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NASA FLIGHT OPPORTUNITIES

National Aeronautics and Space Administration

NASA

Welcome to the Community of Practice Webinar Series!

First, a bit of housekeeping…

- Please mute your microphone and turn off your camera
- Today's session will be recorded
- Recordings for this and all future sessions will be posted on the Flight Opportunities website
- Please engage!
  - Use the chat throughout the session to ask questions

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NASA FLIGHT OPPORTUNITIES

National Aeronautics and Space Administration

Welcome to the Community of Practice Webinar Series!

Flight Opportunities hopes these webinars will enable researchers, program staff, and flight providers to connect informally and share information

- Designed to distill and share the most important lessons learned to:
  - Increase the impact of suborbital flight tests
  - Transfer best practices
  - Optimize the experience of current and prospective program participants
- Part of a broad effort to capture, organize, and communicate lessons learned by suborbital researchers
- An opportunity to hear from subject matter experts on best practices for preparing for suborbital flight tests

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NASA FLIGHT OPPORTUNITIES

National Aeronautics and Space Administration

Join us for future Community of Practice webinars!

Subscribe to our newsletter for updates on future webinars!

https://www.nasa.gov/directorates/spacetech/flightopportunities/newsletter

Future webinars

- Webinars are held 1st Wednesday of each month at 10 a.m. PT
- Topics will be announced in the Flight Opportunities newsletter and website
- Session recordings will be posted on the Flight Opportunities website
- Let us know session topics you would like to see covered

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NASA FLIGHT OPPORTUNITIES

National Aeronautics and Space Administration

Today's Speakers

Jose Núñez, Ph.D., P.E.
University Partnerships and SmallSat Capabilities Manager
NASA's Kennedy Space Center

Anh Nguyen, Ph.D.
Small Spacecraft Technology and Flight Opportunities Program Portfolio Integrator
NASA Headquarters

Liam Cheney
Mission Manager
NASA Launch Services Program
NASA's Kennedy Space Center

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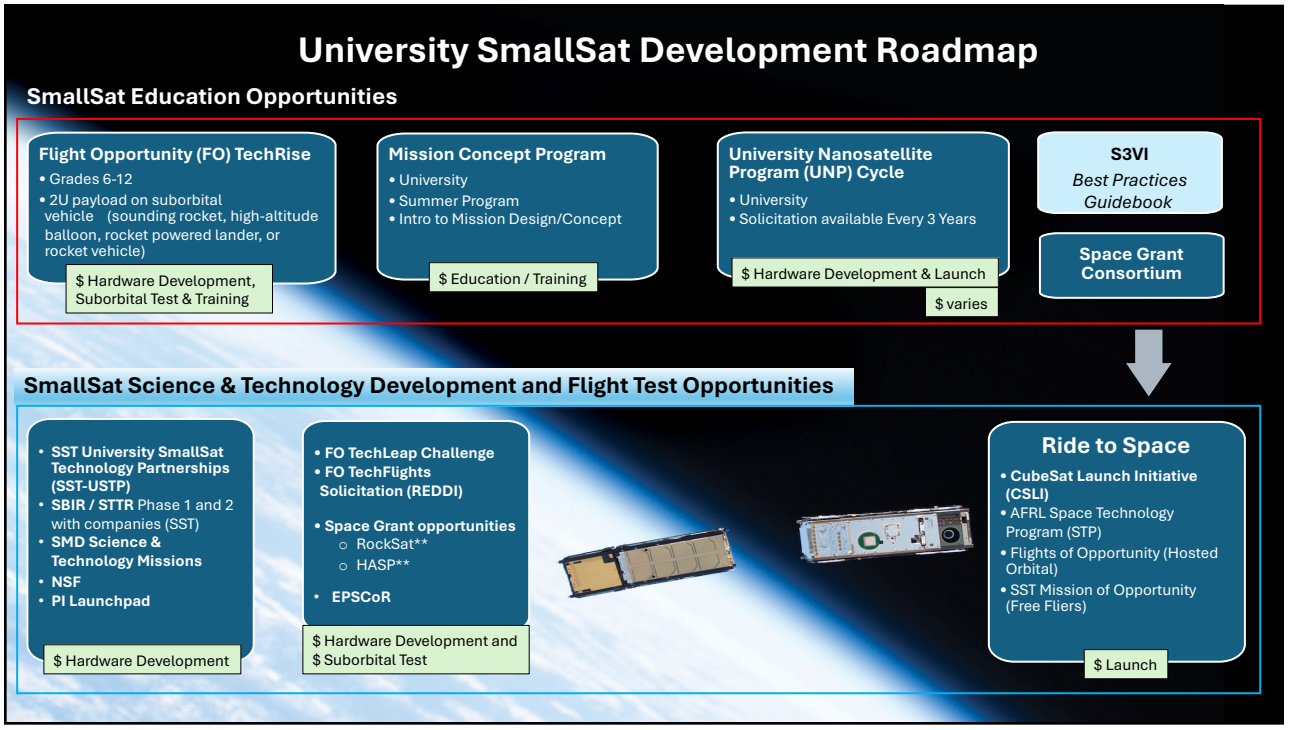

