

CALEB M. GORDON

PHD CANDIDATE, MPhil
DEPARTMENT OF EARTH AND PLANETARY SCIENCES
YALE UNIVERSITY

+1 646-315-0960
C.GORDON@YALE.EDU
NEW HAVEN, CT

[ResearchGate](#) | [LinkedIn](#) | [ORCID](#)

For my PhD, I developed a novel phylogenetic machine-learning method to answer previously intractable questions about the evolution of marine reptiles. For my postdoctoral work, I aim to use this same approach, in tandem with experimental biomechanics work on modern reptiles, to characterize the functional constraints associated with the evolution of swimming mode in secondarily aquatic lineages.

HIGHLIGHTED ACHIEVEMENTS

- I have published **5 peer-reviewed journal articles** and presented at **10 conferences**.
- I have won **7 grants**, research fellowships, or monetary prizes totaling **\$117,770** in research funds.
- I have taught **4 university courses** and led **4 educational/sci-comm programs** for non-university students.
- I have won **7 non-monetary academic prizes** for high-quality academic work and presentations.

EDUCATION

2025 (exp.)	PhD, Yale University, Department of Earth and Planetary Sciences
2021	MPhil, Yale University, Department of Earth and Planetary Sciences
2018	BA, Bowdoin College, Departments of Biology and Philosophy (Honors, <i>Cum Laude</i>)

SKILLS AND EXPERTISE

- **Phylogenetic machine learning:** predictive GLMs and ROC analysis within a phylogenetic framework
- **Paleontology:** fossil identification, preparation, osteology, and phylogenetic analysis (TNT, Mesquite)
- **Herpetology:** reptile systematics, morphology, embryology, life history characteristics
- **Morphometrics:** linear and landmark-based (geometric) morphometrics (ImageJ, R geomorph, PAST)
- **3D data analysis:** μ -CT scanning, segmenting (VG Studio), mesh manipulation (Slicer, Autodesk Maya)

PUBLICATIONS

Peer-reviewed papers: 5 | Citations: 34 | H-index: 2

In review	Caleb M. Gordon , Casey W. Dunn. Biological <i>things</i> can have essential features within a processual framework. <i>Philosophy, Theory, and Practice in Biology</i> . In revision.
Summer 2024	Lisa A. Treidel, Kevin D. Deem, Mary K. Salcedo, Michael H. Dickinson, Heather S. Bruce, Charles A. Darveau, Bradley H. Dickerson, Olaf Ellers, Jordan R. Glass, Caleb M. Gordon , Jon F. Harrison, Tyson L. Hedrick, Meredith G. Johnson, Jacqueline E. Lebenzon, Kristjan Niitepõld, Sanjay P. Sane, Simon Sponberg, Stav Talal, Caroline M. Williams, Ethan S. Wold. 2024. Insect flight: state of the field and future directions . <i>Integrative and Comparative Biology</i> icae106: page numbers pending.
Spring 2024	Olaf Ellers, Caleb M. Gordon , Max T. Hukill, Ardit Kukaj, Alan Cannell, André Nel. 2024. Induced power scaling alone cannot explain griffenfly gigantism . <i>Integrative and Comparative Biology</i> icae046: 1–13.

- Spring 2024 Giovanni Serafini, **Caleb M. Gordon**, Jacopo Amalfitano, Oliver Wings, Nicole Esteban, Holly Stokes, Luca Giusberti. 2024. [First record of marine turtle gastroliths in a fossil specimen: Paleobiological implications in comparison to modern analogues](#). *PLOS ONE* 19(5): e0302889.
- Spring 2022 Giovanni Serafini, **Caleb M. Gordon**, Davide Foffa, Miriam Cobianchi, Luca Giusberti. [Tough to digest: first record of Teleosauroida \(Thalattosuchia\) in a regurgitalite from the Upper Jurassic of northeastern Italy](#). 2022. *Papers in Paleontology* 8(6): e1474.
- Fall 2020 **Caleb M. Gordon**, Brian T. Roach, William G. Parker, Derek E. G. Briggs. 2020. [Distinguishing regurgitalites and coprolites: A case study using a Triassic bromalite with soft tissue of the pseudosuchian archosaur *Revueltosaurus*](#). *Palaios* 35(3): 111–121.
- Featured on *Gizmodo*: [Fossilized Vomit and Feces are Delighting Paleontologists](#).

