

Basanta Khakurel, M.S.



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Education

- 2023 – Present ■ **Ph.D., Ludwig Maximilians-Universität München.**
Advisor: Dr. Sebastian Höhna
Thesis topic: *Robust models for morphological phylogenetic inferences.*
- 2021 – 2023 ■ **M.S. Biology, Southeastern Louisiana University.**
Advisor: Dr. April Wright
Thesis title: *Inference of Phylogeny using Discrete Morphological Characters.*
- 2017 – 2021 ■ **B.S. Biology, Southeastern Louisiana University.**
Minors: Chemistry and Political Science
Advisor: Dr. April Wright
Thesis title: *Species delimitation of Eastern Pinesnakes (Pituophis melanoleucus).*

Employment History

- 2023 – Present ■ **Research Assistant**, Department of Earth and Environmental Sciences, Ludwig-Maximilians-Universität München.
- 2021 – 2023 ■ **Graduate Research Assistant**, Department of Biological Sciences, Southeastern Louisiana University.
- 2019 – 2021 ■ **Undergraduate Research Assistant**, Department of Biological Sciences, Southeastern Louisiana University.
- 2019 – 2019 ■ **Summer Camp Teacher**, Upward Bound Math and Science Program, Southeastern Louisiana University.
- 2018 – 2019 ■ **Student Assistant**, Sims Memorial Library, Southeastern Louisiana University.

Presentations and Talks

Talks

- 1 **B. Khakurel**, “Snakes, fish, and bayesian morphological phylogenetics,” in *PhD and PostDoc Seminar*, Paleontological Museum Munich, 2024.
- 2 **B. Khakurel**, B. M. Wynd, and A. M. Wright, “Use of continuous traits in phylogenetic estimation,” in *Departmental Seminar*, Southeastern Louisiana University, 2023.
- 3 **B. Khakurel**, “Simulations in biology,” in *Biological Data Analysis Class*, Southeastern Louisiana University, 2022.

Presentations at Academic Conferences

- 1 **B. Khakurel** and S. Höhna, “Characters changing speed: The covariomorph model and its impact on phylogenetic trees,” in *Evolution Meetings*, Athens, Georgia, USA, Jun. 2025.
- 2 **B. Khakurel** and S. Höhna, “An efficient heterotachy model for morphological phylogenetics,” in *3rd Joint Congress on Evolutionary Biology*, Montréal, Canada, Jul. 2024.

- 3 **B. Khakurel** and S. Höhna, “Evidence of covarion rate variation in empirical morphological datasets,” in *The Paleontological Association Annual Meeting*, Poster presentation, Erlangen, Germany, Dec. 2024.
- 4 N. Heckeberg, A. Capobianco, G. Darlim, **B. Khakurel**, and S. Höhna, “Potential and perils in using morphological characters for phylogenetic inference,” in *The Palaeontological Association Annual Meeting*, Poster presentation, Cambridge, UK, 2023.
- 5 **B. Khakurel** and A. M. Wright, “Model adequacy in morphological data,” in *Society of Systematic Biologists Meeting*, Mexico City, Mexico, 2023.
- 6 **B. Khakurel**, B. M. Wynd, and A. M. Wright, “Use of continuous traits in phylogenetic estimation,” in *Evolution Meetings*, Albuquerque, NM, USA, 2023.
- 7 B. M. Wynd, **B. Khakurel**, and A. M. Wright, “Incorporating continuous characters in total-evidence phylogenetic estimation of extinct lineages,” in *GSA Connects Meeting*, Pittsburgh, PA, USA, 2023.
- 8 **B. Khakurel** and A. M. Wright, “Species delimitation in eastern pine snakes (*Pituophis melanoleucus*),” in *Evolution Meetings*, Cleveland, OH, USA, 2022.
- 9 O. Schwery, **B. Khakurel**, and A. M. Wright, “Adequacy of fossilised birth-death models: A test case in ants,” in *Evolution Meetings*, Cleveland, OH, USA, 2022.
- 10 **B. Khakurel** and A. M. Wright, “Species delimitation in eastern pine snakes (*Pituophis melanoleucus*),” in *LBRN 8th Computational Biology and Bioinformatics Meeting*, Baton Rouge, LA, USA, 2021.
- 11 **B. Khakurel**, C. Grigsby, T. Tran, and A. M. Wright, “Character state space partitioning in phylogenetic analyses from discrete data,” in *Louisiana Biomedical Research Network 18th Annual Meeting*, Poster presentation, Baton Rouge, LA, USA, 2020.
- 12 **B. Khakurel**, C. Grigsby, and A. M. Wright, “Modeling morphological state space,” in *Society of Systematic Biologists Meeting*, Poster presentation, Gainesville, FL, USA, Jan. 2020.
- 13 **B. Khakurel**, V. Rocquin, and J. Litloff, “The role of honors student organizations in building and sustaining a robust honors presence on campus,” in *Southern Regional Honors Council Conference*, Memphis, TN, USA, 2019.