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National Space Grant College and Fellowship Program

Promoting the understanding of and participation of Universities in NASA's aeronautics and space projects by supporting and enhancing science and engineering education, research and public outreach efforts.

- Includes over 1250 affiliates and partners from universities, colleges, industry, museums, science centers, and state and local agencies.

- Every State and U.S. Territory has a Space Grant Consortium, each with unique programs tailored to that State/Territory
  - Includes: Undergraduate & Graduate Fellowships; Faculty Research; Senior Design Projects; NASA Internships; Hands-on experiences including launch vehicle and payload development, engineering challenges, space flight operations, & remote sensing; Ballooning Programs; Small Sat Initiatives.
- Major solicitations are published through NSPIRES (https://nspires.nasaprs.com/external/)
- Funding varies depending on the specific project
- **Website**: https://www.nasa.gov/learning-resources/national-space-grant-college-and-fellowship-project/

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NASA Established Program to Stimulate Competitive Research (EPSCoR)

EPSCoR establishes partnerships with government, higher education and industry that are designed to effect lasting improvements in a state or region's research infrastructure, research and development capacity, and its national research and development competitiveness. Spans six federal agencies.

- 28 eligible jurisdictions (States or regions)
- Provides awards, designed to establish partnerships between government, higher education, and industry
- NASA EPSCoR Research Components:
  - Research Solicitation
  - Research Infrastructure Development (RID)
  - International Space Station (ISS) Flight Opportunity
  - Suborbital Flight Opportunity (SFO)
  - Rapid Response Research (R3)
    - Award amount: $125k
    - Solicitation Opens: Nov/Dec 2024

Website: https://www.nasa.gov/learning-resources/established-program-to-stimulate-competitive-research/

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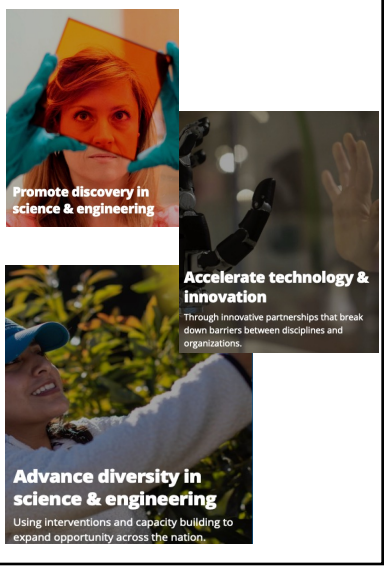
U.S. National Science Foundation (NSF)

NSF offers principal investigators (PIs) resources for Research Grants, Facilities and Equipment, Collaborative Opportunities, Educational and Outreach Programs, Career Development, Data and Resources, and Administrative Support.



- Eligibility criteria varies depending on the program or solicitation.
- Getting involved:
  - PIs are encouraged to contact NSF program officers if they are thinking of proposing small sat missions or concepts to NSF programs.
    - Search for a program officer(s) managing the program most closely associated with the PI's research topic (https://new.nsf.gov/science-matters/nsf-101-5-tips-how-work-nsf-program-officer)
    - Utilize the the NSF Program Suitability & Proposal Concept Tool (ProSPCT) (https://suitability.nsf.gov/s/)
- NSF Example Funded Missions:
  CANVAS, IMPRESS, SWARM-EX, TRYAD, VISORS
- **Website**: www.nsf.gov

