Guilherme H. F. Azevedo



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EDUCATION

- **Ph.D. in Zoology,** Universidade Federal de Minas Gerais, Brazil. 2016 One year of collaborative period at the California Academy of Sciences, USA. "Phylogeny, taxonomy and macroevolution of copulatory structures in Gnaphosidae genera (Araneae: Gnaphosoidea)." Advisors: Dr. Adalberto J. Santos and Dr. Charles Griswold
- M.S. in Ecology, conservation and wildlife management, Universidade Federal de Minas 2012 Gerais, Brazil. "Systematics and evolution of the Brazilian wandering spiders (Ctenidae: Phoneutria) based on molecular, morphological and ecological evidence." Advisor: Dr. Adalberto J. Santos
- B.S. in Biology, emphasis in Zoology, Universidade Federal de Minas Gerais, Brazil. 2009 "Morphometrics of copulatory structures in three species of Brazilian wandering spiders (Ctenidae: Phoneutria)." Advisors: Dr. Adalberto J. Santos

POSTDOCTORAL RESEARCH EXPERIENCE

- Postdoctoral Researcher, San Diego State University 2022-2023 "Genetic studies of cave-dwelling Cicurina from the Bexar County region of Texas, USA" Supervisor: Dr. Marshal Hedin.
- 2019-2022 **Postdoctoral Researcher,** San Diego State University "Integrative, genus-wide phylogenomic studies of divergence and reticulation in Habronattus jumping spiders" Supervisor: Dr. Marshal Hedin
- 2017-19 Postdoctoral Researcher "Fondo para la Investigación Científica y Tecnológica" Museo Argentino de Ciencias Naturales Bernardino Rivadavia, Buenos Aires, Argentina. "Systematics and evolution of spiders using morphological and molecular data from museum and fresh specimens." Supervisor: Dr. Martín J. Ramírez
- Postdoctoral Researcher "CAPES/PNPD", Universidade Federal de Minas Gerais, Brazil 2016-17 "Implementing reduced representation library protocols to obtain genetic data of species of the Brazilian fauna." Supervisor: Dr. Fabrício R. Santos

ACADEMIC INTERESTS

- Diversity, evolution and conservation of Arachnids and other Arthropods
- Phylogenetic models for testing evolutionary processes
- Phylogenomics and population genetics
- Morphological and molecular evolution
- Biogeography, Systematics and Taxonomy

ACADEMIC POSITIONS

2017	Lecturer, Universidade Federal de Minas Gerais, Brazil
2015–16	Lecturer, Universidade Federal de Minas Gerais, Brazil
2012–13	Lecturer, Universidade Federal de Minas Gerais, Brazil
2007-09	Undergraduate Research & Curatorial Assistant, Universidade Federal de Minas Gerais, Brazil
2006	Volunteer Research & Curatorial Assistant, Universidade Federal de Minas Gerais, Brazil

PEER-REVIEWED PUBLICATIONS (GOOGLE SCHOLAR)

