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Education

Harvard University *Sep 2022–May 2028 (expected)*
Ph.D., Organismic and Evolutionary Biology
- Thesis Committee: James Mallet, Scott Edwards, David Reich, Daniel Hartl

Columbia University *Sep 2019–May 2022*
M.A., Ecology, Evolution and Conservation Biology
- Thesis Committee: Dustin Rubenstein, Molly Przeworski, Deren Eaton, Sheng-Feng Shen

University of California San Diego *Sep 2015–May 2019*
B.S., Ecology, Behavior, and Evolution; B.S., Marine Biology
- Honors Thesis Advisor: Lisa Levin

Research Interests

Population and evolutionary genomics
Speciation and introgression
Genetic basis of phenotypic evolution
Coalescent theory
Mathematical modeling of evolution

Honors, Awards & Grants

Outstanding Scholar (US$15,000), Yongxin Foundation, China *Aug 2022*
Departmental Travel Grant (US$1,500 per year), Columbia University *2020 & 2021*
Outstanding Undergraduate Thesis Award, UCSD *May 2019*
Provost Honors, Revelle College, UCSD *2015–2019*

Publications

Seixas FA, Dendy S, **Guan S**, et al. (2026). Ancient inversion polymorphisms are locally adaptive in a widespread butterfly species. *Science Advances*. DOI.

Ashford OS, **Guan S**, et al. (2021). Relationships between biodiversity and ecosystem functioning proxies strengthen when approaching chemosynthetic deep-sea methane seeps. *Proceedings of the Royal Society B*. DOI.

Ashford OS, **Guan S**, et al. (2021). A chemosynthetic ecotone—"chemotone"—in the sediments surrounding deep-sea methane seeps. *Limnology and Oceanography*. DOI.

Thawornwattana Y, Reeves L, Gozashti L, Ribeiro P, Gupta M, **Guan S**, et al. The genomics of cryptic speciation in North American malaria mosquitoes. *Submitted*.

Guan S, et al. Distinct evolutionary histories produced matching wing-pattern mosaics in *Heliconius*. *In preparation.*

Guan S, et al. The uneven permeability of species boundaries in *Heliconius*. *In preparation.*

Guan S, et al. A large inversion underpins local adaptation to altitude in natural populations of Asian burying beetles. *In preparation.*

Presentations

Distinct evolutionary histories produced matching wing-pattern mosaics in *Heliconius*. *Stand-Alone Meeting of the American Society of Naturalists* (contributed talk). *Jan 2027*

Divergent population structures underlie mimetic *Heliconius*. *Entomology Lab Meeting, Harvard University* (seminar talk). *Nov 2026*

Divergent population structures underlie convergent wing patterns in *Heliconius*. *Lepidoptera Webinars* (webinar talk). *Oct 2026*

Comparative phylogeography and pangenomics of co-mimetic *Heliconius* butterflies. *Caligo, Genomes of Neotropical Butterflies and Moths* (webinar talk). *Jul 2026*

Population structure and speciation histories in *Heliconius*. *G4 Symposium, Harvard University* (seminar talk). *May 2026*

Divergent population structures in co-mimicking *Heliconius*. *Entomology Lab Meeting, Harvard University* (seminar talk). *Oct 2025*

Unraveling the relationships between Costa Rican methane seep assemblages and their physical environments. *Undergraduate Honors Thesis Symposium, UCSD*. *May 2019*

Do biodiversity–ecosystem functioning relationships shift across methane seepage gradients? *15th Deep-Sea Biology Symposium, Monterey, CA* (coauthored talk). *Sep 2018*

Teaching

Comparative Genomics: Phylogenetic Approaches to Linking Genomes and Phenotypes (OEB 275R), Teaching Fellow, Harvard University *Fall 2025*

Population Genetics (OEB 242), Teaching Fellow, Harvard University *Spring 2025*

Coalescent Theory (OEB 252), Teaching Fellow, Harvard University *Fall 2024*

Genome Analysis, Ecology and Evolution (OEB 125), Teaching Fellow, Harvard University *Fall 2023*

Community Engagement

Departmental Graduate Student Representative, Harvard University *2024–2025*

Panelist, Evolution Day for High School Students, Harvard University *Fall 2024*

Organizer, OEB Seminar Journal Club, Harvard University *2022–2024*

Organizer, Evolution Chalk Talks, Harvard University *2022–2023*

Peer Mentor, NSF Research Experiences for Undergraduates (REU) Program, Harvard University *Summer 2023*

Diversity, Inclusion, and Belonging Committee Member, Columbia University *2019–2022*