

Strategies for Enabling Lunar Exploration: A NextGen Perspective

Ryan N. Watkins¹, Kirby Runyon², Tess Caswell³, Lillian Ostrach⁴, Erica Jawin³, Heather Meyer⁵, Julie Mitchell⁵, and the NextGen Group

¹Planetary Science Institute, ²Johns Hopkins Applied Physics Laboratory, ³Brown University, ⁴USGS, ⁵Arizona State University



What is NextGen?

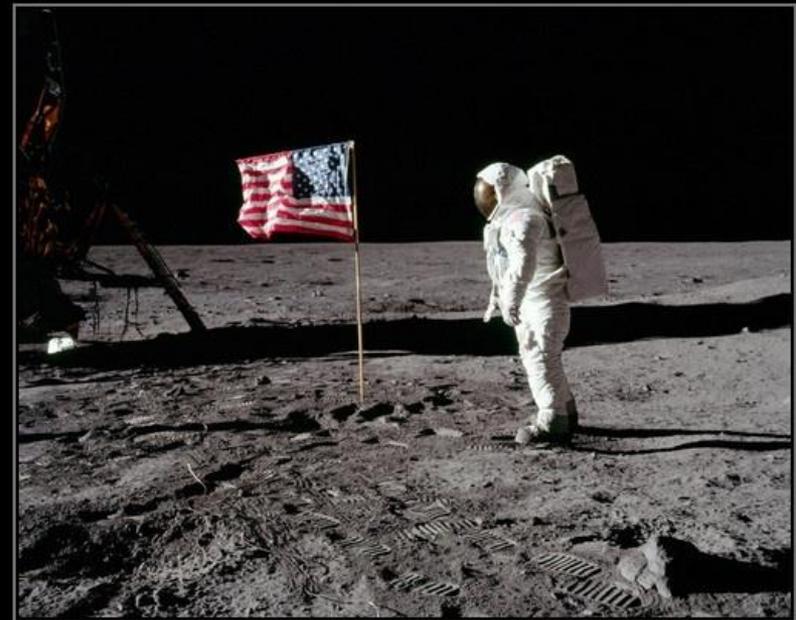
Next Generation Lunar Scientists and Engineers
(NGLSE or NextGen)

(n.) Assemblage of graduate students, post-docs, and early career scientists who have a passion and vision for lunar science and exploration and who are the future lunar workforce for NASA, academia, and industry.



Purpose of NextGen

- Provide guidance and networking opportunities to early career lunar students and professionals
- Foster collaboration with other groups within the lunar community.
- Keep the Moon at the forefront of discussion for future Solar System exploration



THE MOON LANDING

QUESTION IT AND BUZZ ALDRIN IS LEGALLY
ALLOWED TO PUNCH YOU IN THE FACE

Why Should NextGen Have a Role in Enabling Lunar Exploration?

- We are the future lunar science workforce
- New perspectives; new innovative solutions
- Experience with the integration of science and engineering
- Active in advocacy efforts
- Need preparation in training and leading the next generation
- Passion, drive, and vision

Critical Strategies for Enabling Future Lunar Exploration

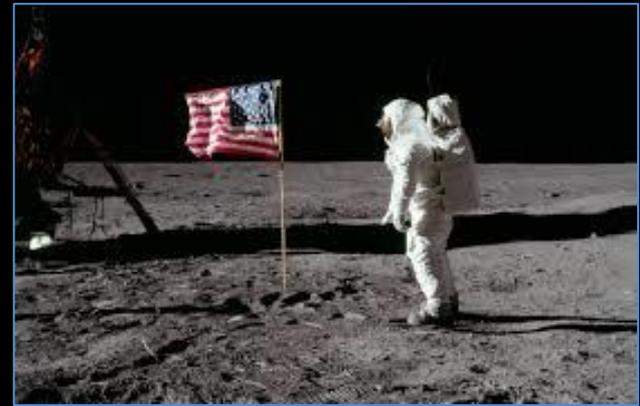
1. Defining Exploration Priorities
2. Integrating Science and Engineering
3. Field Training and Analog Studies
4. (Financial) Support for Exploration Science Research
5. Commercial Partnerships



Defining Exploration Strategies

Why?

- NextGen provides fresh perspectives on:
 - destinations
 - scientific objectives
 - exploration strategies



How can NextGen be involved?

- Include NextGen on SSERVI teams and strategic action teams

Integrating Science and Engineering

Why?

Scientists and engineers must be brought together in a way that optimizes the planning and implementation of future missions. JPL's Team X and APL's Ace Runs exemplify this synergy.

How can NextGen be involved?

- Provided opportunities for cross-training
 - with programs like JPL's Planetary Science Summer Seminar



Field Training and Analog Studies

Why?

Developing techniques and tools for planetary field geology is vital to human exploration. Several capability gaps still exist, and NextGen members are already active in filling these gaps.

How can NextGen be involved?

- Continued involvement in astronaut field geology and spacesuit testing.
- NextGen involvement will preserve and extend institutional knowledge beyond the current knowledge base



Support for Exploration Science Research

Why?

Few grant programs exist to provide support *solely* for exploration science-focused research.

How can NextGen be involved?

- Funding for exploration science investigations would provide opportunities for early career (and senior researchers) who are not active mission team members to carry out exploration research studies.
- Targeted exploration funding for early career researchers would ensure NextGen have the resources necessary to contribute fresh perspectives and innovative methods to exploration science questions.

Commercial Partnerships

Why?

Partnering with commercial companies promotes science/engineering integration, which enables continued lunar surface exploration at lower costs and with higher scientific return.

How can NextGen be involved?

- Continue to build relationships with private industries
 - build on our relationship with Moon Express
 - Lunar8 members are part of NextGen



LUNAR8



Google
LUNAR

XPRIZE®

The NextGen group wants a clear and active role in enabling future lunar exploration



NextGen/LEAG Dinner

Tonight!
6:30 PM

Houlihan's
8240 Gateway Overlook
Elkridge, MD 21075

All are welcome!

