



Vittorio Colicci

Ph.D. Student in Earth and Planetary Sciences, admitted Autumn 2024

Bio

BIO

I am a doctoral candidate in the Earth and Planetary Surface Processes Group, where I study ancient windblown depositional systems on Earth and Mars and apply sediment transport relations to reconstruct the environmental conditions under which they formed. My dissertation focuses on three Archean successions thought to contain some of the oldest aeolian strata: the 2.64 Ga Vryburg Formation and the 3.22 Ga Moodies Group in South Africa, and the 3.43 Ga Strelley Pool Formation in Western Australia. In my research, I combine field-based sedimentological and stratigraphic characterization with remote sensing and laboratory techniques such as zircon microtextural analysis. Before starting my PhD, I worked on a range of aerospace engineering and physics projects, including materials development for spacecraft electrospray thrusters, nanofabrication for astrophysics instrumentation, and computational modeling for icy moon exploration.

HONORS AND AWARDS

- Graduate Student Research Grant, Geological Society of America (2026)
- Bob Compton Field Geology Research Grant, Stanford Department of Earth and Planetary Sciences (2026)
- Travel Grant, International Society on Aeolian Research (2026)
- Travel Grant, Stanford Department of Earth and Planetary Sciences (2025)
- Knight-Hennessy Scholarship, Stanford University (2024)
- Honorable Mention, National Science Foundation Graduate Research Fellowship Program (2024)
- Presidential Graduate Fellowship, Massachusetts Institute of Technology (2023)
- Yngve Raustein Award for Scholarship, Teamwork and Community (Unified Engineering Class of 2020), MIT Department of Aeronautics and Astronautics (2020)
- Quest for Excellence STEM Award, QuestBridge (2017)

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

- Member, International Society for Aeolian Research (2026 - present)
- Member, Geological Society of America (2026 - present)
- Member, American Geophysical Union (2023 - present)

EDUCATION AND CERTIFICATIONS

- S.M., Massachusetts Institute of Technology, Earth & Planetary Sciences (2024)
- S.B., Massachusetts Institute of Technology, Aerospace Engineering and Physics with minors in Astronomy and Earth, Atmospheric, & Planetary Sciences (2022)

SERVICE, VOLUNTEER, AND COMMUNITY WORK

- Emergency Medical Technician (February 1, 2026)
- Workshop Instructor (June 1, 2022 - June 30, 2022)
- Workshop Instructor (January 1, 2022 - January 31, 2022)

LINKS

- LinkedIn: <https://www.linkedin.com/in/vittorio-colicci/>

Professional

WORK EXPERIENCE

- Nanofabrication Engineer - Izentis LLC (March 1, 2022 - May 31, 2024)
- Technology and Innovation Intern - United Nations Development Programme (June 1, 2024 - July 31, 2024)

Publications

PUBLICATIONS

- **Effects of Root Architecture on Plant Anchoring in Noncohesive Sediment** *JOURNAL OF GEOPHYSICAL RESEARCH-EARTH SURFACE*
Douglas, M. M., Colicci, V., Sandu, N. A., Yilmaz, L., Kamrin, K., Perron, J.
2026; 131 (8)
- **Microtextural analyses of detrital zircon for paleoenvironmental interpretations of metasedimentary rocks** *GEOLOGY*
Marvin, M., Hasson, M., Colicci, V., Abubo, R., Lapôtre, M. G.
2026; 54 (1): 35-39
- **Monodisperse Porous Emitter Materials for Ion Electrospray Propulsion** *JOURNAL OF PROPULSION AND POWER*
MacArthur, J., Colicci, V., Lozano, P.
2024; 40 (6): 859-868
- **Searching for Subsurface Oceans on the Moons of Uranus Using Magnetic Induction** *GEOPHYSICAL RESEARCH LETTERS*
Weiss, B. P., Biersteker, J. B., Colicci, V., Goode, A., Castillo-Rogez, J. C., Petropoulos, A. E., Balint, T. S.
2021; 48 (19)

PRESENTATIONS

- Sedimentology and Stratigraphy of a Neoproterozoic Coastal Dune Field - International Conference on Aeolian Research XII (July 13, 2026 - July 17, 2026)
- Sedimentology and Stratigraphy of One of Earth's Oldest Reported Dune Fields: The 2.64 Ga Vryburg Formation of the Transvaal Supergroup, Griqualand West, South Africa - AGU Annual Meeting 2025 (December 15, 2025 - December 19, 2025)
- Aeolian Dunes in the 2.64 Ga Vryburg Formation of the Transvaal Supergroup, Griqualand West, South Africa - GSSA Geocongress 2025 (June 24, 2025 - June 27, 2025)
- Examining the Influence of Early Tree Root Geometry on Soil Cohesion and Anchoring Strength using 3D-Printing Reconstructions - AGU Annual Meeting 2024 (December 9, 2024 - December 13, 2024)
- Metrology Challenges for Fabrication of High Aspect Ratio, Nano Scale X-Ray Diffraction Gratings - SPIE Advanced Lithography + Patterning 2024 (February 25, 2024 - February 29, 2024)
- Sintered Silica Ceramics for Electrospray Propulsion Emitters - 8th International Conference on Space Propulsion (May 9, 2022 - May 13, 2022)
- Searching for Subsurface Oceans on the Moons of Uranus Using Magnetic Induction - Lunar and Planetary Science Conference LII (March 15, 2021 - March 19, 2021)
- Searching for Subsurface Oceans on the Moons of Uranus Using Magnetic Induction - AGU Fall Meeting 2020 (December 7, 2020 - December 11, 2020)