

CONTACT INFORMATION	Sarah S. Sutton Lunar and Planetary Laboratory University of Arizona Charles P. Sonett Space Sciences Building 1541 E. University Boulevard Tucson, AZ 85721 USA	Office: (520) 626-0759 Email: ssutton@lpl.arizona.edu Email: artmathgirl@arizona.edu ORCID: 0000-0003-4558-9712
RESEARCH INTERESTS	Surface processes on Mars, Earth, the Moon, Europa, Io, and asteroids, planetary volcanism, geomorphology, digital terrain modeling, geologic mapping, remote sensing, field geology, stereophotogrammetry, change detection of active planetary surfaces, image processing, optical instrumentation and calibration, lidar, digital signal processing.	
EDUCATION	PhD, Planetary Sciences, University of Arizona MS, Planetary Sciences, University of Arizona BS, Mathematics, Applied Math/Numerical Analysis, University of Arizona BFA, <i>Cum Laude</i> , Studio Art/Painting, University of Arizona	2022 2019 2008 1994
EMPLOYMENT	Photogrammetry Program Lead, R&D Engineer/Scientist Lunar and Planetary Laboratory, University of Arizona Research Scientist, Lunar and Planetary Laboratory, University of Arizona Intern, NASA Goddard Space Flight Center, Greenbelt, MD Data Scientist, Lunar and Planetary Laboratory, University of Arizona Staff Technician, Lunar and Planetary Laboratory, University of Arizona Undergraduate Student Research Assistant, University of Arizona NASA Undergraduate Space Grant Intern, University of Arizona	2023–present 2022–2023 May–July, 2019 2014–2022 2008–2014 2006–2008 2005–2006
AWARDS	Geological Society of America and Meteoritical Society, Pellas-Ryder Award University of Arizona, College of Science Galileo Circle Scholarship University of Arizona, Graduate & Professional Student Council Travel Grant NASA Group Achievement Award, OSIRIS-REx Mission Team University of Arizona, University Fellows Professional Development Grant University of Arizona, Curson Education Plus Fund Award National Science Foundation, Graduate Research Fellowship Lunar and Planetary Institute, Career Development Award University of Arizona, University Fellows Award NASA Group Achievement Award, LRO Extended Science Mission Team NASA Group Achievement Award, MRO Comet Siding Spring Observing Team Lunar and Planetary Laboratory Appointed Personnel Excellence Award NASA RHG Exceptional Achievement for Science, LRO Science Mission Team University of Arizona, Staff Advisory Council, Emily Krauz Staff Scholarship NASA Group Achievement Award, MRO HiRISE Science Team NASA Group Achievement Award, LRO Mission Operations Team NASA Group Achievement Award, LRO Exploration University of Arizona, Dean's List with Distinction	2022 2020 2018 2017 2017 2016 2016–2021 2016 2015–2016 2015 2015 2015 2013 2012 2011 2011 2011 Spring, 2008
MISSION INVOLVEMENT	<i>OSIRIS-Apophis Explorer</i> , (OSIRIS-APEX; NASA), Collaborator APEX Science Operations <i>Mars Reconnaissance Orbiter</i> (MRO, NASA), HiRISE Co-Investigator HiRISE Science Operations	2025–present 2023–present 2023–present 2006–present

