

## AKSHAY MEHRA

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## EDUCATION

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| 2019 | Princeton University, Princeton, NJ<br>Ph.D., Geosciences<br>Thesis: Reconstructions of Ediacaran putative biomineralizers via a novel serial grinding and imaging technique<br>Advisor(s): Adam Maloof |
| 2011 | Cornell University, Ithaca, NY<br>B.Arch.<br>Thesis: Reclaiming the old Union Carbide factory site in Bhopal, India<br>Advisor(s): Vincent Mulcahy and Mary Woods                                       |

## PROFESSIONAL EXPERIENCE

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| 2023 →      | Assistant Professor<br>University of Washington, Seattle, WA |
| 2019 - 2022 | Neukom Postdoctoral Fellow<br>Dartmouth College, Hanover, NH |
| 2011 - 2013 | Researcher<br>Situ Studio, Brooklyn, NY                      |

## PUBLICATIONS

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### IN PREPARATION

13. **Mehra, A.**, Busch, J., Strauss, J.V. 202x. A three-dimensional record of sea-level fall associated with the Hirnantian glaciation.
12. **Mehra, A.**, Eddy, M.P., Pamukcu, A., DesOrmeau, J.W., Maloof, A.C., and Schoene, B. 202x. Geochemical and textural evidence for efficient crystal settling in a large, silicic magma chamber.
11. **Mehra, A.**, Keller, B., Tosca, N.J., McLennan, S.M., Zhang, T., Sperling, E., Strauss, J.V. 202x. Orogenic controls of the global sedimentary archive, *Geology*.

**IN REVIEW**

10. Howes, B., **Mehra, A.**, Geyman, E., Wilcots, J., Manzuk, R., Deutsch, C., Maloof, A.C., 202x. The where, when, and how of ooid formation: what ooids tell us about ancient seawater chemistry.

**PUBLISHED OR IN PRESS**

9. Roest-Ellis, S., Richardson, J.A., Phillips, B.L., **Mehra, A.**, Webb, S.M., Cohen, P.A., Strauss, J.V., Tosca, N.J. 2023. Tonian carbonates record phosphate-rich shallow seas, *Geochemistry, Geophysics, Geosystems*, [HTTPS://DOI.ORG/10.1029/2023GC010974](https://doi.org/10.1029/2023GC010974).
8. **Mehra, A.**, Howes, B., Manzuk, R., Samuels, B., and Maloof, A.C. 2022. A novel technique for producing three-dimensional data using serial sectioning and semi-automatic image classification, *Microscopy and Microanalysis*, [HTTPS://DOI.ORG/10.1017/S1431927622012442](https://doi.org/10.1017/S1431927622012442).
7. Manzuk, R.A., Singh, D., **Mehra, A.**, Geyman, C., Edmondson, S., Maloof, A.C. 2022. A high-resolution multispectral macro-imager for geology and paleontology, *GSA Today*, [HTTPS://DOI.ORG/10.1130/GSATG533A.1](https://doi.org/10.1130/GSATG533A.1).
6. Crockford, P.W., **Mehra, A.**, Domack, E., and Hoffman, P.F. 2021. An occurrence of radially symmetric sedimentary structures in the basal Ediacaran cap dolostone (Keilberg Member) of the Otavi Group, *Communications of the Geological Survey of Namibia*.
5. **Mehra, A.**, Keller, B., Zhang, T., Tosca, N.J., McLennan, S.M., SGP Authors, Strauss, J.V. 2021. Curation and analysis of global sedimentary geochemical data to inform Earth history, *GSA Today*, [HTTPS://DOI.ORG/10.1130/GSATG484A.1](https://doi.org/10.1130/GSATG484A.1).
4. Howes, B., **Mehra, A.**, Maloof, A.C. 2021. Three-dimensional morphometry of ooids in oolites: a new tool for more accurate and precise paleoenvironmental interpretation, *Journal of Geophysical Research: Earth Surface*, [HTTPS://DOI.ORG/10.1029/2020JF005601](https://doi.org/10.1029/2020JF005601).
3. **Mehra, A.**, Watters, W.A., Grotzinger, J.P., Maloof, A.C. 2020. Three-dimensional reconstructions of the putative metazoan Namapoikia show that it was a microbial construction, *Proceedings of the National Academy of Sciences of the United States of America*, [HTTPS://DOI.ORG/DOI:10.1073/PNAS.2009129117](https://doi.org/doi:10.1073/pnas.2009129117).
2. MacLennan, S.A., Eddy, M.P., Mersch, A., **Mehra, A.**, Crockford, P., Maloof, A.C., Southworth, S., Schoene, B. 2019. Geologic evidence for an icehouse Earth prior to the Sturtian global glaciation, *Science Advances*, [HTTPS://DOI.ORG/DOI:10.1126/SCIADV.AAY6647](https://doi.org/doi:10.1126/sciadv.aay6647).