- 12. **Azevedo, G.H.F.**, Maddison, W. and Hedin, M. 2024. Phylogeny and biogeography of harmochirine jumping spiders (Araneae: Salticidae). *Molecular Phylogenetics and Evolution*, 197, p. 108109. https://doi.org/10.1016/j.ympev.2024.108109.
- 11. **Azevedo, G.H.F.**, Blair, J. and Hedin, M. 2023. Evaluating possible anthropogenic impacts on gene flow and loss of genetic diversity in endangered Madla Cave Meshweaver spiders (Hahniidae, *Cicurina madla*). *Conservation Genetics*, 25, p. 149–164. https://doi.org/10.1007/s10592-023-01561-y.
- 10. **Azevedo, G.H.F.**, Bougie, T., Carboni, M., Hedin, M. and Ramírez, M.J., 2022. Convergence, Hemiplasy, and Correlated Evolution Impact Morphological Diversity Related to a Web-Less Lifestyle in the Two-Clawed Spiders. *Insect Systematics and Diversity*, 6(5), p. 1–14. https://doi.org/10.1093/isd/ixac020
- Azevedo, G.H., Bougie, T., Carboni, M., Hedin, M. and Ramírez, M.J., 2022. Combining Genomic, Phenotypic and Sanger Sequencing Data to Elucidate the Phylogeny of the Two-Clawed Spiders (Dionycha). *Molecular Phylogenetics and Evolution*, 166, p. 107327. https://doi.org/10.1016/j.ympev.2021.107327
- 8. **Azevedo, G.H.**, Parreiras, J.S., Bougie, T., Michalik, P., Wunderlich, J. and Ramírez, M.J., 2021. Fossils constrain biogeographical history in a clade of flattened spiders with transcontinental distribution. *Journal of Biogeography*, 48, p. 3032–3046. https://doi.org/10.1111/jbi.14259
- Jäger, P., Arnedo, M.A., Azevedo, G.H., Baehr, B., Bonaldo, A.B., Haddad, C.R., Harms, D., Hormiga, G., Labarque, F.M., Muster, C. and Ramírez, M.J., 2021. Twenty years, eight legs, one concept: describing spider biodiversity in Zootaxa (Arachnida: Araneae). *Zootaxa*, 4979(1), p. 131-146. https://doi.org/10.11646/zootaxa.4979.1.14
- 6. Girard, M.B., Elias, D.O., **Azevedo, G**., Bi, K., Kasumovic, M.M., Waldock, J.M., Rosenblum, E.B. and Hedin, M., 2021. Phylogenomics of peacock spiders and their kin (Salticidae: *Maratus*), with implications for the evolution of male courtship displays. *Biological Journal of the Linnean Society*, *132*(3), p. 471-494. https://doi.org/10.1093/biolinnean/blaa165
- 5. Magalhaes, I.L., **Azevedo, G.H.**, Michalik, P. and Ramírez, M.J., 2020. The fossil record of spiders revisited: implications for calibrating trees and evidence for a major faunal turnover since the Mesozoic. *Biological Reviews*, 95(1), p.184-217. https://doi.org/10.1111/brv.12559
- 4. **Azevedo, G.H.F.**; Griswold, C.E.; Santos, A.J. 2018. To complicate or to simplify? Phylogenetic tests of complexity trends and genital evolution in ground spiders (Araneae: Dionycha: Gnaphosidae). *Zoological Journal of the Linnean Society*, v. 184, Issue 3, p. 673-694.

- https://doi.org/10.1093/zoolinnean/zly016
- 3. **Azevedo, G.H.F.**; Griswold, C.E.; Santos, A.J. 2017. Systematics and evolution of ground spiders revisited (Araneae, Dionycha, Gnaphosidae). *Cladistics*, p. 1-48, 2017. https://doi.org/10.1111/cla.12226
- 2. **Azevedo, G.H.F.**, Ott, R.; Griswold, C.E.; Santos, A.J. 2016. A taxonomic revision of the ground spiders of the genus *Apopyllus* (Araneae: Gnaphosidae). *Zootaxa* (Auckland. Print), v. 4178, p. 301. http://dx.doi.org/10.11646/zootaxa.4178.3.1
- Azevedo, G.H.F., Faleiro, B.T., Magalhães, I.L.F., Benedetti, A.R., Oliveira, U., Pena-Barbosa, J.P.P., Santos, M.T.T., Vilela, P.F., De Maria, M., Santos, A.J. 2014. Effectiveness of sampling methods and further sampling for accessing spider diversity: a case study in a Brazilian Atlantic rainforest fragment. *Insect Conservation and Diversity*, v. 7, p. 381-391. https://doi.org/10.1111/icad.12061

MANUSCRIPTS IN PREPARATION

- **Azevedo, G.H.F.,** Blair, J. and Hedin, M. A novel model that integrates of micro and macroevolution sheds light on the speciation of cave spiders in an environment threatened by urbanization. (In preparation for Evolution. Presentation available at: https://youtu.be/rGh9NVxAbCU?si=C3vH8oLhwSUvtcZz).
- **Azevedo, G.H.F.**, Parreiras, J.S., Bougie, T., Michalik, P., Wunderlich, J. and Ramírez, M.J. A new Baltic amber species of the genus *Plator* Simon, 1880 with comments on the taxonomy and evolution of fossil and extant trochanteriids. (In preparation for Zootaxa).
- **Azevedo, G.H.F.**; Oliveira, U; Santos, F.; Vidigal, T.; Brescovit, A. and Santos, A.J. Hypothesis driven species delimitation: objective tests of speciation processes help to understand species limits in the Brazilian wandering spiders from the Atlantic Forest. (In preparation for Systematic Biology).

BOOK CHAPTERS

De Maria, M; Santos, A J; **Azevedo, G.H.F.**; et al. 2009. Aracnídeos/Araneofauna. In: AngloGold Ashanti. (Org.). *Biodiversidade da Mata Samuel de Paula*. Belo Horizonte: AngloGold Ashanti Brasil Mineração Ltda., p. 209- 223.