	<i>Io Volcano Observer</i> (NASA Discovery Phase A Selection), Co-Investigator	2020
	<i>Europa Clipper</i> (NASA), Europa Imaging System (EIS), Professional Affiliate	2018–present
	<i>Origins, Spectral Interpretation, Resource Identification, Security, Regolith Explorer</i> (OSIRIS-REx; NASA), OCAMS, Collaborator	2015–2019
	<i>Mars Trace Gas Orbiter</i> (European Space Agency), CaSSIS, Science Operations	2010–present
	<i>Lunar Reconnaissance Orbiter</i> (NASA), LROC, Science Operations	2008–present
GRANTS	<i>Topographic modeling to simulate multi-scale roughness for Europa Clipper Investigations and Science</i> , Task Lead/Manager	
	Working Models Risk-Reduction for Europa, Cycle A, Task Lead Sarah Sutton	2025–2027
	<i>Springtime North Polar Avalanches on Mars: A Nearly-Decadal Survey with MRO</i> , Co-Investigator	
	NASA Mars Data Analysis Program, PI Margaret Landis	2024–2027
	<i>Archiving and distribution of high-quality Context Camera (CTX) digital terrain models for the Mars research community</i> , Co-Investigator	
	NASA Planetary Data Archiving and Restoration, PI Matthew Chojnacki	2023–2026
	<i>Characterizing Global Sand Flux for Martian Bedform Construction Times and Erosion Rates</i>	
	NASA Mars Data Analysis Program, PI Matthew Chojnacki	2015–2017
	<i>Ejecta and Melt Interactions During Impact Ejecta Emplacement</i>	
	NASA Lunar Data Analysis Program, PI Veronica Bray	2015
	<i>Recurring Slope Lineae (RSL) on Mars</i>	
	NASA Mars Data Analysis Program, PI Alfred McEwen	2013–2015
	<i>Advanced Change Detection Studies of Martian Dunes</i>	
	NASA Mars Data Analysis Program, PI Nathan Bridges	2012–2013
	<i>Linking Visible and Radar Stratigraphy in the Martian Polar Deposits</i>	
	NASA Mars Data Analysis Program, PI Patrick Russell	2009–2012
MANUSCRIPTS SUBMITTED/ IN PREP	Thomas, N., M. Almeida, O. Mohktari, A. Pommerol, M. Read, B. Geiger, L. Riu, M.R. Patel, S. Byrne, S. Sutton . Millefeuille—the layering of the Martian atmosphere observed in forward scattering geometry. In Press in <i>Science Advances</i> , 2025.	
REFEREED JOURNAL ARTICLES	Hon, O., L.M. Carter, S.S. Sutton . Evidence of Combined Erosive and Constructional Formation Mechanisms for a Lunar Sinuous Rille. <i>Journal of Geophysical Research–Planets</i> , 130:6, 2025. doi:10.1029/2024JE008536	
	Scully, J.E.C., I. Belcagem, R.A. Parekh, C. Grima, C.B. Phillips, and 10 others including S.S. Sutton . Potential landing sites: A comprehensive reconnaissance assessment of the Europa Clipper trajectory. <i>The Planetary Science Journal</i> , 6:142, 2025. doi:10.3847/PSJ/add469	
	Hamilton, C. W., A.S. McEwen, L. Keszthelyi, L.M. Carter, and 30 others including S.S. Sutton . Comparing NASA Discovery and New Frontiers Class Mission Concepts for the Io Volcano Observer (IVO). <i>The Planetary Science Journal</i> , 6:134, 2025. doi:10.3847/PSJ/adcab0	
	Turtle, E. P., A.S. McEwen, G.W. Patterson, C.M. Ernst, C.M. Elder and 51 others including S.S. Sutton . The Europa Imaging System (EIS) investigation. <i>Space Science Reviews</i> , 220:91, 2024. doi:10.1007/s11214-024-01115-9	
	Sutton, S.S. , J.A. Richardson, P.W. Whelley, S.P. Scheidt, C.W. Hamilton. Degradation of the 2014–2015 Holuhraun vent-proximal edifice in Iceland. <i>Bulletin of Volcanology</i> , 86:4, 2024. doi:10.1007/s00445-024-01709-9	
	Landis, M.E., C.M. Dundas, A.S. McEwen, I.J. Daubar, P.O. Hayne, S. Byrne, S.S. Sutton , V.G. Rangarajan, L.L. Tornabene, A. Britton, K.E. Herkenhoff. New, dated small impacts on the South Polar Layered Deposits (SPLD), Mars, and implications for shallow subsurface properties. <i>Icarus</i> , 419, 115977, 2024. doi:10.1016/j.icarus.2024.115977	

