

Basanta Khakurel

PHD STUDENT · DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCES

Ludwig-Maximilians-Universität München

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Education

Ludwig Maximilians-Universität München

PHD

- Advisor: Dr. Sebastian Höhna

Munich, Germany

September 2023 - Present

Southeastern Louisiana University

MS BIOLOGY

- Advisor: Dr. April Wright
- Thesis Title: Inference of Phylogeny Using Discrete Morphological Characters

Hammond, USA

May 2021 - August 2023

Southeastern Louisiana University

BS BIOLOGY

- Minors: Chemistry and Political Science
- Honors thesis/undergraduate research advisor: Dr. April Wright
- Thesis Title: Species delimitation of Eastern Pinesnakes (*Pituophis melanoleucus*)

Hammond, USA

August 2017 - May 2021

Professional Experience

2023 -
Present

Research Assistant, Dept. of Earth and Environmental Sciences, Ludwig-Maximilians-Universität München

2021-2023 **Graduate Research Assistant**, Dept. of Biological Sciences, Southeastern Louisiana University

2019- 2021 **Undergraduate Research Assistant**, Dept. of Biological Sciences, Southeastern Louisiana University

2018-2019 **Student Assistant**, Sims Memorial Library, Southeastern Louisiana University

Research Experience

Southeastern Louisiana University - Department of Biological Sciences

ADVISOR: DR. APRIL WRIGHT

- Thesis: "Inference of Phylogeny Using Discrete Morphological Characters"

Hammond, Louisiana

2021-2023

Southeastern Louisiana University - Department of Biological Sciences

ADVISOR: DR. APRIL WRIGHT

- Honor's Thesis: "Species delimitation of Eastern Pine snakes *Pituophis melanoleucus*"

Hammond, Louisiana

2019-2021

Publications

PUBLISHED

Khakurel, B., Grigsby, C., Tran, T., Höhna, S., and Wright, A.M. The fundamental role of character coding in Bayesian morphological phylogenetics. 2024. *Systematic Biology*, syae033, <https://doi.org/10.1093/sysbio/syae033>.

Duque, J.C.G., Balk, M., Dahdul, W., Lapp, H., Mikó, I., Alhajjar, E., Wynd, B., Tarasov, S., Lawrence, C., **Khakurel, B.** and Porto, A. 2024. Meeting Report for the Phenoscape TraitFest 2023 with Comments on Organising Interdisciplinary Meetings. *Biodiversity Information Science and Standards*, 8, <https://doi.org/10.3897/biss.8.115232>.

Khakurel, B., Nikolakis, Z. L., Crother, B. I., and Wright, A. 2023. Species Delimitation of Eastern Pinesnake Complex (*Pituophis melanoleucus*). Bulletin of the Society of Systematic Biologists, 2(1), <https://doi.org/10.18061/bssb.v2i1.9423>.

Ward, S., McMahan, C., **Khakurel, B.**, Wright, A.M., and Piller, K.R. 2022. Genomic data support the taxonomic validity of Middle American livebearers *Poeciliopsis gracilis* and *Poeciliopsis pleurospilus* (Cyprinodontiformes: Poeciliidae). PLoS one, 17(1): <https://doi.org/10.1371/journal.pone.0262687>.

SUBMITTED

Heckeberg, N., Capobianco, A., **Khakurel, B.**, Darlim, G., Höhna, S. 2024. Practical Guide and Review of Tip-Dating in Phylogenetics.

Awards, Fellowships, & Grants

2023	SSB Travel Award , Society of Systematic Biologists	\$ 500
2022	Distinguished Graduate Fellowship , Department of Biological Sciences and the Dean of the College of Science and Technology	\$ 3,500
2022	Graduate Research Fellowship , Louisiana Biomedical Research Network	\$8,000
2021	David Ware Outstanding International Student Award , Southeastern Louisiana University	\$ 1,000
	Outstanding Senior Award , Dept. of Biological Sciences, Southeastern Louisiana University	\$ 100
	Dr. Marvin L. Yates Award of Excellence , Southeastern Louisiana University	\$ -
2019	Sophomore Honors Distinction , Honors Department, Southeastern Louisiana University	\$ -

Presentations and Talks

TALKS

Summer 2024. *Snakes, Fish, and Bayesian Morphological Phylogenetics*. PhD and PostDoc Seminar, Paleontological Museum Munich.

Spring 2023. *Use of Continuous Traits in Phylogenetic Estimation*. Departmental Seminar, Southeastern Louisiana University.

Fall 2022. *Simulations in Biology*. Biological Data Analysis Class, Southeastern Louisiana University.

