LEMS-A3

Lunar Environment monitoring Station for Artemis III

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MSU ACM

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Lunar Environment Monitoring Station for Artemis III

Who am I?

- David Mayo
- dcmayo@moreheadstate.edu
- Space Science Center Research Engineer
- MSU computer science class of 2022
- Working on NASA's LEMS-A3 mission

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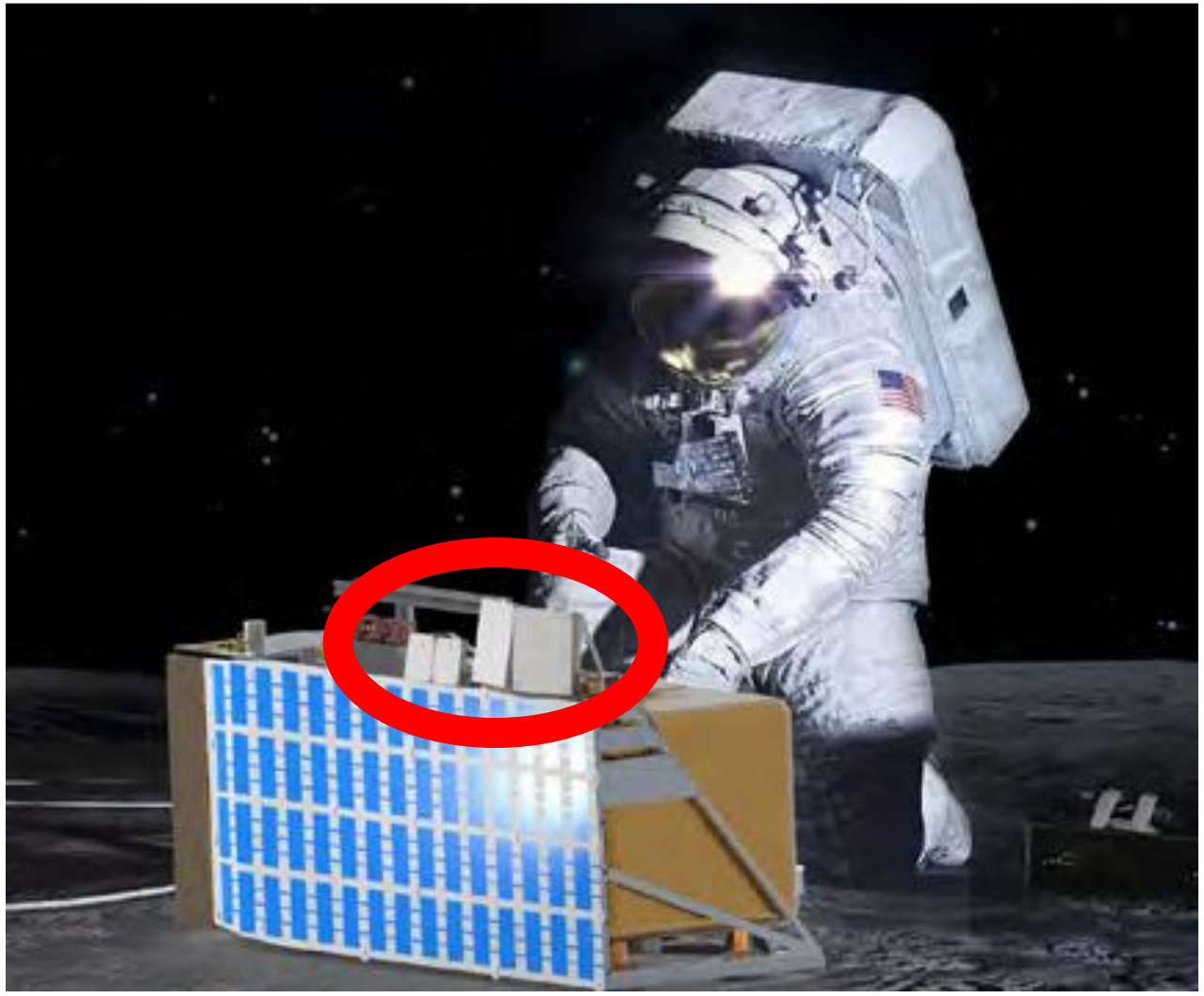
Lunar Environment Monitoring Station for Artemis III

What is LEMS-A3?