1. **Mehra, A.** and Maloof, A.C. 2018. A multiscale approach reveals that Cloudina aggregates are detritus and not in situ reef constructions, *Proceedings of the National Academy of Sciences of the United States of America*, [HTTPS://DOI.ORG/DOI:10.1073/PNAS.1719911115](https://doi.org/doi:10.1073/pnas.1719911115).

## CONFERENCE PROCEEDINGS (SINCE 2020)

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- 2023 **Mehra, A.**, Shah, S.H., Huang, Y., Kreiss, K., Powell, M., Setia, A., Dailey, D., Iverson, V., Data governance for water governance: Reflecting on the useability and accessibility of NASA's GRACE data product suite. World Water Week, August 2023.
- 2023 Larson Tevis, A.A.<sup>†</sup> and **Mehra, A.**, Accretionary growth? Exploring the evolution of the literature on stromatolite morphogenesis. GSA Cordilleran Section Meeting, May 2023.
- 2022 **Mehra, A.**, Busch, J., Faehnrich, K., Jin, J., Leslie, S., Melchin, M., and Strauss, J.V., A change in sedimentation patterns in a Paleozoic reef revealed via three-dimensional reconstruction. GSA Annual Meeting, October 2022.
- 2020 **Mehra, A.**, Keller, B., Zhang, T., Tosca, N.J., McLennan, S.M., and Strauss, J.V., Processing data and incorporating uncertainties in large geochemical compilations. GSA Annual Meeting, October 2020.
- 2020 **Mehra, A.**, Eddy, M.P., Pamukcu, A.S., Schoene, B., and Maloof A.C., A method for extracting 3D modal mineralogy and textural data from plutonic rocks. GSA Annual Meeting, October 2020.

<sup>†</sup>Denotes an advisee.

## INVITED TALKS

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- October 2023 Department seminar, University of Victoria
- October 2023 Parents' weekend lecture, College of the Environment, University of Washington
- May 2023 Department seminar, University of Witwatersrand
- May 2023 SGP Proxy Primer
- February 2023 PaleoLunch, University of Washington
- April 2022 Department seminar, University of Washington
- March 2022 COG<sup>3</sup>, Massachusetts Institute of Technology

March 2022	Department seminar, Appalachian State University
February 2022	Department seminar, Stanford University
January 2022	GaGgle, Purdue University

## FUNDING

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2023-2025	<i>Collaborative Research: RUI: Exploring early metazoan reef evolution through a multi-scale approach</i> NSF Sedimentary Geo & Paleobiology <b>Mehra, A.</b> (Lead PI, University of Washington), Cohen, P.A. (Co-PI, Williams College), and Strauss, J.V. (Co-PI, Dartmouth College)	\$496 523
2023-2024	<i>Quantitative insights into the morphology of ancient microbially-mediated structures</i> Royalty Research Fund <b>Mehra, A.</b> (PI, University of Washington)	\$39 297
2023	<i>Generating regionally integrative datasets to understand groundwater insecurities in the Colorado River Basin</i> eScience Data Science for Social Good <b>Mehra, A.</b> (Project lead, University of Washington) and Shah, S. (Project co-lead, University of Washington)	\$60 000
2020	<i>Acquisition of fixed-wing unmanned aerial vehicles for training the next generation of scientists</i> CompX Faculty Grant <b>Mehra, A.</b> (Lead PI, Dartmouth College) and Strauss, J.V. (Co-PI, Dartmouth College)	\$40 000
2019	<i>Postdoctoral fellowship</i> Neukom Institute for Computational Science <b>Mehra, A.</b> (Postdoctoral fellow, Dartmouth College)	\$190 000