- McEwen, A.S., S. Byrne, C. Hansen, I.J., Daubar, **S.S. Sutton**, C.M. Dundas and 23 others. The High-Resolution Imaging Science Experiment (HiRISE) in the MRO Extended Science Phases (2009–2022) *Icarus*, Special Issue: MRO: 16 Years at Mars, 419, 115977, 2024. doi:10.1016/j.icarus.2023.115795
- Landis, M.E., P.J. Acharya, N.R. Alsaeed, C. Andres, P. Becerra, and 17 others, including **S.S. Sutton**. Polar Science Results from Mars Reconnaissance Orbiter: Multiwavelength, multiyear insights *Icarus*, Special Issue: MRO: 16 Years at Mars, 419, 115977, 2024. doi:10.1016/j.icarus.2023.115794
- Perry, J.E., R. Heyd, M. Read, L.L. Tornabene, **S. S. Sutton**, S. Byrne, N. Thomas, A. Fennema, A. McEwen, K. Berry. Geometric Processing of TGO CaSSIS Observations. *Planetary and Space Sciences*, 223, 2022. doi:10.1016/j.pss.2022.105581
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- Sutton, S.S.**, M. Chojnacki, A.S. McEwen, R.L. Kirk, C.M. Dundas, E.I. Schaefer, S.J. Conway, S. Diniega, G. Portyankina, M.E. Landis, N.F. Baugh, R. Heyd, S. Byrne, L.L. Tornabene, L. Ojha, C.W. Hamilton. Revealing active Mars with HiRISE digital terrain models. *Remote Sensing*, 14(10), 2403, 2022. doi:10.3390/rs14102403
- Sutton, S.S.**, C.W. Hamilton, V. Cataldo, D.A. Williams, J.E. Bleacher. Sinuous channels east of Olympus Mons, Mars: Implications for volcanic, hydrological, and tectonic processes. *Icarus*, 374, 114798, 2022. doi:10.1016/j.icarus.2021.114798
- McEwen, A.S., E.I. Schaefer, C.M. Dundas, **S.S. Sutton**, L.K. Tamppari, M. Chojnacki. Mars: Abundant recurring slope lineae (RSL) following the planet-encircling dust event (PEDE) of 2018. *Journal of Geophysical Research–Planets*, 126, e2020JE006575, 2021. doi:10.1029/2020JE006575
- Becerra, P., M.M. Sori, N. Thomas, A. Pommerol, **S.S. Sutton**, S. Tulyakov, E. Simioni, G. Cremonese. Timescales of the climate record in the south polar ice cap of Mars. *Geophysical Research Letters*, 46, 2019. doi:10.1029/2019GL083588
- Schaefer, E.I., A.S. McEwen, **S.S. Sutton**. A case study of recurring slope lineae (RSL) at Tivat crater: Implications for RSL origins. *Icarus*, 317, 621–648, 2019. doi:10.1016/j.icarus.2018.07.014
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- Dundas, C.M., A.M. Bramson, L. Ojha, J.J. Wray, M.T. Mellon, S. Byrne, A.S. McEwen, N.E. Putzig, D. Viola, **S.S. Sutton**, E. Clark, J.W. Holt. Exposed subsurface ice sheets in the Martian mid-latitudes *Science*, 359:6372, 2018. doi:10.1126/science.aao1619
- Tornabene, L.L., F.P. Seelos, A. Pommerol, N. Thomas, C.M. Caudill, P. Becerra, J.C. Bridges, S. Byrne, and 16 others, including **S.S. Sutton**. Image Simulation and Assessment of the Colour and Spatial Capabilities of the Colour and Stereo Surface Imaging System (CaSSIS)