Research Publications

Submitted Preprints

- 1 **B. Khakurel** and S. Höhna, *A covarion model for phylogenetic estimation using discrete morphological datasets*, 2025.
- 2 B. M. Wynd, **B. Khakurel**, C. F. Kammerer, P. J. Wagner, and A. M. Wright, *Incorporating continuous characters in joint estimation of dicynodont phylogeny*, 2025.

Journal Articles

- 1 N. S. Heckeberg, A. Capobianco, **B. Khakurel**, G. Darlim, and S. Höhna, “Practical guide and review of fossil tip-dating in phylogenetics,” *Systematic Biology*, 2025 (in press).
- 2 J. C. G. Duque, M. Balk, W. Dahdul, *et al.*, “Meeting report for the phenoscape traitfest 2023 with comments on organising interdisciplinary meetings,” *Biodiversity Information Science and Standards*, vol. 8, e115232, 2024. [DOI: https://doi.org/10.3897/biss.8.115232](https://doi.org/10.3897/biss.8.115232).
- 3 **B. Khakurel**, C. Grigsby, T. D. Tran, J. Zariwala, S. Höhna, and A. M. Wright, “The fundamental role of character coding in bayesian morphological phylogenetics,” *Systematic biology*, vol. 73, no. 5, pp. 861–871, 2024. [DOI: https://doi.org/10.1093/sysbio/syae033](https://doi.org/10.1093/sysbio/syae033).

- 4 **B. Khakurel**, Z. L. Nikolakis, B. I. Crother, and A. Wright, "Species delimitation of eastern pinesnake complex (*Pituophis melanoleucus*)," *Bulletin of the Society of Systematic Biologists*, vol. 2, no. 1, 2023. [DOI: https://doi.org/10.18061/bssb.v2i1.9423](https://doi.org/10.18061/bssb.v2i1.9423).
- 5 L. M. Ward, C. D. McMahan, **B. Khakurel**, A. M. Wright, and K. R. Piller, "Genomic data support the taxonomic validity of middle american livebearers *Poeciliopsis gracilis* and *Poeciliopsis pleurospilus* (Cyprinodontiformes: Poeciliidae)," *PloS one*, vol. 17, no. 1, e0262687, 2022. [DOI: https://doi.org/10.1371/journal.pone.0262687](https://doi.org/10.1371/journal.pone.0262687).

Skills

Languages	Strong reading, writing and speaking competencies for Nepali, English, and Hindi. Basic German understanding.
Coding	Python, R, \LaTeX , C++
Misc.	Academic research, teaching, training, \LaTeX typesetting and publishing.

Miscellaneous Experience

Professional Memberships

- Society for the Study of Evolution (SSE)
- Society of Systematic Biologists (SSB)
- Phi Kappa Phi Honor Society

Awards, Fellowships, and Grants







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

Service and Outreach

2018 - 2022	■ President, Nepalese Student Association at Southeastern
2021	■ Planning Committee, Louisiana Sci-Comm Summit
2020 - 2021	■ Vice President, Phi Kappa Phi
2019 - 2021	■ Ambassador, Honors Program, Southeastern Louisiana University
2019 - 2020	■ Leadership Ambassador, Division of Student Affairs
2019	■ Senator, Student Government Association
2018	■ Volunteer Judge, Science Fair at Southeastern Lab School

Miscellaneous Experience (continued)

Professional Development

- 2025  **Phylogenetic methods for Historical Biogeography** workshop was offered in the Evolution Meetings 2025 organized in Athens, GA.
This workshop taught me about methods to explore the bio-geographical history of species using phylogenetic methods in RevBayes.
- 2024  **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.
- 2023  **Phenoscape Traitfest** was a hands on workshop that aimed at methods generating, discovering, linking to, recombining, or computing with machine-interpretable trait data.
In this workshop, I learned processes to expedite the process of data acquisition and implement machine-learning approaches 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 Bayesian Phylogenetic Methods, how to model phylogenetic analyses in RevBayes and also about the use of C++ for academic software development.
- 2021  **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.
In this workshop, I learned the use of phylogatR database and got a chance to connect with researchers working in various fields.
- 2020  **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.

References

Available on Request