The Lunar Environment Monitoring Station for Artemis III (LEMS-A3) is a compact, autonomous, and self-sustaining geophysical instrument package that enables multi-year, in-situ, monitoring of the Moon's seismic environment.

– It is a self-powered, self-managed, and self-communicating flight system.

– It conducts science observations on the lunar surface continuously (day and night).



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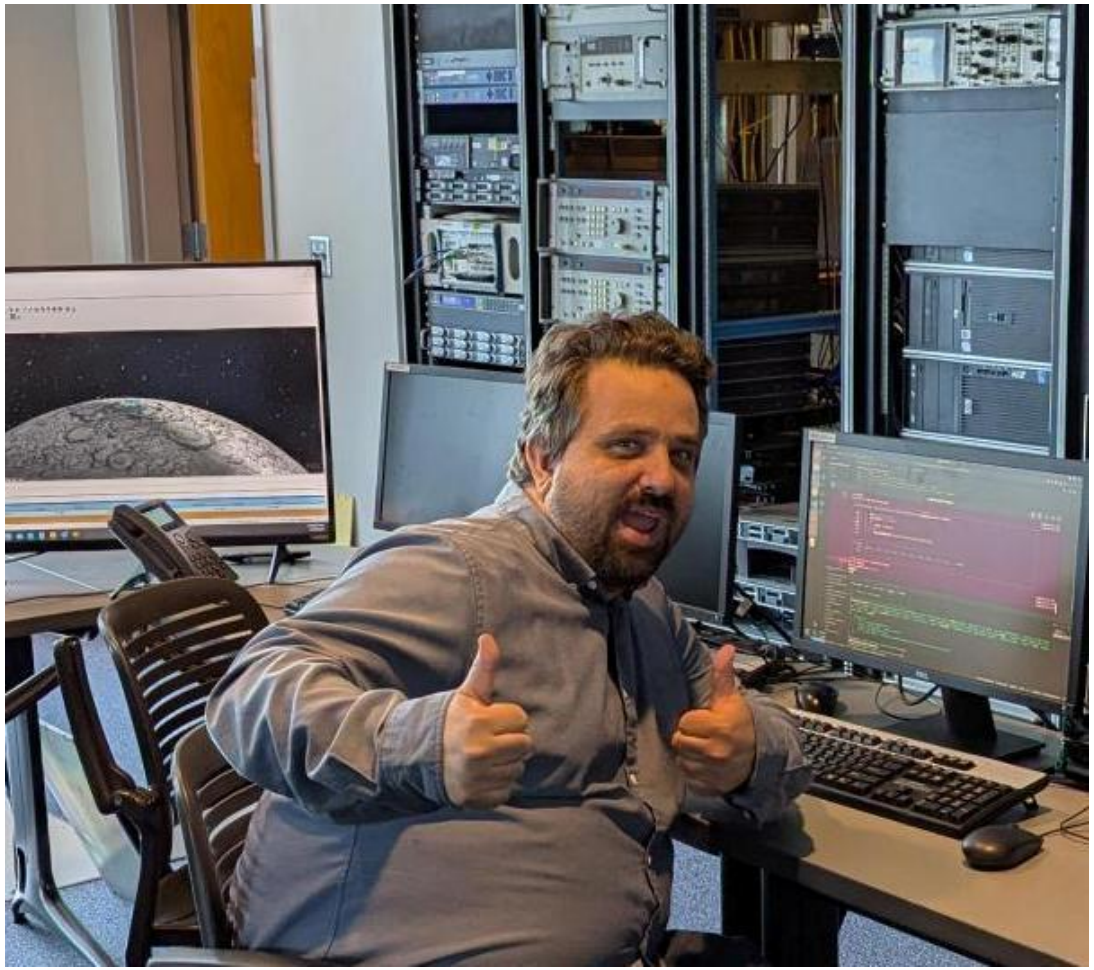
LEMS-A3 Mission Operations Center

Mission Operations Center (MOC)

- This is my job!
- The whole mission is going to be run from MSU
- We need to write a whole bunch of code to make this happen:
  - GUI for monitoring spacecraft during communications sessions
  - File transfer to/from spacecraft
  - File transfer to/from NASA
  - Analyze spacecraft data
  - Analyze potential landing zones on moon
  - Validate spacecraft commands before testing
  - Buncha other stuff!