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Stopar, J.D., M.S. Robinson, O.S. Barnouin, A.S. McEwen, E.J. Speyerer, M.R. Henriksen, **S.S. Sutton**. Relative depths of simple craters and the nature of the lunar regolith. *Icarus*, 298, 34–48, 2017. doi:[10.1016/j.icarus.2017.05.022](https://doi.org/10.1016/j.icarus.2017.05.022)

Becerra, P., S. Byrne, M.M. Sori, **S.S. Sutton**, K.E. Herkenhoff. Stratigraphy of the North Polar Layered Deposits of Mars from High-Resolution Topography. *Journal of Geophysical Research: Planets*, 121:8, 1445–1471, 2016. doi:[10.1002/2015JE004992](https://doi.org/10.1002/2015JE004992)

Chojnacki, M., A.S. McEwen, C. Dundas, L. Ojha, A. Urso, **S.S. Sutton**. Geologic context of recurring slope lineae in Melas and Coprates Chasmata, Mars. *Journal of Geophysical Research*, 121:7, 1204–1231, 2016. doi:[10.1002/2015JE004991](https://doi.org/10.1002/2015JE004991)

Diot, X., M.R. El-Maarry, L. Guallini, F. Schlunegger, K.P. Norton, N. Thomas, **S.S. Sutton**, P. M. Grindrod. An ice-rich flow origin for the banded terrain in Hellas basin, Mars. *Journal of Geophysical Research*, 120:12, 2258–2276, 2015. doi:[10.1002/2015JE004956](https://doi.org/10.1002/2015JE004956)

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Ojha, L., A. S. McEwen, C. M. Dundas, S. Byrne, **S. Mattson**, J. J. Wray, M. Masse, and E. I. Schaefer. HiRISE observations of Recurring Slope Lineae (RSL) during southern summer on Mars. *Icarus*, 231, 365–376, 2014. doi:[10.1016/j.icarus.2013.12.021](https://doi.org/10.1016/j.icarus.2013.12.021)

McEwen, A. S., C. M. Dundas, **S. Mattson**, A. D. Toigo, L. Ojha, J. J. Wray, M. Chojnacki, S. Byrne, S. L. Murchie, and N. Thomas. Recurring slope lineae in equatorial regions of Mars. *Nature Geoscience*, 7, 53–58, 2014. doi:[10.1038/ngeo2014](https://doi.org/10.1038/ngeo2014)

Caudill, C. M., L. L. Tornabene, A. S. McEwen, S. Byrne, L. Ojha, and **S. Mattson**. Layered MegaBlocks in the central uplifts of impact craters. *Icarus*, 221, 710–720, 2012. doi:[10.1016/j.icarus.2012.08.033](https://doi.org/10.1016/j.icarus.2012.08.033)

Tornabene, L. L., G. R. Osinski, A. S. McEwen, J. M. Boyce, V. J. Bray, C. M. Caudill, J. A. Grant, C. W. Hamilton, **S. Mattson**, and P. J. Mouginis-Mark. Widespread crater-related pitted materials on Mars: Further evidence for the role of target volatiles during the impact process. *Icarus*, 220, 348–368, 2012. doi:[10.1016/j.icarus.2012.05.022](https://doi.org/10.1016/j.icarus.2012.05.022)

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Bridges, N.T., M.C. Bourke, P.E. Geissler, M.E. Banks, C. Colon, S. Diniega, M.P. Golombek, C.J. Hansen, **S. Mattson**, A.S. McEwen, M.T. Mellon, N. Stantzios, B.J. Thomson. Planet-wide sand motion on Mars. *Geology*, 40, 31–34, 2012. doi:[10.1130/G32373.1](https://doi.org/10.1130/G32373.1)