PRESENTATIONS AT ACADEMIC CONFERENCES

Khakurel, B., Höhna, S. 2024. An efficient Heterotachy model for morphological phylogenetics. 3rd Joint Congress on Evolutionary Biology. Montréal, Canada.

Heckeberg, N., Capobianco, A., Darlim, G., **Khakurel, B.**, Höhna, S. 2023. Potential and perils in using morphological characters for phylogenetic inference. The Palaeontological Association Meeting. Cambridge, UK.

Wynd, B.M., **Khakurel, B.**, Wright, A.M. 2023. Incorporating Continuous Characters in Total-Evidence Phylogenetic Estimation of Extinct Lineages. GSA Connects Meeting. Pittsburgh, PA, USA

Khakurel, B., Wynd, B.M., Wright, A.M. 2023. Use of Continuous Traits in Phylogenetic Estimation. Evolution Meetings, Albuquerque, NM, USA

Khakurel, B., Wright, A.M. 2023. Model Adequacy in Morphological Data. Society of Systematic Biologists Meeting, Mexico City, Mexico.

- Khakurel, B.**, Wright, A.M. 2022. Species Delimitation in Eastern Pine Snakes (*Pituophis melanoleucus*). Evolution Meetings, Cleveland, OH, USA
- Schwery, O., **Khakurel, B.**, Wright, A.M. 2022. Adequacy of Fossilised Birth-Death Models: A Test Case in Ants. Evolution Meetings, Cleveland, OH, USA
- Khakurel, B.**, Wright, A.M. 2021. Species Delimitation in Eastern Pine Snakes (*Pituophis melanoleucus*). LBRN 8th Computational Biology and Bioinformatics Meeting, Baton Rouge, LA, USA
- Khakurel, B.**, Grigsby, C., Wright, A.M. 2020. Modeling morphological state space. Society of Systematic Biologists Meeting. Gainesville, FL, USA
- Khakurel, B.**, Grigsby, C., Tran, T., Wright, A.M. 2020. Character State Space Partitioning in Phylogenetic Analyses from discrete data. Louisiana Biomedical Research Network 18th Annual Meeting. Baton Rouge, LA, USA
- Khakurel, B.**, Rocquin, V., Litloff, J. 2019. The Role of Honors Student Organizations in Building and Sustaining a Robust Honors Presence on Campus. Southern Regional Honors Council Conference. Memphis, TN, USA

Outreach & Professional Development

PROFESSIONAL MEMBERSHIPS

Society for the Study of Evolution
 Society of Systematic Biologists
 Phi Kappa Phi Honor Society

SERVICE AND OUTREACH

2018-2022	Nepalese Student Association at Southeastern , President	<i>Hammond, LA</i>
2021	Louisiana Sci-Comm Summit , Planning Committee	<i>Baton Rouge, LA</i>
2019-2021	Honors Program, Southeastern Louisiana University , Ambassador	<i>Hammond, LA</i>
2020-2021	Phi Kappa Phi , Vice President	
2019-2020	Division of Student Affairs , Leadership Ambassador	<i>Hammond, LA</i>
2019	Student Government Association , Senator	<i>Hammond, LA</i>
2018	Science Fair , Volunteer Judge	<i>Hammond, LA</i>

PROFESSIONAL DEVELOPMENT

Posterior Predictive Simulation with P2C2M workshop, was a workshop offered in the Society of Systematic Biologists meeting 2020 in Gainesville, FL. In this workshop, I learned about posterior predictive simulations which is a powerful tool in evaluating model performance in Bayesian Phylogenetic Methods.

PhylogatR (Phylogeographic data Aggregation and Repurposing) workshop, was a workshop for the beta-testing of the phylogatR database. It is a database that brings together genetic data with georeferenced specimen records that are analysis-ready. This workshop took place in Pembroke, VA on October, 2021. In this workshop, I learned the use of phylogatR database and got a chance to connect with researchers working in various fields.

Phenoscape Traitfest, was a hands on workshop that aimed at methods generating, discovering, linking to, recombining, or computing with machine-interpretable trait data. This workshop took place in North Carolina on January, 2023. In this workshop, I learned processes to expedite the process of data acquisition and implement machine-learning approached to automate the collection of measurements on large datasets.

RevBayes Workshop and Hackathon, was a workshop/hackathon offered in the Munich on October, 2023. In this workshop, I learned about about Bayesian Phylogenetic Methods, how to model phylogenetic analyses in RevBayes and also about the use of C++ for academic software development.

Navigating Scientific Publishing – Early Career Focus, workshop was offered in the 3rd Joint Congress on Evolutionary Biology. In this workshop, the organizers helped early career researchers understand the publishing landscape and how to efficiently navigate it to further your professional life.