

SHUZHE “Jerry” GUAN

Ph.D. Student

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EDUCATION

- 2022-present **Harvard University, Boston, MA**
Doctor of Philosophy student in Organismic & Evolutionary Biology
Thesis Advisor(s): Dr. James Mallet
- 2019-2022 **Columbia University, New York, NY**
Master of Arts in Ecology, Evolution and Environmental Biology
Committee: Dr. Dustin Rubenstein, Dr. Molly Przeworski, Dr. Deren Eaton
- 2015-2019 **University of California San Diego, La Jolla, CA**
Bachelor of Science with double major in Marine Biology (*Cum Laude*) &
Environmental System (Evolution, Behavior & Ecology Track) (*Cum Laude*)
Thesis Advisor(s): Dr. Lisa A. Levin

HONORS, AWARDS & GRANTS

- 2022 Distinguished Scholar (¥100,000 CNY ≈ \$15,000 USD),
Yongxin Educational Foundation, Shanxi, China
- 2020 E3B Travel Grant (\$1500 USD), Columbia University
- 2015-2019 Provost’s Honor List, Revelle College, UCSD

PUBLICATIONS

Accepted

Oliver S. Ashford, **Shuzhe Guan**, Dante Capone, Katherine Rigney, Katelynn Rowley, Erik Cordes, Jorge Cortés, Greg W. Rouse, Guillermo F. Mendoza, Andrew K. Sweetman, Lisa A. Levin. 2021. Relationships between biodiversity and ecosystem functioning proxies strengthen when approaching chemosynthetic deep-sea methane seeps. ***Proceedings of the Royal Society B— Biological Sciences***

Oliver S. Ashford, **Shuzhe Guan**, Dante C., Katherine R., Katelynn R., Victoria O., S.W. Mullin, K.S. Dawson, Jorge C., G.W. Rouse, G.F. Mendoza, Raymond W.L., L.A. Levin. 2021. A chemosynthetic ecotone- ‘chemotone’ - in the sediments surrounding deep-sea methane seep. ***Limnology and Oceanography***

Wei Jiaqiang, Gao Zhiyuan, Liu Wenfeng, **Shuzhe Guan** & Chen Hao. 2019. Complete genome sequence and evolution analysis of *Psychrobacter* sp. YP14 from Gammaridea Gastrointestinal Microbiota of Yap Trench. *Chinese Journal of Oceanology and Limnology*

In prep

Shuzhe Guan et al. Investigating the genomic architecture including a large chromosomal inversion region of the connecting population between two locally adapted burying beetle populations

Shuzhe Guan & G.W. Rouse. Resolve the phylogeny of squat lobster complex with a focus on *Pleuroncodes planipes* and *P. monodon*.

Ben Van Allen & **Shuzhe Guan**. Contrasting transgenerational responses to resource environment variation in three populations of the splash pool copepod *Tigriopus californicus*.

RESEARCH EXPERIENCE

2019-present	MA Research – Rubenstein Lab, Columbia University, New York, NY Investigating how a chromosomal inversion region, which is speculated to underpin the locally adapted photoperiodism, is developed, maintained and distributed in Asian burying beetle (<i>Nicrophorus nepalensis</i>) populations in Taiwan; understanding the population dynamics of a connecting population between two locally adapted populations, using a combination of phenotype data and genomic data collected through spatial and temporal gradients
Summer 2019	Field Assistant – Shen Lab, Academia Sinica, Taiwan Set up traps and iButton devices among mountains in Sichuan to record ambient temperatures and to collect burying beetle specimens as part of a project assessing their natural photoperiodism; set up experimental devices with cameras to understand the intensity of interspecific competition over rat corpses between burying beetles and blowflies
2018-2019	Independent Research – Levin Lab, UCSD, La Jolla, CA Identified macrofauna assemblage including Polychaeta, Crustacean and Mollusca collected from benthic sediments in East Pacific off Costa Rica; investigated the linkage between ecosystem functioning and a variety of biodiversity metrics, and how the linkage shifts with seep activity
2018-2019	Independent Research – Rouse Lab, UCSD, La Jolla, CA Reconstructed the phylogeny of squat lobster complex using 16S and CO1 data; focused on the relationship between two tuna crab species, <i>P. planipes</i> and <i>P. monodon</i> using additional morphological data
Summer 2018	Intern – The First Institute of Oceanography in China, Qingdao Extracted DNA from deep ocean sediment samples from Western Pacific, Yap

