

SIDDHARTH KULKARNI

I am an evolutionary biologist. My scientific work focuses on modeling evolution of arachnids using genomic interrogations, machine learning, laboratory-based functional experiments, behavior and simulation modeling. I developed the *Spider2Kv1* probe set which targets specifically with the ultraconserved regions of arachnid genomes. I also coordinate SpiderIndia community science project communicated to about 9,000 people in South Asia across multiple platforms.



EDUCATION

2022

- **George Washington University**
Ph.D. in Biological Sciences



EMPLOYMENT

2022

- **Research Associate**
University of Wisconsin-Madison, United States
 - Genomic and RNA sequencing
 - Design custom probe sets
 - Bioinformatic analysis
 - Conduct RNAi, imaging and gene expression assays
 - Develop tools for exploring genomic duplications
 - Establish citizen science communities (e.g. SpiderINDIA)
 - Conduct international field trips and secure collection permits from local authorities
 - Communicate results in reports, books, papers, and talks
 - Teach technical classes to small and large groups
 - Successfully write grant proposals for funding
 - Recruit, supervise, and lead a team of students
 - Organise conferences and workshops
 - Develop and execute international collaborative projects



BOOKS

2022

- **A field guide to the Spider Genera of India**
(coauthors: Ayan Mondal, Debomay Chanda, Atul Vartak)
<https://www.nhbs.com/a-field-guide-to-the-spider-genera-of-india-book>



TALKS

2023

- **Reconciliation of Xiphosura gene tree-species tree reveals ancient hybridization**
Session Chair, The Society for Integrative and Comparative Biology (Austin, TX)

2021

- **Phylogenomics illuminate the evolution of orb webs of the world's smallest orb-weaving spiders**
Invited talk, American Arachnological Society (Virtual meeting)
https://www.youtube.com/watch?v=_sWM2Zr5MTk

2019

- **Spider-specific probe set for ultraconserved elements offers new perspectives on the evolutionary history of spiders (Arachnida, Araneae)**
Award-winning talk, International Society of Arachnology Congress (Christchurch, New Zealand)

Complete Curriculum vitae

sskspider.com/cv-resume/

sskspider.com

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github.com/sskspider

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PROGRAMMING

R
git / GitHub
SQLite
Python
Bash

DATA ANALYSIS

Genomic, transcriptomic assembly and analyses (e.g., SPADES, Trinity, Rcorrector, BUSCO, TransDecoder, Salmon, etc.)

Phylogenomic analysis (Bayesian, Maximum Likelihood and Parsimony)

Deep learning (CNN)

Targeted probe design (e.g. Phyluce)

LITERATE CODING

LaTeX
R markdown



TRAINING AND TEACHING SKILLS

- 2023 ● **Molecular dating**
American Museum of Natural History. University subject providing an introduction to the Bayesian theory and fossil-based approaches to molecular dating.
- 2018 | 2016 ● **Introduction to Biology Course**
George Washington University. University subject providing an introduction to biology covering micro to macro ecology, diversity and evolution topics.
- 2022 ● **Reconstructing Evolution workshop**
Hebrew University of Jerusalem, Israel. A week-long workshop covering basic of evolutionary process, theory and practice of phylogenetics and bioinformatics methods.



SCIENTIFIC PAPERS

🔗 Complete list: <https://sskspider.com/publications/>

- 2022 ● **Neglected no longer: Phylogenomic resolution of higher-level relationships in Solifugae.**
iScience (submitted)
🔗 doi.org/10.1101/2022.10.22.513338
- 2021 ● **Interrogating genomic-scale data to resolve recalcitrant nodes in the Spider Tree of Life.**
Molecular Biology and Evolution
🔗 doi.org/10.1093/molbev/msaa251
- 2020 ● **Spider-specific probe set for ultraconserved elements offers new perspectives on the evolutionary history of spiders.**
Molecular Ecology Resources
🔗 doi.org/10.1111/1755-0998.13099



DATASET PAPERS

- 2023 ● **Occurrence records of spiders mobilized through SpiderIndia citizen science initiative on Facebook**
Occurrence Dataset, Global Biodiversity Information Facility 🔗 doi.org/10.15468/7jz829
- 2022 ● **5th SpiderIndia Meet 2021**
Occurrence Dataset, Global Biodiversity Information Facility
🔗 doi.org/10.15468/s9nqqf

- **>30 scientific papers, ~300 citations, h-index: 9**
🔗 <https://scholar.google.com/citations?user=xo9jTM0AAAAJ>



SCIENTIFIC PEER-REVIEWS

Arachnology, Acta Arachnologica, Biodiversity Data Journal, Check List, Diversity, Evolutionary Systematics, Insect Systematics and Diversity, Journal of Bombay Natural History Society, Journal of Natural History, Journal of Zoological Systematics and Evolutionary Research, Molecular Ecology Resources, PloSOne, Proceedings of the Royal Society B, Subterranean Biology, ZooKeys, Zoological Research, Zoosystematics and Evolution and Zootaxa.



SCIENTIFIC AWARDS

🔗 sskspider.com/research-awards/
(Award totalling ~\$100,000)

Presentation Award at International Congress of Arachnology, NewZealand

National Geographic Early Career Award

International Society of Arachnology Student Grant

Smithsonian Predoctoral Fellowship

George Washington University Dean's Dissertation Completion Fellowship