McEwen, A.S., L. Ojha, C.M. Dundas, **S. Mattson**, S. Byrne, J.J. Wray, S.C. Cull, S.L. Murchie, N. Thomas, V.C. Gulick. Seasonal Flows on Warm Martian Slopes. *Science*, 333, 740–743, 2011. doi:[10.1126/science.1204816](https://doi.org/10.1126/science.1204816)

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- McEwen, A.S., and 69 others including **S. Mattson**. The High Resolution Imaging Science Experiment (HiRISE) during MRO's Primary Science Phase (PSP). *Icarus*, 205, 2–37, 2010. doi:[10.1029/2005JE002605](https://doi.org/10.1029/2005JE002605)
- Milazzo, M.P., L.P. Keszthelyi, W.L. Jaeger, M. Rosiek, **S. Mattson**, C. Verba, R.A. Beyer, P.E. Geissler, and A.S. McEwen. Discovery of columnar jointing on Mars. *Geology*, 37, 171–174, 2009. doi:[10.1130/G25187A.1](https://doi.org/10.1130/G25187A.1)
- BOOK
CHAPTERS **Sutton, S. S.**, A.K. Boyd, R.L. Kirk, D. Cook, J.W. Backer, A. Fennema, R. Heyd, A.S. McEwen, S.D. Mirchandani. Correcting spacecraft jitter in HiRISE images. in *Planetary Remote Sensing and Mapping*, B. Wu, K. Di, J. Oberst, and I. Karachevtseva (Eds.), Taylor & Francis Group/CRC Press, London, Chapter 8, pp. 91–106, ISBN: 978-1-138-58415-0, 2018.
- DATASETS **Sutton, S. S.**, J.A. Richardson, P. Whelley, S.P. Scheidt, C.W. Hamilton. Repeat surveys of the topography of the main vent of the 2014–2015 eruption at Holuhraun, Iceland: Merged LiDAR and UAS point clouds from 2015, 2016, 2018, and 2019. University of Arizona Research Data Repository, 2023. doi:[10.25422/azu.data.19680372.v1](https://doi.org/10.25422/azu.data.19680372.v1)
- Whelley, P. L., **S. Sutton**, J.A. Richardson, L. Gallant, C. Hamilton, Á. Höskuldsson, D.H. Needham, S. Byrne, A. Huff, A. De Wet. NASA GIFT Iceland Highlands: 2015-2019 Baugur LiDAR: U.S. Geological Survey data release, 2023. doi:[10.5066/P9VQPE9W](https://doi.org/10.5066/P9VQPE9W)
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- CONFERENCE
PRESENTATIONS Whelley, P.L., J.A. Richardson, **S.S. Sutton**, S.P. Scheidt, A. Matiella Novak, M. Thorpe. The Morphology and Chemical Alteration of Planetary Analog Vents, Fagradalsfjall Iceland. *AGU*, 2025.
- Byrne, S., G. Shore, M.E. Landis, P.S. Russell, **S.S. Sutton**, K.A. Akers, M.J. Wolff. Stressful Times at the North Pole of Mars. *EPSC-DPS*, Abstract #1063, 2025.
- Belcagem, I., J.E.C. Scully, R.A. Parekh, C.B. Phillips, C. Grima, and 10 others including **S.S. Sutton**. Jupiter's icy moons: where we are, and where Europa Clipper and Juice can take us. *EGU General Assembly*, Abstract #EGU25-18691, 2025.
- Elalaoui-Pinedo, D.E., **S.S. Sutton**, C. Okubo, S. Byrne. Investigating enigmatic pits in the North Polar Layered Deposits of Mars. *Lunar and Planetary Science Conference LVI*, Abstract #2486, 2025.
- Scully, J.E.C., I. Belgacem, R. Parekh, C. Grima, C.B. Phillips, K.L. Craft, G.C. Collins, C. Detelich, E.J. Leonard, I. Mishra, G. W. Patterson, L. M. Prockter, A.M. Stickle, **S.S. Sutton**, D.Y. Wyrick, C.M. Elder, A.S. McEwen, C.M. O'Shea, J. E. Turner, and the Europa Clipper Reconnaissance Focus Group. Potential landing sites: A comprehensive reconnaissance assessment of the Europa Clipper trajectory. *Lunar and Planetary Science Conference LVI*, Abstract #1705, 2025.