GRANTS AND SCHOLARSHIPS (TOTAL: ~ \$ 137,000.00)

- 2023-24 Linnean Society of London and the Systematics Association. LinnéSys: Systematics Research Fund, England (£ 1.000,00).
- 2022–23 Blair Wildlife Consulting: Genetic studies of cave-dwelling *Cicurina* from the Bexar County region of Texas, USA (\$ 56,160.00)
- 2016–17 Postdoctoral Fellowship, CAPES-PNPD, Brazil (~ \$ 9,800.00)
- 2012–16 PhD Research Fellowship, CAPES, Brazil (~ \$ 35,000.00)
- 2014–15 International Sandwich Doctorate Fellowship, CAPES-PDSE, Brazil (~ \$ 24,000.00)
- 2010–12 MS Research Fellowship, CAPES, Brazil (~ \$ 9,600.00)

2011	III Congreso Latinoamericano de Aracnología student grant, Colombia (~ \$ 150.00)
2008-09	"PIBIC" Undergraduate Research Fellowship, CNPq, Brazil (~ \$ 800.00)
2007	"PEG" Undergraduate Research Fellowship, UFMG, Brazil (~ \$ 800.00)

TEACHI	NG EXPERIENCE
Invited Lecturer	
2024	Spider Biology: Secrets of paradise jumping spiders. Cornell University, USA.
2023	Introduction to Spiders. San Diego State University, USA.
2022	Introduction to Spiders. San Diego State University, USA.
2022	Evolutionary origins of insects. San José State University, USA.
2021	Models, Fossils and Biogeography. Universidade Federal do Piauí, Brazil.
2014	Spiders taxonomy and biology: field course. Graduate course. University of California, Berkley.
Instructe	or
2021	Introduction to the Use of Genomic Data in Phylogenetic Systematics *course developer*. Graduate course. Universidade Federal de Minas Gerais, Brazil.
2017	Molecular Methods for Species Delimitation *course developer*. Graduate course. Universidade Federal de Minas Gerais, Brazil.
2017	Zoology I: Introduction to Metazoa; Porifera; Cnidaria; Ctenophora. *lab course developer*. Undergraduate course. Universidade Federal de Minas Gerais, Brazil
2013	Arachnology: Systematics, evolution, and ecology of arachnids *course developer*. Undergraduate course. Universidade Federal de Minas Gerais, Brazil.
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- 2015–16 Zoology I: Introduction to Metazoa; Porifera; Cnidaria; Ctenophora. *lab course developer*. Undergraduate course. Universidade Federal de Minas Gerais, Brazil.
- 2012–13 Zoology I: Introduction to Metazoa; Porifera; Cnidaria; Ctenophora. *lab course developer*. Universidade Federal de Minas Gerais, Brazil.

Workshop Instructor

- 2017 Biology Field Practices *workshop developer*. Bocaina Conservation Biology, Brazil.
- 2013 Taxonomy and systematics of spiders *workshop developer*. Fundação Ezequiel Dias, Brazil.
- 2010 Arachnids, with emphasis in medically important arachnids *workshop developer*. Universidade Federal de Minas Gerais, Brazil.
- 2008 Introduction to biology and systematics of spiders *workshop developer*. Universidade Federal de Minas Gerais, Brazil.

Teaching Material

- 2021 Phylogenomic Analyses Course, Computer Lab Tutorial. Universidade Federal de Minas Gerais, Brazil.
- 2017 Species Delimitation Course, Computer Lab Tutorial. Universidade Federal de Minas Gerais, Brazil.
- 2007 Interactive CD-ROOM: Virtual Zoology, a Portal to the Study of Invertebrates. Universidade Federal de Minas Gerais, Brazil.

INVITED SEMINARS

- What genomics and phenomics can tell us about the diversity, evolution and conservation of spiders. Department of Biology, **Bucknell University**.
- Combining evidence to unravel how complex evolutionary processes shaped the diversity of the two-clawed spiders. Department of Biological Sciences, **San José State University**.
- The evolutionary history of the two-clawed spiders told by molecules and morphology. Universidade Federal de Santa Maria, Brazil.
- Systematics and evolution of ground spiders: from morphology to molecules. **British Arachnological Society** John Murphy and Mike Roberts Memorial Symposium.
- The radiation of two-clawed spiders inferred with molecular and morphological data. **National Museum of Natural History** Virtual Entomology Seminar.
- A Baltic amber fossil species helps unravel the biogeographic process in a group of flattened spiders. **Universidad Autónoma de Baja California** in Congreso Internacional Meredith Gould, Baja California, México.

