

HARSH G. BHUNDIYA

University of Maryland, College Park
Department of Aerospace Engineering
4298 Campus Drive,
College Park, MD 20742

Email: bhundiya@umd.edu
Website: <https://sparc.umd.edu>

ACADEMIC APPOINTMENTS:

University of Maryland, College Park 2026 – present
Assistant Professor
Department of Astronautical Engineering

University of Southern California 2025 – 2026
Postdoctoral Research Fellow
Department of Astronautical Engineering

EDUCATION:

Massachusetts Institute of Technology 2025
Ph.D., Department of Aeronautics and Astronautics
Thesis: [Rapid In-Space Assembly and Manufacturing of Large Reticulated Truss Structures](#)
Advisor: Prof. Zachary C. Cordero
Committee: Prof. David Miller, Prof. Jack Wisdom, Prof. Shane Ross
Readers: Prof. Olivier de Weck, Prof. Sergio Pellegrino, Dr. Michael Marshall

California Institute of Technology 2020
B.S., Mechanical Engineering, Minor: Aerospace Engineering

AWARDS AND HONORS:

- NASA Space Technology Graduate Research Fellow, **2023-2025**
- MIT School of Engineering Communication Fellow, **2022-2025**
- MathWorks Engineering Fellow, **2022-2023**
- Tau Beta Pi Fellow, **2022-2023**

JOURNAL PUBLICATIONS:

Superscript * denotes the corresponding author.

- J1. **H.G. Bhundiya**^{*}, Z.C. Cordero, and M.A. Marshall, "Passive Gravity Gradient Capture during In-Space Assembly and Manufacturing," *AIAA Journal* (*accepted*).
- J2. **H.G. Bhundiya**, M.A. Marshall, and Z.C. Cordero^{*}, "[Fabrication Time Diagrams for In-Space Manufacturing of Large Reticulated Structures](#)," *Journal of Manufacturing Science and Engineering*, 146(12), 2024.
- J3. J.Z. Zhang, **H.G. Bhundiya**, K.D. Overby, F. Royer, J.H. Lang, Z.C. Cordero^{*}, W.F. Moulder, S.K. Jeon, and M.J. Silver, "[Electrostatically Actuated X-Band Mesh Reflector with Bend-Formed Support Structure](#)," *Journal of Spacecraft and Rockets*, 61(6), 2024.
- J4. **H.G. Bhundiya**, Z.C. Cordero^{*}, "[Bend-Forming: A CNC Deformation Process for Fabricating 3D Wireframe Structures](#)," *Additive Manufacturing Letters*, 6, 2023.
- J5. **H.G. Bhundiya**, F. Royer, and Z. Cordero^{*}, "[Engineering Framework for Assessing Materials and Processes for In-Space Manufacturing](#)," *Journal of Materials Engineering and Performance*, 31(2), 2022.

CONFERENCE PRECEEDINGS:

- C1. **H.G. Bhundiya**, A. Soval, K. Albee, “Role and Task Assignment for Multi-Agent Construction and Inspection of Discrete Structures,” International Conference on Space Robotics (ISPARO) (Cologne, Germany), Nov 2026 (*under review*).
- C2. **H.G. Bhundiya**, Z.C. Cordero, M.A. Marshall, “[Passive Gravity Gradient Capture for In-Space Assembly and Manufacturing](#),” AIAA/AAS Astrodynamics Specialist Conference (Boston, MA), Aug 2025.
- C3. **H.G. Bhundiya**, Z.C. Cordero, “[Radially Expanding Euler Paths for Assembly of Truss Structures](#),” International Symposium on Space Technology and Science (Tokushima, Japan), Jul 2025.
- C4. **H.G. Bhundiya**, Z.C. Cordero, M.A. Marshall, S. Mohan, D. Sternberg, and K. Lo, “[Ground Testing of Spacecraft Attitude Dynamics During In-Space Assembly and Manufacturing](#),” AIAA Scitech Forum (Orlando, FL), Jan 2025.
- C5. **H.G. Bhundiya**, J.Z. Zhang, K.D. Overby, F. Royer, J.H. Lang, Z.C. Cordero, W.F. Moulder, S.K. Jeon, and M.J. Silver, “[Electrostatically Actuated X-Band Mesh Reflector with Bend-Formed Support Structure](#),” AIAA Scitech Forum (National Harbor, MD), Jan 2023.
- C6. F. Royer, J.Z. Zhang, K.D. Overby, E.Y. Zhu, **H.G. Bhundiya**, J.H. Lang, and Z.C. Cordero, “[Electrostatically Actuated Thin-Shell Space Structures](#),” AIAA Scitech Forum (National Harbor, MD), Jan 2023.
- C7. (*Awarded 2022 AIAA Spacecraft Structures Best Paper*) **H.G. Bhundiya**, F. Royer, and Z. Cordero, “[Compressive Behavior of Isogrid Columns Fabricated with Bend-Forming](#),” AIAA SciTech Forum (San Diego, CA), Jan 2022.
- C8. **H.G. Bhundiya**, M. Hunt, and B. Drolen, “[Measurement of the Effective Radial Thermal Conductivities of 18650 and 26650 Lithium-Ion Battery Cells](#),” NASA Thermal and Fluid Analysis Workshop (Galveston, TX), Aug 2018.

INTELLECTUAL PROPERTY:

- P1. **H.G. Bhundiya**, Z.C. Cordero, “Computer Numerical Control (CNC) Deformation Process for Forming 3D Wireframe Structures.” US Patent Application No. 18/147,674, Dec 2022.

