conferences.
- Events not covered here:
  - A monthly all-hands meeting (for everyone)
  - A monthly Aerospace guest lecture/recruitment session (for everyone)
  - A monthly recruitment/outreach event (leadership only)
- Always remember: *the work you put in = the opportunities you get out the team*

Application Process

FAQ's Cont.

How does networking work on the Enterprise?

We strive to be a professional network as well as a training opportunity for students. The aerospace sector is smaller than you think. Your peer could be your interviewer one day (or vice versa), so it's always important to try your hardest and be friendly with the rest of the team; we're in this together after all. Networking and employment on the Aerospace Enterprise is done in the following ways:

- Alumni reach out to Dr. King or leadership asking for names/resumes of current students.
- Hardware/software vendors reach out to students that use their product a lot.
- Certain companies/agencies fly to Tech to give info sessions on why we should work to them.
- Companies/agencies with aerospace alumni target current members with relevant experience at career fair.
- Your older peers sometimes reference you to their future/current place of employment for consideration.
- Networking with industry at aerospace conferences

Where can I learn more about the team?

- LinkedIn Page
- Facebook Page
- Instagram
- Website (apply here)

Follow us please!

More Questions?

Please send any questions to aerospace@mtu.edu. Thank you for considering the Aerospace Enterprise, and we look forward to receiving your application!