- Sutton, S.S.**, K. Akers, N.M. Bardabelias, N.F. Baugh, V.J. Bray, S. Byrne, M. Chojnacki, I.J. Daubar, A. Fennema, R. Heyd, G. McArthur, A.S. McEwen, V.G. Rangarajan, C. Schaller, L.L. Tornabene. Mind the gap: HiRISE data processing to accommodate the loss of CCD RED4. *Lunar and Planetary Science Conference LVI*, Abstract #2463, 2025.
- Scully, J.E.C., I. Belcagem, R.A. Parekh, C. Grima, C.B. Phillips, and 10 others including **S.S. Sutton**. Reconnaissance of potential landing sites by Europa Clipper. *AGU24* Washington, D.C., 2024.
- Landis, M.E., S. Byrne, I.J. Daubar, C.M. Dundas, P.O. Hayne, K.E. Herkenhoff, A.S. McEwen, V.G. Rangarajan, P.S. Russell, G.K. Shore, **S. Sutton**, L.L. Tornabene, A.X. Wilcoski. “Polar”opposites: Distinct recent activity at Mars’ polar ice deposits suggests divergent histories. *Tenth International Conference on Mars*, Abstract #3196, 2024.
- Thomas, N., M. Almeida, A. Pommerol, M. Read, B. Geiger, M.R. Patel, S. Byrne, **S. Sutton**. CaSSIS observations of atmospheric forward scattering from limb pointings. *Tenth International Conference on Mars*, Abstract #3354, 2024.
- Belcagem, I., J.E.C. Scully, R.A. Parekh, and 13 others including **S.S. Sutton**. Potential landing sites to be surveyed by Europa Clipper. *European Planetary Science Congress, 17*, EPSC2024-132, 2024. doi:10.5194/epsc2024-132
- Shore, G.K., M.E. Landis, S. Byrne, P.O. Hayne, **S.S. Sutton**, A.X. Wilcoski. Variability of Ice Lenses in North Polar Layered Deposits Craters on Mars. *8th International Conference on Mars Polar Science and Exploration*, 8-12 July, Whitehorse, Yukon, Canada, 2024.
- Turtle, E.P., A.S. McEwen, C.M. Ernst and 37 others including **S. Sutton**. Europa Imaging System (EIS) Characterization of Geological Processes in Europa’s Ice Shell and the Potential for Exchange with the Interior Ocean. *Astrobiology Science Conference*, 2024.
- Byrne, S., M.E. Landis, P.S. Russell, G. Shore, **S.S. Sutton**, and the HiRISE Team. Icy cliffs are stressed out and falling apart. *55th Lunar and Planetary Science Conference*, Abstract #2491, The Woodlands, Texas, 2024.
- Turtle, E.P., A.S. McEwen, G. Patterson and 36 others including **S.S. Sutton**. The Europa Imaging System (EIS): High-Resolution, 3-D Insight into Europa’s Geology, Ice Shell, and Potential for Current Activity. *AGU Fall Meeting 2023*, Poster No. 3266, id. P41G-3266.
- Sutton, S.S.**, A.S. McEwen, O. Jones, S. Byrne, M. Chojnacki, R.L. Kirk. Slope and Roughness Maps from HiRISE Digital Terrain Models. *6th Planetary Data Workshop*, held 26–28 June, 2023 in Flagstaff, Talk.
- Hon, O.R., L.M. Carter, **S.S. Sutton**. Investigating the Morphology of a Lunar Sinuous Rille with Remote Sensing and Terrestrial Analogs. *54th Lunar and Planetary Science Conference*, Abstract #2791, The Woodlands, Texas, 2023.
- Turtle, E. P., A.S. McEwen, G.W. Patterson and 36 others, including **S.S. Sutton** The Europa Imaging System (EIS) Flight Instruments in Spacecraft and Environmental Testing for Europa Clipper. *54th Lunar and Planetary Science Conference*, Abstract #2806, The Woodlands, Texas, 2023.
- Sutton, S.S.**, M. Chojnacki, A.S. McEwen, R.L. Kirk, C.M. Dundas, E.I. Schaefer, S.J. Conway, S. Diniega, G. Portyankina, M.E. Landis, N.F. Baugh, R. Heyd, S. Byrne, L.L. Tornabene, L. Ojha, C.W. Hamilton, Revealing active Mars with HiRISE digital terrain models and orthoimages. *53rd Lunar and Planetary Science Conference*, Abstract #2509, The Woodlands, Texas, Poster, 2022.

