

# Akshay Mehra

Department of Earth Sciences

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## Education

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

## Professional Experience

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- 2019 - Neukom Postdoctoral Fellow  
Dartmouth College, Hanover, NH
- 2011 - 2013 Researcher  
Situ Studio, Brooklyn, NY

## Publications

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In preparation

7. Eddy, M.P., **Mehra, A.**, Pamukcu, A., DesOrmeau, J.W., Maloof, A.C., and Schoene, B. 20xx. Geochemical and textural evidence for efficient crystal settling in a large, silicic magma chamber.

In review

6. **Mehra, A.**, Samuels, B., and Maloof, A.C. 20xx. A novel technique for producing three-dimensional data using serial sectioning and semi-automatic image classification.

Published or in press

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>.
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>.

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>.
2. MacLennan, S.A., Eddy, M.P., Merschat, 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>.
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>.

## Conference Proceedings

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- 2020 **Mehra, A.**, Keller, B., Zhang, T., Tosca, N.J., McLennan, S.M., 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.
- 2019 **Mehra, A.**, Watters, W.A., Grotzinger, J.P., and Maloof A.C., Namapoikia, a baffling organism. Northeastern Geobiology Meeting, Amherst, MA, March 2019.
- 2018 **Mehra, A.**, Geyman, E., and Maloof A.C., Analysis of channel morphology using high resolution, drone-derived imagery of the tidal flat at Triple Goose Creek, Andros Island. GSA Annual Meeting, Indianapolis, IN, November 2018.
- 2018 **Mehra, A.** and Maloof A.C., Three-dimensional reconstruction and morphological analysis of Namapoikia, a putative Ediacaran sponge fossil, using serial grinding and imaging. GSA Annual Meeting, Indianapolis, IN, November 2018.
- 2018 Bolton, H., **Mehra, A.**, Geyman, E., and Maloof A.C., Three-dimensional reconstructions of holocene and Neoproterozoic oolites to measure porosity, permeability, and volume-shape evolution of ooids. GSA Annual Meeting, Indianapolis, IN, November 2018.
- 2018 **Mehra, A.** and Maloof A.C., Three dimensional reconstructions of the earliest biomineralizers. Northeastern Geobiology, WHOI, April 2018.
- 2017 Maloof A.C. and **Mehra, A.**, Constraining the role of an Ediacaran biomineralizer using a multiscale methodology. GSA Annual Meeting, Seattle WA, October 2017.
- 2017 **Mehra, A.** and Maloof, A.C., Using serial grinding and imaging techniques to produce three-dimensional models of samples with weak density contrast. GSA Annual Meeting, Seattle WA, October 2017.
- 2016 **Mehra, A.** and Maloof, A.C., Digital reconstructions of Cloudina populations: an in-depth, three-dimensional study. AGU Fall Meeting, San Francisco CA, December 2016.
- 2013 Maloof, A.C., Samuels, B., **Mehra, A.**, and Spatzier, A., An automated serial Grinding, Imaging and Reconstruction Instrument (GIRI) for digital modeling of samples with weak density contrasts. AGU Fall Meeting, San Francisco CA, December 2013.

## Teaching

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<i>Spring 2020</i>	<b>EARS 272:</b> Topics in historical geobiology	<i>Instructor</i>
<i>Fall 2016</i>	† <b>GEO 201:</b> Measuring climate change: Methods in data analysis & scientific writing (Utah and New Mexico)	<i>Teaching assistant</i>
<i>Spring 2016</i>	† <b>GEO 370:</b> Sedimentology (Andros Island, The Bahamas)	<i>Teaching assistant</i>
<i>Fall 2015</i>	† <b>FRS 124:</b> State of the Earth: Shifts & cycles (France and Spain)	<i>Teaching assistant</i>
<i>Fall 2014</i>	† <b>GEO 201:</b> Measuring climate change: Methods in data analysis & scientific writing (Utah and Nevada)	<i>Teaching assistant</i>

† *These courses involved a significant fieldwork component that comprised a week-long trip to collect data for student research projects (locations in parentheses). As part of my teaching duties, I was responsible for preparing supplies and logistics, as well as helping students with both data collection—especially with drones, differential GPS, and surveying equipment—and data analysis.*

## Funding

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<i>2020</i>	<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
<i>2019</i>	<i>Postdoctoral fellowship</i> Neukom Institute for Computational Science <b>Mehra, A.</b> (Postdoctoral fellow, Dartmouth College)	\$127 500

## Field Experience

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<i>2019</i>	Nadaleen Mountain, Yukon, Canada, [2 weeks] <i>Three-dimensional morphology of an early Paleozoic cliniform succession</i>
<i>2019</i>	Silver Peak Range, Nevada, [4 weeks] <i>Stratigraphic and morphological expression of Archaeocyathid buildups</i>
<i>2018</i>	Blue Ridge, Virginia, USA, [1 week] <i>Evidence for a Neoproterozoic glaciation</i>
<i>2017</i>	North Cascades, Washington, USA, [2 weeks] <i>Textural evidence for the presence of a fossilized magma chamber</i>
<i>2017</i>	Andros Island, The Bahamas, [1 week] <i>Morphology and hydrology of a tidal channel network</i>
<i>2016</i>	Labrador, Canada, [1 week] <i>Stratigraphic and environmental context of Cambrian Archaeocyathid reefs</i>

- 2015 Salient Mountain, Canada, [6 weeks]  
*Mapping, measuring, and sampling from a fossil-bearing Ediacaran stromatolite reef system*
- 2014 Southern Namibia, [8 weeks]  
*Describing aggregates of Cloudina, one of the earliest biomineralizing organisms*

## Awards and Honors

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- 2018 Grand prize, AGU Data Visualization and Storytelling Contest
- 2018 Hanna Fellowship, Princeton University
- 2017 Runner-up, AGU Data Visualization and Storytelling Contest
- 2017 Fan Favorite, Princeton Research Day
- 2016 Runner-up, AGU Data Visualization and Storytelling Contest
- 2016 Arnold Guyot Teaching Award

## Professional Activities

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- Reviewer* NSF EAR IF; Geophysical Research Letters
- Co-organizer* 2020 Northeast Geobiology Symposium (delayed until 2021 due to COVID 19)
- Convener* 2019 GSA Annual Meeting: Hello (Ancient) World!: Exploring the Neoproterozoic to Cambrian Interval by Quantitatively Probing the Rock Record

## University and Professional Service

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- 2020 - Postdoctoral Representative, Department of Earth Sciences Diversity, Equity, and Inclusion Committee
- 2016 - 2018 Vice President, Graduate Student Government
- 2015 President, Graduate Student Government