

Alexus S. Roberts Hugghis, Ph.D.

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PROFESSIONAL EXPERIENCE & EDUCATION

- Jan. 2024 – Present **Postdoctoral Researcher**, University of Bern, 3012 Bern, Switzerland;
EAWAG, 6047 Kastanienbaum, Switzerland
Mentor: Ole Seehausen
- Sept. 2017 – Sept. 2023 **Ph.D. in Evolution & Ecology**, University of California, Davis
National Science Foundation Graduate Research Fellow
Ford Dissertation Fellow
Major Professor: Peter C. Wainwright
Committee: Johanna Schmitt & Stacey A. Combes
- Aug. 2013 – May 2017 **B.S. in Ecology, Evolution, & Environ Sciences**, Purdue University
Minor in Chemistry
Honors thesis advisor: Reuben R. Goforth

INTERESTS

I am an evolutionary biologist combining functional morphology and phylogenetic comparative methods to study the diversification of fish feeding structures and functions. I have demonstrated leadership in the implementation and facilitation of policies and programs to increase diversity, equity, inclusion, and justice in STEM fields and higher education.

PUBLICATIONS

- Roberts-Hugghis, A.S.**, Martinez, C.M., Corn, K.A., & Wainwright, P.C. (2024). A classic key innovation constrains oral jaw functional diversification in fishes. Accepted August 2024 at *Evolution Letters*.
- Roberts-Hugghis, A.S.** (2024) Alexis Roberts Hugghis, Ph.D. *Ichthyology & Herpetology* 112(2), 298–299. <https://doi.org/10.1643/t2024057>
- Martinez, C.M., Corn, K.A., Williamson, S., Satterfield, D., **Roberts-Hugghis, A.S.**, Barley, A., Borstein, S., McGee, M.D., & Wainwright, P.C. (2024) Replicated functional evolution in cichlid adaptive radiations. *American Naturalist*, **204**. <http://dx.doi.org/10.1086/731477>
- Roberts-Hugghis, A.S.**, Burress, E.D., Lam, B., & Wainwright, P.C. (2023). The cichlid pharyngeal jaw novelty enhances evolutionary integration in the feeding apparatus. *Evolution*, 77(9), 1917–1929. <https://doi.org/10.1093/evolut/qpad109>. ***Editor's Choice article**

- Donatelli, C.M., **Roberts, A.S.**, Scott, E.R., DeSmith, K., Summers, D., Porter, M.E., Summers, A.P., & Tytell, E. D. (2021). Foretelling the Flex – Vertebral Shape Predicts Behaviors and Ecology of Fishes. *Integrative & Comparative Biology*, 61(2), 414–426. <https://doi.org/10.1093/icb/icab110>
- Hodge, J.H., Song, Y., Wightman, M.A., Milkey, A., Tran, B., Štajner, A., **Roberts, A.S.**, Hemingson, C.R., Wainwright, P.C., & Price, S.A. (2021). Constraints on the ecomorphological convergence of zooplanktivorous butterflyfishes. *Integrative Organismal Biology*, 3(1), obab014. <https://doi.org/10.1093/iob/obab014>
- Roberts, A.S.**, Hodge, J.H., Chakrabarty, P., & Wainwright, P.C. (2021). Anatomical basis of diverse jaw protrusion directionality in ponyfishes (Family Leiognathidae). *Journal of Morphology*, 282(3), 427–437. <https://doi.org/10.1002/jmor.21314>
- Roberts, A.S.** & Zamore, S. (2020) Black in nature. *Integrative & Comparative Biology*, blog post. <https://integrativeandcomparativebiology.wordpress.com/2020/06/09/black-in-nature/>
- Roberts, A.S.**, Farina, S.C., Goforth, R.R., & Gidmark, N.J. (2018). Evolutionary correlations between skeletal and muscular morphology in the lower jaw adduction system of sculpins and relatives (Perciformes: Cottoidei). *Zoology*, 129, 59–65. <https://doi.org/10.1016/j.zool.2018.06.006>