GRANTS AND ACADEMIC HONORS

Research Grants, Fellowships, and Monetary Awards

2024	\$1,000	Excellence in Teaching Prize Yale, Dept. Earth and Planetary Sciences
2022	\$4,930	Doctoral Dissertation Improvement Grant Yale Institute for Biospheric Studies
2021	\$1,000	FHVS Student Research Assistance Scheme IUCN Crocodile Specialist Group
2020	\$102,000	NSF Graduate Research Fellowship National Science Foundation
2019	\$3,000	Doctoral Pilot Grant Yale Institute for Biospheric Studies
2018	\$2,000	Bateman Fellowship Yale, Dept. Earth and Planetary Sciences
2017	\$3,840	Life Sciences Fellowship Bowdoin College, Dept. Biology

Non-Monetary Awards and Honors

2024	Best Student Presentation (talk), runner-up SECAD 2024, University of Liège
2019	Earl Ingerson Fellowship Yale, Dept. Earth and Planetary Sciences
2018	GRFP Honorable Mention National Science Foundation
2018	Copeland-Gross Biology Prize Bowdoin College, Dept. Biology
2014–2015	Sarah and James Bowdoin Scholarship Award Bowdoin College
2014	Joshua Chamberlain Scholarship Award Bowdoin College
2014	National Silver Medal, Nonfiction Writing Portfolio Scholastic Art & Writing Awards

TEACHING

Teaching Assistantships and Fellowships

Fall 2023	Vertebrate Paleontology (Yale, EPS Dept., for Jacques Gauthier)
Spring 2020	Comp. Developmental Anatomy of Vertebrates (Yale, E&EB Dept., for Günter Wagner)
Spring 2019	History of Life (Yale, EPS Dept., for Derek Briggs, Pincelli Hull, and Bhart-Anjan Bhullar)
Spring 2016	Scientific Reasoning in Biology (Bowdoin Dept. of Biology, for Vladimir Douhovnikoff)

Non-University Teaching and Science Communication

Spring 2024	Graduate Museum Educator , Yale Peabody Museum <ul style="list-style-type: none"> ➤ Paid position leading visiting elementary school groups through original museum programming.
2020–2022	Communications Director , Yale Science Communication—A Grad. Student Organization <ul style="list-style-type: none"> ➤ Onboarded new speakers, coordinated original multi-speaker presentations to public audiences, and developed or revamped all digital media platforms (the Yale Sci-comm website, LinkedIn, Facebook, and YouTube).
2016–2018	Consultant , MILRD Education <ul style="list-style-type: none"> ➤ Composed content for MILRD’s Virtual Training Projects.
Summer 2016	Project Mentor , MILRD Education <ul style="list-style-type: none"> ➤ Mentored high-school student in biology research internship at Weill Cornell.

Summer 2013

Volunteer Biology Teacher, Artworks for Youth

- Taught original 2-week biology curriculum to students at a public school in the Joe Slovo township in Port Elizabeth, South Africa.

CONFERENCES AND PRESENTATIONS

Invited Lecture

- Spring 2024 [The Sea Before Time: Diving into the Mysterious Origins of Ancient Marine Reptiles](#). Invited speaker for *Research Spotlight*, Yale Peabody Museum. New Haven, CT, USA.
- Attendance: ~180 total (~65 in person, 115 on Zoom)

Conference Presentations (only presenting-author abstracts shown)