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I need your help!

I (David Mayo, dcmayo@moreheadstate.edu) can hire intern(s) (unpaid), and potentially a student staff member (paid).

Requirements:

- American citizen (non-negotiable)
- Able to get to the Space Science Center in person
- Can devote at least 5 hours (intern) or at least 10 to 20 hours (staff) a week
- Pretty comfortable with Python

Nice to have:

- Knowledge of Linux
- Knowledge of Pandas/Numpy/MatPlotLib
- Knowledge of git/GitHub
- Probably at least a sophomore (intern) or junior (staff)

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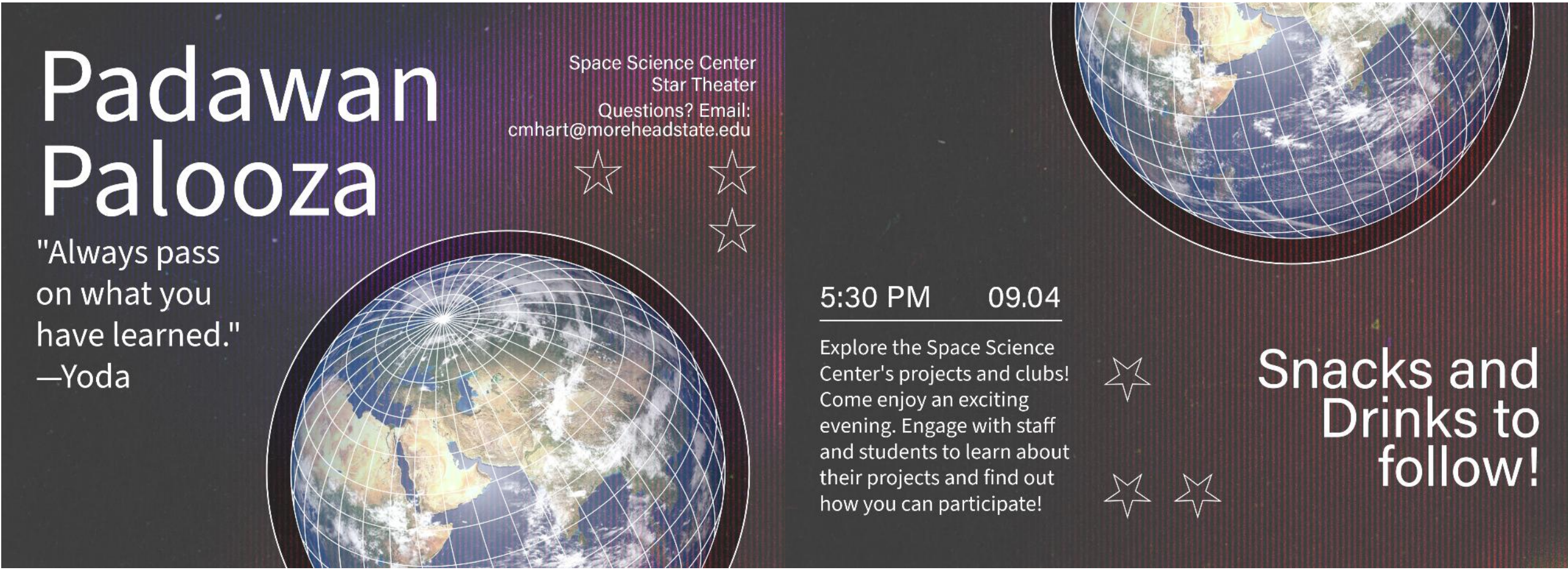
Padawan Palooza!



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Questions?

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This presentation:
https://github.com/davidmayo/acm-2025