FELLOWSHIPS, GRANTS, & AWARDS

2022	Ford Foundation Dissertation Fellowship (\$28,000)
2022	University of California, Davis Dissertation Fellowship – <i>declined</i>
2022	American Dissertation Fellowship – <i>declined</i>
2021	Daphne & Ted Pangelley Award in Evolutionary Biology (\$1,500)
2021	Center for Population Biology Research Award (\$500)
2021	Graduate Student of Color Summer Research Award (\$500)
2021	Society for the Study of Evolution Rosemary Grant Advanced Award (\$3493)
2020	Graduate Student of Color Summer Research Award (\$400)
2020	Center for Population Biology Research Award and Outreach Supplement (\$1900)
2019	Biomechanics Early Career Fellowship (\$5,100)
2019	Center for Population Biology Research Award (\$1,000)
2018	Graduate Student of Color Summer Research Award (\$500)
2018	Center for Population Biology Travel Award (\$1,000)
2018	Stephen and Ruth Wainwright Endowed Fellowship (\$3,700)
2017	National Science Foundation Graduate Research Fellow (\$138,000)
2017	NSF Undergraduate Preparation Fellowship (\$25,000)
2016	Charles O. McGaughey Leadership Award (\$5,000)
2015	Louis Stokes Alliance for Minority Participation Scholar (\$4000)
2015	Alan and Sharon Levy Scholar (\$2,500)
2014	Jandos Scholar (\$5,000)
2013	Emerging Leader Scholar (\$60,000)

RESEARCH EXPERIENCE

2024 – pres.	University of Bern – Postdoctoral research: Examining the impact of hybridization on patterns of morphological and kinematic diversification
2018	Friday Harbor Laboratories – Swimming kinematics in elongate fishes
2017 – 2023	University of California Davis – Ph.D. research: The evolutionary impacts of morphological innovations on the fish feeding system
2016 – 2017	Purdue University – Honors thesis research: Niche partitioning in Gulf Killifish
2015	NSF-REU at Friday Harbor Laboratories – Evolutionary morphology of the musculoskeletal jaw system in sculpins

TEACHING EXPERIENCE

2024	Instructor – Marine and Evolutionary Ecology Research Practical, Corsica (2156, FS24), University of Bern
2023	Instructor – Systemic Bias in Bioethics (MCB 198 003), UC Davis
2022	Teaching Assistant – Systemic Bias in Bioethics (MCB 198 003), UC Davis
2021	Teaching Assistant – Introduction to Biology – Principles of Ecology & Evolution (BIS 2B), UC Davis
2020	Instructor – Biology Undergraduate Scholars Program Ecology and Evolution (BIS2B) Workshop, UC Davis
2019	Teaching Assistant – Biology Undergraduate Scholars Program Ecology and Evolution (BIS2B) Workshop, UC Davis

INVITED SEMINARS

Roberts Hugghis, A.S. (April 2024). The evolutionary impacts of morphological innovations on the fish feeding system. *Institute of Ecology & Evolution at the University of Bern, Switzerland.*

Roberts Hugghis, A.S. (October 2023). The evolutionary impacts of morphological innovations on the fish feeding system. *Center for Population Biology at the University of California, Davis.*

Roberts, A.S. (November 2020). The effects of morphological innovations on the evolutionary and kinematic patterns in fish feeding structures. *Swiss Federal Institute of Aquatic Science & Technology.*

Roberts, A.S. (February 2020). The effects of morphological innovations on the evolutionary and kinematic patterns in fish feeding structures. *Center for Population Biology at the University of California, Davis.*

SELECT PRESENTATIONS

- Roberts Hugghis, A.S.**, Martinez C.M., Corn, K.A., & Wainwright, P.C. (January 2024). The modified pharyngeal jaw constrains the diversification of fish feeding kinematics. *Society for Integrative and Comparative Biology*. Oral Presentation; **Best Student Presentation Winner** in the Division of Phylogenetic Comparative Methods.
- Roberts Hugghis, A.S.**, Burress, E.D., Lam, B., & Wainwright, P.C. (January 2023). Pharyngognathly enhances – not reduces – evolutionary integration in the fish feeding apparatus. *Society for Integrative and Comparative Biology, SICB+*. Oral Presentation; **Best Student Presentation Finalist** in the Division of Vertebrate Morphology.
- Roberts, A.S.**, Burress, E.D., Lam, B., & Wainwright, P.C. (January 2022). Effects of pharyngognathly on patterns of evolutionary integration and independence in the fish feeding apparatus. *Society for Integrative and Comparative Biology, SICB+*. Virtual Oral Presentation.
- Roberts, A.S.**, & Wainwright, P.C. (January 2020). Anatomical basis of jaw protrusion directionality in ponyfishes (Leiognathidae). *Society for Integrative and Comparative Biology, Austin, TX*. Oral Presentation.
- Roberts, A.S.**, Scott, E.R., & Donatelli, C.M. (January 2019). Fish Motion in the Ocean: Predicting Swimming Kinematics from Vertebral Morphology. *Society for Integrative and Comparative Biology, Tampa, FL*. Poster Presentation.
- Roberts, A.S.**, & Goforth, R.R. (January 2017). Niche partitioning based on temperature gradients in estuarine Cyprinodontiform fishes (families: Fundulidae, Cyprinodontidae, and Poeciliidae). *Society for Integrative and Comparative Biology, New Orleans, LA*. Poster Presentation.
- Roberts, A.S.**, Farina, S.C., Goforth, R.R., & Gidmark, N.J. (January 2016). Feeding mechanics and functional morphology in the jaws of sculpins. *Society for Integrative and Comparative Biology, Portland, OR*. Poster Presentation.