## ADVISEES

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2023 →	Meghan King <i>Quantitative descriptions of Precambrian reef architectures: Using descriptions of the past to predict the future effects of biodiversity collapse</i> Postdoctoral fellow
2023 →	A Anders Larson Tevis <i>Quantitative analyses of stromatolite morphology</i> Undergraduate

## TEACHING

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Winter 2024	<b>ESS 456:</b> Sedimentary geology and depositional environments	<i>Instructor</i>
Fall 2023	<b>ESS 469/569:</b> Machine learning in geosciences	<i>Instructor</i>
Spring 2023	<b>ESS 213:</b> History of Earth	<i>Instructor</i>
Fall 2021	<sup>†</sup> <b>EARS 45:</b> Field methods: Techniques of structural and stratigraphic analysis (Wyoming)	<i>Instructor</i>
Summer 2021	<b>EARS 272:</b> Topics in historical geobiology	<i>Instructor</i>
Spring 2020	<b>EARS 272:</b> Topics in historical geobiology	<i>Instructor</i>

<sup>†</sup>These courses involved a significant fieldwork component (locations in parentheses).

## FIELD EXPERIENCE

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2023	Great Slave Lake, Canada, [3 weeks] <i>Morphological characteristics of a Mesoproterozoic stromatolitic platform</i>
2022	Salient Mountain, Canada, [2 weeks] <i>Evolution of a late Ediacaran carbonate platform</i>
2021	Salient Mountain, Canada, [2 weeks] <i>Evolution of a late Ediacaran carbonate platform</i>
2021	Nopah Range, California, [2 weeks] <i>Architecture of an Ordovician paleokarst</i>
2019	Nadaleen Mountain, Yukon, Canada, [2 weeks] <i>Three-dimensional morphology of an early Paleozoic clinoform succession</i>

2019	Silver Peak Range, Nevada, [4 weeks] <i>Stratigraphic and morphological expression of Archaeocyathid buildups</i>
2018	Blue Ridge, Virginia, USA, [1 week] <i>Evidence for a Neoproterozoic glaciation</i>
2017	North Cascades, Washington, USA, [2 weeks] <i>Textural evidence for the presence of a fossilized magma chamber</i>
2017	Andros Island, The Bahamas, [1 week] <i>Morphology and hydrology of a tidal channel network</i>
2016	Labrador, Canada, [1 week] <i>Stratigraphic and environmental context of Cambrian Archaeocyathid reefs</i>
2015	Salient Mountain, Canada, [6 weeks] <i>Mapping, measuring, and sampling from a fossil-bearing Ediacaran stromatolite reef system</i>
2014	Southern Namibia, [8 weeks] <i>Describing aggregates of Cloudina, one of the earliest biomineralizing organisms</i>

## PROFESSIONAL ACTIVITIES

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Co-founder	Engineering for social good: a community of practice for those interested in working on human rights concerns
Co-organizer	Data Justice Seminar Series, Dartmouth College, Spring 2021
Co-organizer	2020 Northeast Geobiology Symposium (delayed until April 2021 due to COVID 19)
Convener	2019 GSA Annual Meeting technical session: Hello (ancient) world!: Exploring the Neoproterozoic to Cambrian interval by quantitatively probing the rock record
Reviewer	NSF EAR IF; Geophysical Research Letters; Royal Society Open Science; Paleooceanography and Paleoclimatology; iScience; Geophysical Research Letters

## UNIVERSITY SERVICE

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2023–2024	Member, ESS advancement committee
2023–2024	Co-organizer, ESS department colloquium
2023	Faculty advisor, Geoclub spring break trip

2023–2024	Member, ESS graduate admissions committee
2023	Member, ESS awards committee