Trench; analyzed biodiversity of the environment by applying metagenomic analysis

2017-2018

Volunteer – Shurin Lab, UCSD, La Jolla, CA

Maintained and censused the lab-strain copepods on a weekly basis; helped implement and investigate the influences of food variation, selective harvest, and nauplii removal on copepod population dynamics

PRESENTATIONS & POSTERS

O.S. Ashford, **Shuzhe Guan**, Dante C., Katherine R., Katelynn R., Victoria O., S.W. Mullin, K.S. Dawson, Jorge C., G.W. Rouse, G.F. Mendoza, Raymond W.L., L.A. Levin.

A chemosynthetic ecotone- ‘chemotone’- surrounds deep-sea methane seep, eDeep-Sea Biology Society Conference, Online, Aug 20, 2020

Oliver S. Ashford, Guillermo F. Mendoza, Dante Capone, **Shuzhe Guan**, et. al. Do biodiversity–ecosystem functioning relationships shift across methane seepage gradients? 15th Deep-Sea Biology Symposium, Monterey CA, Sep 14, 2019

Shuzhe Guan, Oliver S. Ashford, L. A. Levin. Unravel the relationships between Costa Rican methane seep assemblages and their physical environments, Environmental System Symposium, UCSD, La Jolla CA, May 29, 2019

RESEARCH SKILLS

Analysis

Bioinformatics – data fetching & summary, sequence cleaning & aligning, whole-genome data analysis (PLINK, Vcftools etc.)

Phylogeny – tree construction & interpretation

Statistical test – Chi-Square test, T-test, ANOVA, etc.

Modeling – linear regression (GLM & GLMM), Bayesian & model selection, demography

Graphic processing – ImageJ

Software – R-, Python-, & Java-based package configuration and operation, geographic information system (GIS)

Field

Wildlife trapping – bait-based and box traps

Transect survey – aquatic and land environments

Biological sampling – blood, urine & feces

Behavioral observations & recordings

Lab

Lab strain maintenance – managing lab populations and applying treatments

Common equipment operation – microscope, centrifuge, spectrometer, etc.

DNA extraction

SCIENCE COMMUNICATION & PUBLIC OUTREACH

Science Communication

- 2020 **Independent Researcher – Wild Safari, Jackson, NJ**
Started a project studying the frequency and nature of stereotypic behaviors in captive black bears and their potential consequences; made a sign introducing the findings to the public
- 2018 **Guest Speaker – Ocean University of China, Qingdao**
Talked about the research culture and cutting-edge topics probed at the Scripps Institute of Oceanography
- 2017 **Guest Speaker – Shuangliu Middle School, Chengdu**
Delivered a lecture on a common mistake made in taxonomy and its misleading nature for the public; addressed the importance of rigidity in scientific research and communication
- 2015 **Science Teacher – Winter Camp for Tibetan Pastoral Children in Elementary School, Lhasa**
Educated children on basic biological, environmental & physiological knowledge, with a focus on human-induced climate change and human-wildlife conflict

Public Outreach

- 2021 **Guest Speaker – New Oriental Education, Online**
Gave a series of information sessions about majoring in biology and the general life in the United States to Chinese high school and college students with a desire to study abroad in the U.S..
- 2018-present **Science Blogger – Zhihu (Chinese Equivalent of Quora)**
Answering the questions related to evolution biology & ecology; dedicated to translating and interpreting scientific literature to the Chinese public in an entertaining yet scientifically authentic way