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Mission Concept (MC) Summer Program

Helping Schools & Students Get Ready for Space Opportunities

- Joint Air Force / NASA "Bootcamp" for Small Sats
- Eligibility: All U.S. Universities & Colleges
- Solicitation opens every **January** for the subsequent Summer
- # of Awards: 7-8 Universities
  - Approximately three (3) students from each school selected will be paid as an intern
  - Timeline: May thru July
  - Minimum of $40k to selected universities
  - Travel/fees to events, housing and rental car during internship in Albuquerque, PI time, etc.
- Website: https://universitynanosat.org/solicitation/

AFRL Image

Approved for public release; distribution is unlimited. Public Affairs release approval AFRL-2023-3681

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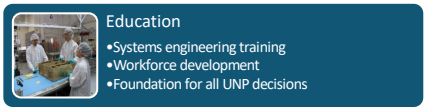
University NanoSatellite Program (UNP)

Mission Statement: To support university students and programs to design, build, launch and operate small satellites to provide education centered on systems engineering principles and practices.

- Multi-year program for universities to design, build, and fly a small satellite of relevance to the DoD
- Eligibility: All U.S. Universities & Colleges
- Solicitation **September** for January 2025 start
- # of Awards: ~10 Universities
  - Student-led teams design and build mission with guidance and reviews from industry and government professionals
  - Timeline: Phase A, Jan 2025 – Jan 2027
  - ~$220k to selected universities
  - Travel/fees to events, hardware, PI time, student time, etc.
- Website: https://universitynanosat.org/solicitation/



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Small Spacecraft Systems Virtual Institute (S3VI)

S3VI facilitates collaboration, information sharing, and innovation among NASA, academia, industry, and other stakeholders to advance space and solar system exploration.

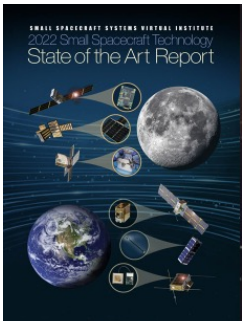
Sharing Knowledge
- SmallSat LEARN Forum
- Community of Practice
- Access to Space Announcements
- S3VI Quarterly Newsletter
- CubeSat 201

Connecting People and Ideas
- Industry Days Webinar Series
- SmallSat Technology Partnerships – Tech Expo
- Cross-Agency Collaboration

Building Tools
- Small Spacecraft Reliability Initiative Knowledge Base Tool
- Small Spacecraft Information Search
- State of the Art Report
- Space Mission Design Tools Collection
- Anomaly Alert Reporting System

Identifying Emerging Technology Opportunities

Promoting Innovative Concepts



Website: www.nasa.gov/smallsat-institute/

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NASA TECHRISE STUDENT CHALLENGE

Provide hands-on payload build and flight test experience to engage students in STEM

- Open to teams of 4 or more students **grades 6-12** from public, private, and charter school students in all U.S. states and territories
- Flying TechRise 3 Summer of 2024
- TechRise 4 open for submissions Aug. 1, 2024, with flights scheduled for summer 2025
- Approx. 60 winning teams each year
- **Winning Teams receive**:
  - $1,500 cash prize
  - 2U flight experiment box
  - Experiment supplies (soldering iron, basic electronics materials, multimeter)
  - Weekly mentorship
  - **Commercial suborbital flight test**
- **1 School Year Challenge Cycle**
  - Aug – Nov (4 mo): Proposal Period
  - Nov – Jan (3 mo): Judging
  - Jan – May (4 mo): Build
  - Jun – Aug: Flight Test
- **Website**: https://www.futureengineers.org/nasatechrise



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NASA TechLeap PRIZE

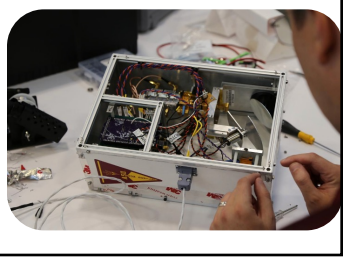
Rapidly identify and develop technologies of significant interest to the agency through a series of challenges

