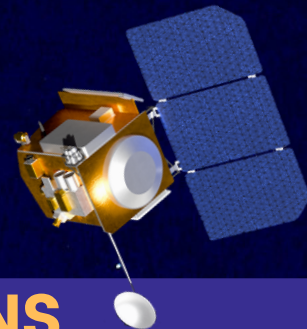


# NASA'S HUMAN LANDER CHALLENGE



## 2027 THEME: LUNAR COMMUNICATIONS

Help us address one of the most critical needs for sustained lunar exploration: **reliable communications**. As NASA prepares for a robust Moon Base and a long-term human presence on the Moon under its Artemis Program, future lunar operations will require resilient communications systems that connect astronauts, rovers, habitats, landers, relay assets, and Earth. For the 2027 Human Lander Challenge (HuLC), NASA invites collegiate student teams to develop innovative, systems-level solutions to understand, establish, and optimize lunar communications systems for landers and surface operations that can be implemented within 3-5 years. Potential solution areas include, but are not limited to, the following subtopics categorized by hardware, software, and architecture:

## 2027 SUBTOPICS AND FOCUS AREAS

### HARDWARE

#### Space-Rated Wireless Networks and Electronics

Develop resilient wireless networking and communications technologies that enable seamless connectivity between astronauts, rovers, habitats, and landers in the harsh lunar environment.

#### Antenna Signal Propagation, Modeling, and Environmental Mitigation

Design antenna systems and predictive models that improve communication reliability in the lunar environment by overcoming challenges posed by terrain, regolith, dust, and thermal extremes.

### SOFTWARE

#### Data Efficiency and Link Optimization

Develop next-generation data compression, modulation, and communications architectures that maximize bandwidth efficiency, prioritize mission-critical information, and improve the reliability of Earth-Moon communications.

#### Network Management and Scheduling

Design an intelligent network management solution that dynamically allocates limited ground station antennas and spacecraft radios, prioritizes mission-critical and emergency traffic, and efficiently supports dozens of cislunar users.

### ARCHITECTURE

#### Surface Comm System Architecture

Design a scalable lunar surface communications network that uses relay nodes, redundant communication paths, and resilient mission operations capable of supporting an expanding lunar presence.

#### Orbital Comm System Architecture

Design a scalable lunar relay satellite architecture that provides continuous or near-continuous communications coverage, connects lunar surface assets with Earth, and integrates orbital and surface networks into a resilient communications system that minimizes single points of failure.

Full challenge details can be found on the [HuLC Website](#).

***Innovate, collaborate, and leave your mark on the future of spaceflight!***

## ABOUT HULC

Through HuLC, college students contribute to the advancement of NASA's Human Landing System (HLS) technologies, concepts, and approaches. Teams address annually changing topics with proposed solutions to real HLS challenges.

### ELIGIBILITY

HuLC is open to student teams from accredited U.S.-based community colleges, colleges, or universities. See the HuLC Website for full Eligibility Requirements.

### PRIZES

**Phase 1:** Up to **12 teams earn \$9,000 each** and advance to Phase 2.  
**Phase 2:** 1st Place (**\$10,000**); 2nd (**\$5,000**); 3rd (**\$3,000**)

### CONTACT US



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NASA's Human Lander Challenge is administered by the National Institute of Aerospace.

### DATES AND DEADLINES

#### PHASE 1

**Oct. 20, 2026:** Deadline to Submit Non-Binding Notice of Intent (NOI)

**Nov. 16, 2026:** Q&A Session

**Mar. 4, 2027:** Deadline to Submit a Proposal

**Apr. 7, 2027:** Up to 12 Finalist Teams Selected to Advance to Phase 2

#### PHASE 2

**Jun. 1, 2027:** Deadline to Submit a Technical Paper

**Jun. 17, 2027:** Deadline to Submit Presentation & Digital Poster

**Jun. 21-24, 2027:** 2027 HuLC Forum in Huntsville, AL

