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THE MILO SPACE SCIENCE INSTITUTE: A NEW APPROACH TO SPACE SCIENCE.

Abstract

The MILO Space Science Institute ("MILO") is a non-profit research collaborative led by Arizona State University (ASU), with support from Lockheed Martin. MILO was founded to enable more scientists and engineers, including those with little experience, to develop and conduct deep space robotic missions with high science return. MILO's primary goal is building a global consortium of members to self-fund science-focused deep space missions, and developing member's local space science and engineering workforce. MILO believes in (1) building up the local space ecosystems of its members through access to operational missions and hands-on development, and (2) supporting space science activities in its member's respective regions. Through these space science missions, MILO seeks to help strengthen a culture of innovation, educate the workforce, and foster entrepreneurship that encourages new products, jobs, and companies based on innovations in space science.

To stimulate a culture of innovation, MILO works with members to execute an Innovation Challenge centered around a space science objective, culminating in a flight opportunity for mature payload prototypes. Challenges help energize the startup community to create new applications and companies serving relevant commercial markets. It is anticipated that the innovation ecosystem will produce sustainable economic growth within the member's region. The Innovation Challenge model produces prototype payloads demonstrated in a realistic environment at Demo Day.

A challenge consists of four phases:

1. Stakeholder Engagement: identify relevant space science challenge topics. Stakeholders work to guide teams toward relevant solutions.

2. Design: faculty-led teams receive training, go through ideation, and develop concepts for a Pitch event.

3. Prototype: teams go through two design reviews and build functioning prototype payloads to demonstrate capability at Demo Day.

4. Accelerate: teams learn systems integration and entrepreneurial principles. The goal is to mature prototypes into flight ready payloads to ride on a MILO mission or create viable startups.

The MILO Institute enables space exploration through global partnerships by:

- Facilitating knowledge transfer and producing skilled professionals;
- Encouraging global collaboration between university teams, industry, and government;
- Creating new opportunities for all people to engage in a thriving, innovation ecosystem.

The MILO Institute takes a new approach to advancing compelling space science. Through a consortium model, members of the institute participate in space missions, enhance their workforce, and grow their innovation ecosystems. MILO makes space science more affordable and provides a myriad of teaming opportunities.