- Open to U.S. citizens and permanent residents including students and faculty at **U.S. universities**.
- Individuals & teams permitted (organizations must be incorporated & operating in U.S.); lead must be U.S. person at least 18 years of age
- Previous challenges have included: Autonomous Observation Challenge No. 1 (2021), Nighttime Precision Landing Challenge No 1 (2022), Universal Payload Interface Challenge (2023)
- Typically 3 winning teams, annually
- **Winning teams have the opportunity to progress through challenge milestones, including:**
  - $200K for Initial design and build
  - $200K during Payload Build Round 1
  - $100K during Payload Build Round 2
  - **Commercial suborbital flight test at no cost**
  - Up to $150K Performance Incentive
- **Website:** https://www.nasatechleap.org/

Schedule

- Challenge timelines target submission open to flight test in less than 12 months





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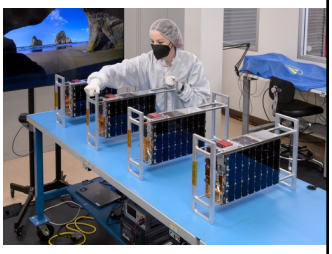
University SmallSat Technology Partnerships

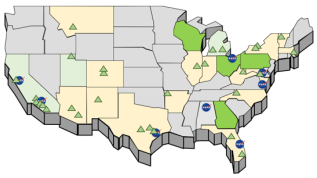
Development of university-based technologies with the potential to advance the small spacecraft industry by facilitating collaborations between accredited U.S. colleges and universities and NASA Centers across the country



- Open to **U.S. accredited universities**
- 6 Solicitations between 2013 and 2023 through SpaceTech-REDDI
- Typically 8 – 10 winning teams each solicitation

Winning teams receive:
- 2-year cooperative agreement
- $225K year 1
- $225K year 2
- 0.5 FTE NASA Civil Servant or JPL Employee
- Up to $30K of procurement funding for NASA partner over 2 years
- Follow-on flight demonstration through NASA's Space Operations Mission Directorate's CubeSat Launch Initiative and STMD's Flight Opportunities program.

Schedule
- <1 mo: Preliminary Proposals Period
- 2 mo: Full Proposal Period
- 1 mo: Selection Period



- Website: www.nasa.gov/smallspacecraft/sst-partnerships/

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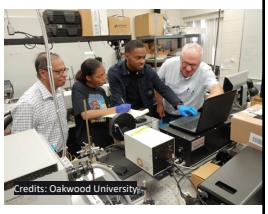
SBIR·STTR America's Seed Fund™ POWERED BY NASA

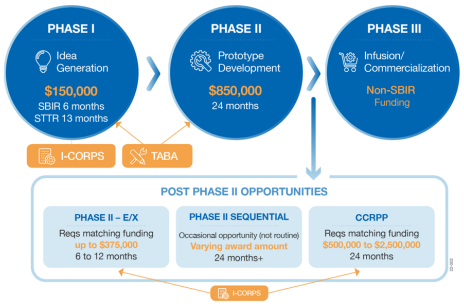
The NASA Small Business Technology Transfer (STTR) program funds collaborative research partnerships between small businesses and research institutions to develop innovative technologies that meet NASA's mission needs.



- Open to U.S. Universities and **Small Businesses** (< 500 employees)
- **Yearly** Solicitations through SAM.gov
- SST participates in all SBIR opportunities

Winning teams receive:
- Funding to advance technology
- Technical and business assistance opportunities
- Connections with NASA personnel

Schedule
- 2 mo: Open solicitation period
- 2 mo: Proposal evaluation
- 1 mo: Selection Period



- Multiple post Phase II opportunities to increase TRL, including testing, flight opportunities, and continued development.
- **Website**: www.nasa.gov/sbir_sttr/

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September 2024 I Liam Cheney
www.nasa.gov

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NASA LAUNCH SERVICES PROGRAM
CSLI
CUBESAT LAUNCH INITIATIVE
National Aeronautics and Space Administration
NASA
NASA
CubeSat Launch Initiative (CSLI)
Liam Cheney - Liam.J.Cheney@nasa.gov
Launch Services Program
NASA-KSC
https://www.nasa.gov/kennedy/launch-services-program/cubesat-launch-initiative/
CSLI
CubeSat Launch Initiative
Scan the QR code
for more information about
NASA's CubeSat Launch Initiative