- Summer 2024 Caleb M. Gordon, Christopher T. Griffin, Jacques A. Gauthier, Bhart-Anjan S. Bhullar. Reconstructing the aquatic habits of Triassic marine reptiles and mosasaurs—results from predictive models based on extant amniote limb morphometry. SECAD, 2024. Liège, Belgium. Oral Presentation.
- Spring 2024 Caleb M. Gordon, Christopher T. Griffin, Jacques A. Gauthier, Bhart-Anjan S. Bhullar. Aquatic amniote limbs converge on a common morphology beyond terrestrial morphospace. Society of Integrative and Comparative Biology Annual Meeting, 2024. Seattle, Washington, USA. In *Adaptation and ecomorphology in fluids*. Oral Presentation.
- Fall 2023 Caleb M. Gordon, Christopher T. Griffin, Jacques A. Gauthier, Bhart-Anjan S. Bhullar. Limb proportions predict aquatic habits in extinct tetrapods: a case study for assessing predictive model accuracy in paleontology. Geological Society of America Connects, 2023. Pittsburgh, Pennsylvania, USA. In *Phylogenetic and Computational Approaches in Paleobiology and Paleoecology*. Oral Presentation. Recording available for all GSA members [here](#).
- Fall 2022 Caleb M. Gordon, Jacques A. Gauthier, Bhart-Anjan S. Bhullar. Validating osteological correlates of interdigital webbing and flipper form in extinct aquatic amniotes. Society of Vertebrate Paleontology 82nd Annual Meeting, 2022. Toronto, Canada. Oral Presentation.
- Fall 2021 Caleb M. Gordon, Noah J. Planavsky. Phosphorus levels predict genomic novelty production in the Neoproterozoic: a preliminary mathematical model. Geological Society of America Connects, 2021. In topical session T109 - Life's Innovations from the Early Earth to the Search on Modern Mars: Honoring the Career of Andrew H. Knoll. Portland, Oregon, USA. Poster.
- Fall 2021 Caleb M. Gordon. Investigating the developmental evolution of the limb and skull in aquatic reptiles. Max Planck-Yale Mini-Conference, 2021. Max Planck-Yale Center for Biodiversity Movement and Global Change. Oral Presentation, virtual.
- Fall 2019 Caleb M. Gordon, Brian T. Roach, William G. Parker, Derek E. G. Briggs. Distinguishing regurgitalites and coprolites: A case study using a Triassic bromalite containing soft tissue from *Revueltosaurus*. Society of Vertebrate Paleontology 79th Annual Meeting, 2019. Queensland, Australia. Oral Presentation.
- Spring 2019 Caleb M. Gordon, Brian T. Roach, Derek E. G. Briggs. A regurgitalite containing *Revueltosaurus* muscle tissue from the Upper Triassic Chinle Formation of Arizona. NE Regional Geobiology Symposium, 2019. Amherst College, Massachusetts, USA. Poster.
- Spring 2018 Caleb M. Gordon, William R. Jackman. Identifying a distinct developmental module in the zebrafish pharynx. Annual Maine Biological and Biomedical Sciences Symposium, 2018. MDI Biological Laboratory, Maine, USA. Poster.
- Fall 2017 Caleb M. Gordon, William R. Jackman. Determining the cellular mechanisms associated with tooth module dissociation in the ventral pharyngeal dentition of zebrafish (*Danio rerio*). President's Summer Research Symposium, 2017. Bowdoin College, Maine, USA. Poster.

FIELDWORK

- Spring 2018 **Petrified Forest National Park**, Arizona, USA (Yale, EPS Dept., Yale Peabody Museum)
- Excavated phytosaur and aetosaur remains in Middle Triassic sandstones (2 weeks).
- Spring 2018 **Southern Florida**, USA (Yale Peabody Museum)
- Collected lizard specimens in Southern Glades, Lake Placid, Okeechobee County, and Key Largo for the Division of Vertebrate Zoology at the Yale Peabody Museum (1 week).

MUSEUM EXHIBIT CONTRIBUTIONS

- Spring 2023 **Tetrapod Locomotion Kiosk**, displayed 2024–present (Yale Peabody Museum)
- Advised on content and animations for interactive digital kiosk on *Araeoscelis*.
- Fall 2018 **T. Rex: The Ultimate Predator**, disp. 2019–2021 (American Museum of Natural History)
- Segmented and produced panoramic videos of *T. rex* coprolite for interactive kiosk.

SERVICE TO PROFESSION

- **Peer Reviews:** *Historical Biology* (1), *Frontiers in Earth Science* (1), *PALAIOS* (1), *International Journal of Osteoarcheology* (2).
- **Professional Societies:** Society of Vertebrate Paleontology, Geological Society of America, The Ocean Conservancy.
- **Yale Departmental Duties:** Yale, EPS Dept., Graduate Student Mentor, 2021–2023; member of ad-hoc committee on advising guidelines, 2021.