- Sutton, S. S.**, C. W. Hamilton, V. Cataldo, D. A. Williams, J. E. Bleacher, Channels and fossae east of Olympus Mons as indicators of Late Amazonian volcanic, hydrological, and tectonic processes. *53rd Lunar and Planetary Science Conference*, Abstract #1226, 7–11 March 2022, The Woodlands, Texas, Poster.
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(Note: Name change from Mattson to Sutton January, 2015)

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MENTORING	Space Grant Mentor	2024–2025
	Dora Elalaoui-Pinedo, University of Arizona undergraduate, "Investigating the Evolution of Enigmatic Pits in the North Polar Layered Deposits (NPLD) of Mars"	
	Space Grant Mentor	2023–2024
	Dora Elalaoui-Pinedo, University of Arizona undergraduate, "Mapping Enigmatic Pits in the North Polar Layered Deposits of Mars"	
	University Fellows Mentor	2015–2016
	Leocadie Haguma, University of Arizona Honors College undergraduate	
	Photogrammetry Supervisor	2011–present
	Trained/mentored >20 undergraduate student employees in photogrammetric processing using planetary stereo image data	
WORKSHOPS GIVEN	LPL Planetary Photogrammetry Workshop	April 15–18, 2025
	LPL Planetary Photogrammetry Workshop	April 2–5, 2024
	LPL Planetary Photogrammetry Workshop	February 13–16, 2024
	LPL Planetary Photogrammetry Workshop	September 12–15, 2023
FIELDWORK	Iceland	
	NASA GIFT Southwest Iceland Field Team (SWIFT), Iceland	June 23–July 2, 2025
	NASA GIFT Iceland Highlands	July 24–August 10, 2019
	NASA Goddard Instrument Field Team (GIFT) Iceland Highlands	July 28–August 14, 2018
	Field Workshop on Flood Lava Eruptions, Laki and Holuhraun	July 12–August 8, 2016
	Field Workshop on Active Lava–Water Interactions	August 20–28, 2015
	Field Workshop on Rauðhólar and the Laki Lava Flow	August 1–16, 2015

PROFESSIONAL SERVICE	NASA ROSES grant programs Panelist and External Reviewer	multiple years
	University of Arizona Undergraduate Research Experiences Committee	2022–2023
	Mapping and Planetary Spatial Infrastructure Team, Steering Committee	2015–2021
	NASA PGG-USGS Cartography Program Review Panelist	2014–2015
	Reviewer for <i>Nature Communications</i> , <i>Journal of Geophysical Research–Planets</i> , <i>Photogrammetric Engineering & Remote Sensing</i> , <i>Planetary and Space Science</i> , <i>Icarus</i> , <i>Space Science Reviews</i> , <i>Chinese Optics Letters</i> , <i>Earth and Space Science</i> .	
PROFESSIONAL MEMBERSHIPS	American Geophysical Union (AGU)	
	Geological Society of America (GSA)	