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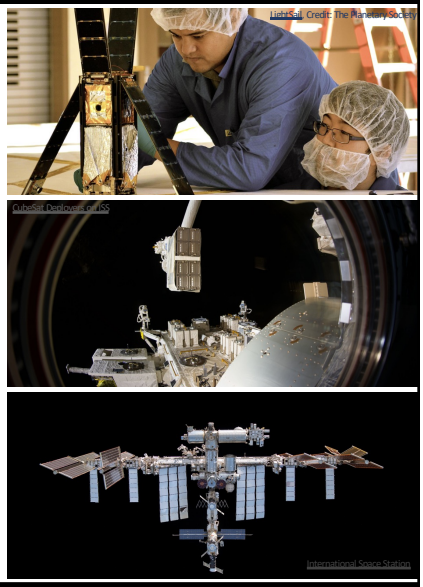
CubeSat Launch Initiative

Mission

Provide launch opportunities to U.S. CubeSat developers, thereby giving them a pathway to conduct research in the areas of science, exploration, technology development, and education.



NASA Launch Services Program https://www.nasa.gov/kennedy/launch-services-program/cubesat-launch-initiative/

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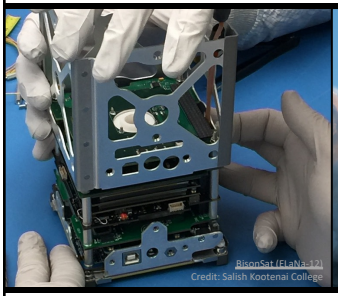
How CSLI works…



SC Team Designs/Builds/Tests their Spacecraft

NASA CSLI Procures and Funds* the Launch Service

SC Team Operates their Spacecraft

* Projects that are NASA funded and/or sponsored may be asked to provide matching funding if requirements exceed the baselined budget for integration and launch.

NASA Launch Services Program https://www.nasa.gov/kennedy/launch-services-program/cubesat-launch-initiative/

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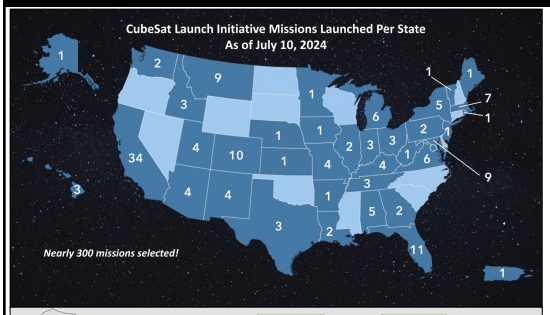
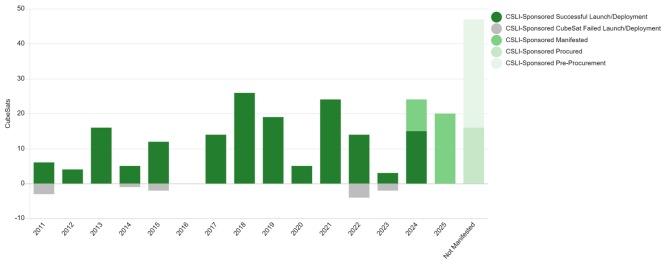
CSLI Progress





Nearly 300 CubeSat Projects from 100+ organizations selected from 42 states, Washington DC, and Puerto Rico

Successfully launched 162 CubeSats to date!

NASA Launch Services Program

Data current as of 07/19/2024

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Recent CSLI Launches (2024)

ELaNa 57, Transporter 10, Falcon 9, 3/4/2024

- M3, Missouri University of Science and Technology

ELaNa 51, Transporter 10, Falcon 9, 3/21/2024

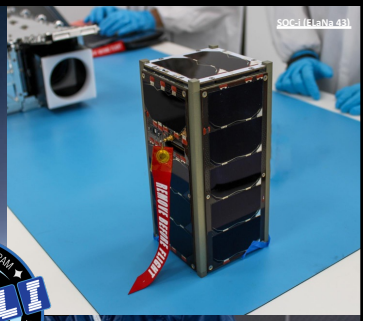
- Big Red Sat-1 University of Nebraska at Lincoln – First from Nebraska
- BurstCube, NASA Goddard Space Flight Center
- HyTI, University of Hawaii at Manoa
- SNoOPI, Purdue University