INVITED TALKS:

- T1. ASME Aerospace Structures, Structural Dynamics, and Materials Conference, “Towards Rapid and Efficient Assembly and Manufacturing of Large Structures in Space,” June 2026.
- T2. University of Illinois Urbana-Champaign Workshop on In-Space Manufacturing of Resilient Structures, “High-Rate Manufacturing of Large Precision Space Structures,” May 2026.
- T3. Johns Hopkins University Applied Physics Laboratory Lunar Surface Innovation Consortium, “High-Level Planning for Multi-Agent Construction of Large Space Structures,” Virtual, Dec 2025.
- T4. The Aerospace Corporation, “Rapid In-Space Assembly and Manufacturing of Next-Generation Space Structures,” Los Angeles, CA, Dec 2025.
- T5. California Institute of Technology, ME10 Class Guest Lecture, “Constructing Large Structures in Space,” Pasadena, CA, Nov 2025
- T6. NASA Langley Research Center, “Rapid In-Space Assembly and Manufacturing of Next-Generation Space Structures,” Hampton, VA, Aug 2025.
- T7. Johns Hopkins University Applied Physics Laboratory, “Rapid In-Space Assembly and Manufacturing of Next-Generation Space Structures,” Laurel, MD, Jul 2025.
- T8. NASA Goddard Spaceflight Center, “Rapid In-Space Assembly and Manufacturing of Next-Generation Space Structures,” Greenbelt, MD, Jul 2025.
- T9. AIAA Emerging Spacecraft Structures Technology Workshop, “Passive Gravity Gradient Capture for In-Space Assembly and Manufacturing,” Boulder, CO, Jun 2025.

- T10. MIT Small Satellite Collaborative Seminar, “Fabrication Time Diagrams for In-Space Manufacturing of Reticulated Structures,” Boston, MA. Oct 2024.
- T11. AIAA Emerging Spacecraft Structures Technology Workshop, “Fabrication Time Diagrams for In-Space Manufacturing of Reticulated Structures,” Boston, MA. Jul 2024.
- T12. Indian Institute of Technology Gandhinagar, “In-Space Manufacturing of Large Electrostatically-Actuated Mesh Reflectors,” Gujarat, India, Jan 2024.
- T13. AIAA Emerging Spacecraft Structures Technology Workshop, “Spacecraft Dynamics during In-Space Manufacturing,” Stanford, CA, Aug 2023.
- T14. U.S. National Congress of Computational Mechanics, “Bend-Forming: A CNC Deformation Process for Fabricating 3D Wireframe Structures,” Albuquerque, NM, Jul 2023.
- T15. AFRL Space Vehicles Directorate, “In-Space Manufacturing of Large Electrostatically-Actuated Mesh Reflectors,” Albuquerque, NM, Jul 2023.

MENTORING AND ADVISING:

Masters Researchers:

- | | | |
|--------------------|-----------|---------------------------|
| • Avi Soval | USC Astro | Spring 2026 – Summer 2026 |
| • Arad Firouzkouhi | USC Astro | Fall 2025 – Spring 2026 |

Undergraduate Researchers:

- | | | |
|------------------|---------------|---------------------------|
| • Dave Rodriguez | USC CS | Spring 2026 |
| • Atharva Shah | MIT AeroAstro | Fall 2024 – Summer 2025 |
| • Elizabeth Zhu | MIT AeroAstro | Summer 2022 – Fall 2022 |
| • Jack Ansley | MIT AeroAstro | Spring 2022 – Summer 2022 |
| • Brennan Hoppa | MIT AeroAstro | Spring 2022 – Summer 2022 |

PROFESSIONAL SERVICE:

- **Technical Manuscript Reviewer:** Acta Astronautica, Journal of Spacecraft and Rockets, Journal of Aerospace Information Systems, AIAA Scitech Forum
- **Participant:** Keck Institute of Space Studies Workshop, “Hybrid Space-Ground Observatories: Revolutionizing the Search for Earth-like Exoplanets,” Mar 9-13, 2026
- **Co-Organizer:** IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) Workshop, “Space Exploration and Sustained Operations Beyond Earth,” Sep 27, 2026
- **Member:** American Institute of Aeronautics and Astronautics (AIAA) Spacecraft Structures Technical Committee
 - Deputy Technical Discipline Chair (2026-2027)

TEACHING EXPERIENCE:

University of Southern California

Spring 2026 Future Faculty Teaching Institute (*Participant*)

California Institute of Technology

Department of Mechanical Engineering

2019 ME 11 Thermodynamics, Fluid Dynamics (*Teaching Assistant*)

2019-2020 ME 12 Statics, Dynamics, Mechanics of Materials (*Teaching Assistant*)

OUTREACH ACTIVITIES:

- **Mentor and Judge**, Consortium for Space Mobility and ISAM Capabilities. Mentored student teams for C3 Capstone Challenge (2025-26).

- **Educational Blogger**, maintains an educational blog titled “Harsh World of Mechanics” focused on everyday applications of mechanics of materials and structures (2021-present)
- **Lecturer**, Cambridge Science Festival (2023). Gave a lecture titled “Manufacturing Large Structures in Space” at the Cambridge Science Festival hosted by the MIT Museum.
- **Instructor**, MIT Educational Studies Program (2022-2024). Taught a biannual class on “Geometry and Beauty of Soap Bubbles” to >100 middle school and high school students.