LEADERSHIP, SERVICE, & OUTREACH

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| 2024 | Primary Organizer, Emilie Jäger Lecture – Algorithms of Oppression hosted by the Equal Opportunities Commission at the University of Bern |
| 2024 | Invited Panelist, <i>Beyond Books: Navigating, Surviving and thriving in Graduate School</i> hosted by MelanInScience |
| 2023 | Invited Panelist, <i>Your Place in This Space: Navigating Stress and Imposter Syndrome</i> hosted by the Women in Science Program at Purdue University |
| 2023 | Invited Panelist, <i>A retrospective look at graduate school</i> hosted by UC-HBCU Research Experience for Undergraduates Program at UC Davis |
| 2022 – 2023 | Graduate Advisor to the CBS Dean for Diversity, Equity, and Inclusion at UC Davis |
| 2022 | Invited Speaker, Equity in STEM and Entrepreneurship seminar series at UC Davis |
| 2022 | Podcast Guest, <i>Women in Ecology & Evolution Podcast</i> (Rejection is the Rule) hosted by Dr. Kirsty MacLeod |
| 2021 – 2023 | STEM Squad at UC Davis volunteer |
| 2021 | Session Facilitator, Ecology & Evolution Graduate School Preview Day hosted by the Population Biology Graduate Group Diversity Committee at UC Davis |

2021	Invited Speaker, <i>Introduction to Evolution</i> (EVE 100) at UC Davis
2021	Population Biology Admissions Committee Student Representative
2020 – 2021	Co-Director, Diversity in STEM Coalition at UC Davis (\$27,600)
2020	Invited Speaker, <i>Debating – Birds vs Fish</i> hosted by The National Aquarium
2020	Podcast Guest, <i>Ologies</i> (<i>Very Special Episode: BlackAFinSTEM with various Ologists</i>) hosted by Allie Ward
2020	Podcast Guest, <i>In the Know with CaT Bobino</i> hosted by CaT Bobino
2020	Primary Coordinator, Diversity in STEM Conference at UC Davis (\$18,000)
2019 – 2020	Program Chair, Ecology & Evolution Graduate School Preview Program hosted by the Population Biology Graduate Group Diversity Committee at UC Davis (\$5,000)
2019 – 2020	President, Equity in STEM and Entrepreneurship at UC Davis (\$2,000)
2019 – 2020	Scientist Pen Pal, Letters to a Pre-Scientist
2019	Social Media Ambassador for the “Multifunctional structures and multistructural functions: Functional coupling and integration in the evolution of biomechanical systems” symposium at the annual meeting of the Society for Integrative and Comparative Biology
2018 – 2019	Co-Director of Outreach, Equity in STEM and Entrepreneurship at UC Davis (\$1,500)
2018	Peer Mentor, Broadening Participation Program at the 2019 annual conference for the Society for Integrative and Comparative Biology
2018 – 2022	Exhibitor, Picnic Day at UC Davis
2018 – 2022	Exhibitor, Biodiversity Day at UC Davis
2017 – 2022	Member, Population Biology Student Diversity Committee at UC Davis
2017 – 2019	Cofounder & Program Coordinator, STEM Squad at UC Davis (\$3,000)
2017	Camp Counselor, ScienceScape at Purdue University
2016 – 2017	Cofounder, Boilers Supporting Boilers at Purdue University
2016 – 2017	President, Marine Biology Club at Purdue University
2014 – 2017	Team Leader, Women in Science Program at Purdue University

**Dollar amounts represent funds raised for programming during my tenure in stated position*

PROFESSIONAL AFFILIATIONS

2020 – pres.	Society for the Study of Evolution
2016 – pres.	Society of Integrative and Comparative Biology
2015 – pres.	PADI Advanced Scuba Diver

Last Updated September 2024