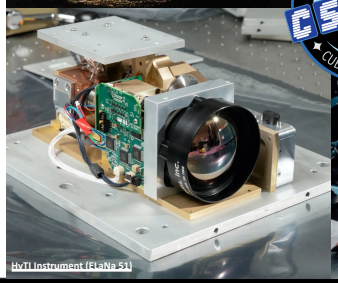
ELaNa 43, VCLS Demo 2, Firefly Alpha ,7/3/2024

- CatSat, University of Arizona
- KUbeSat-1, University of Kansas - First from Kansas
- MESAT-1, University of Maine - First From Maine
- R5-S2-2.0, NASA Johnson Space Center
- R5-S4, NASA Johnson Space Center
- Serenity, Teachers in Space
- SOC-i, University of Washington
- TechEdSat-11, NASA Ames Research Center

ELaNa 48, Ariane VI First Flight, 7/9/2024

- CURIE (Qty. 2), University of California at Berkely





NASA Launch Services Program

https://www.nasa.gov/kennedy/launch-services-program/cubesat-launch-initiative/

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How to join CSLI through the AoPO…

Develop your Idea/Experiment

1. With the assistance of a faculty advisor, professor and/or mentor, develop a scientific experiment/demonstration that is in line with NASA's strategic goals and objectives

Build Your Team

2. If you are an educational institution, your team must be composed of students and be student run and student led. Faculty member(s) and professional mentor(s) are to serve as advisors. Clearly define all roles and responsibilities and maintain redundancy for all roles

Secure Funding

3. Secure all funding required for your mission. CSLI submittals must show evidence that all funding is secured prior to submittal

Merit/Feasibility Reviews

4. Conduct a ***structured*** (if possible competitive) merit and feasibility review, with independent reviewers not affiliated with your project. List the names and qualifications of all your reviewers, record action items and how you addressed each one.

Apply!

5. **Announcement of Partnership Opportunity (AOPO)** is released around the first week of August every Year. Applications are due around Thanksgiving.
Follow all Directions in the Application!

CSLI CubeSat Launch Initiative
Scan the QR code for more information about NASA's CubeSat Launch Initiative

NASA Launch Services Program https://www.nasa.gov/kennedy/launch-services-program/cubesat-launch-initiative/

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CSLI Eligibility in the AoPO

The CSLI Announcement of Partnership Opportunity is divided into two Appendices

A

Educational Institutions and Non-Profits
Eligibility under Appendix A is limited to U.S. Accredited Educational Organizations and U.S. Non-Profits. Entire project must be led, built and managed by students, with designated student project managers. Faculty member(s) and professional mentor(s) are to serve as advisors.

B

Internal NASA Projects
Eligibility limited to NASA Centers and/or JPL for the purpose of early career workforce development. One or more team mentor(s) consisting of senior NASA employee(s) is encouraged to promote knowledge transfer

CSLI CubeSat Launch Initiative
Scan the QR code for more information about NASA's CubeSat Launch Initiative

NASA Launch Services Program https://www.nasa.gov/kennedy/launch-services-program/cubesat-launch-initiative/

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CubeSat Launch Initiative (CSLI) Contact Information

CSLI
CubeSat Launch Initiative

Scan the QR code
for more information about
NASA's CubeSat Launch Initiative

Liam Cheney
Liam.J.Cheney@nasa.gov
Mission Manager
NASA Launch Services Program

Creg Raffington
Creg.O.Raffington@nasa.gov
Mission Manager
NASA Launch Services Program

News about how to apply through the AoPO will be posted here

https://www.nasa.gov/kennedy/launch-services-program/cubesat-launch-initiative/

NASA Launch Services Program

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TechPort

The TechPort Funding Opportunities page provides a consolidated list of NASA opportunities for NASA, academia, industry, and individuals to seek NASA funding for aerospace technology development.

You may filter for opportunities by your role or organization type, amount of funding needed, and technology maturity.

https://techport.nasa.gov/opportunities

Review STMD's integrated ranked shortfall list at

https://nasa.gov/civilspaceshortfalls

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NASA FLIGHT OPPORTUNITIES

National Aeronautics and Space Administration

Thank you!

Flight Opportunities website:
http://nasa.gov/flightopportunities

Contact us:
NASA-FlightOpportunities@mail.nasa.gov

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