SELECTED CONTRIBUTED PRESENTATIONS

- Integration of micro- and macroevolutionary models sheds light on the speciation of cave spiders in an environment threatened by urbanization. 3rd Joint Congress on Evolutionary Biology, **Montreal, Canada**
- Introgressive Hybridization, Sexual Selection and the Evolution of *Habronattus* Jumping Spiders. American Arachnological Society, **Davis, USA**
- Systematics and Evolution of Dionycha Spiders: What can Molecules and Morphology tell us? VI Congreso Latinoamericano de Aracnologia. **Buenos Aires** (Virtual).
- 2020 Testing Adaptative Radiation in Dionychan Spiders Using Morphological and Genomic Data. American Arachnology Society Meeting. Virtual.
- 2017 Evolutionary history of the Brazilian wandering spiders from Atlantic Forest. V Congresso Latino-americano de Aracnologia. **Belo Horizonte, Brazil**.
- 2016 Complicate or simplify sex? The evolution of genitalia in Gnaphosidae spiders. 20th International Congress of Arachnology. **Denver, USA**.

- Speciation process and species delimitation: testing evolutionary hypothesis in the Brazilian wandering spiders. Simpósio de Zoologia Sistemática. **Belo Horizonte, Brazil**.
- 2011 Phylogeography and niche conservatism in *Phoneutria*. III Congreso Latinoamericano de Aracnología. **Montenegro, Colombia**.

FIELDWORK EXPERIENCE

2019–2022	U.S.A. : several localities and habitats in Utah, Nevada and California; "Madrean Sky-Islands" in Arizona.
2019	Mexico: Several localities and habitats in Baja California and Baja California Sur.
2017	Chile : several localities and habitats in the provinces of Quillota, Cordillera, Cachapoal, Curicó, Talca, Concepción, Arauco.
2014	U.S.A.: Blodgett Forest in El Dorado County – California
2007–13	Brazil: several localities in the Atlantic Forest, Cerrado and Amazonia.

TECHNICAL SKILLS

Laboratory Techniques

SEM preparation and imaging (including critical point drying); DNA extractions; NGS library preparation (UCEs, ddRAD); PCR and gel electrophoresis; Sanger sequencing.

Computer Programming Experience

Shell, R, RevBayes, Python.

Languages

Portuguese (native); Spanish (fluent); English (fluent).

OUTREACH AND PUBLIC ENGAGEMENT

2024	Interactive Presenter at Utah State University "Science Unwrapped" public event. Logan, UT .
2023	Interactive Presenter at San Diego State University "Darwin Day". San Diego, CA.
2022	Interactive Presenter at Bohart Museum of Entomology "Eight-Legged Encounters" public event. Davis, USA.
2017	Interactive Presenter at Museo Argentino de Ciencias Naturales "Noche de los Museos" public event, Buenos Aires, Argentina .
2017	Interactive Presenter Museo Argentino de Ciencias Naturales "Noche de Brujas" public event, Buenos Aires, Argentina.
2017	Radio Interview at "Rádio UFMG Educativa". Belo Horizonte, Brazil
2014	Interactive Presenter at California Academy of Sciences "Night Life" public event. San Francisco, USA

 California Academy of Sciences Project Lab. San Francisco, USA
 Local Journal Article on Jornal Estâncias da Mata: "Aranhas – medo ou admiração?". Jaboticatubas, Brazil.
 Interactive Presenter at "UFMG Jovem". Belo Horizonte, Brazil.

MENTORSHIP AND TRAINING

MILITION	om mo mana
2021	Rodrigo Monjaraz-Ruedas. Postdoctoral Fellow . Training in NGS library preparation. San Diego State University .
2021	June Kelly. PhD student . Training in molecular laboratory technics, San Diego State University .
2021	Jas Llamas. Undergraduate student . Training in molecular laboratory technics, San Diego State University .
2019–20	Hoang Nguyen. Undergraduate student . Mentoring in Bioinformatic and phylogenetics, San Diego State University .
2018–19	Willians Porto. PhD student . Training in molecular laboratory technics, Museo Argentino de Ciencias Naturales .
2018–20	Márcia de Oliveira Tomasi. Undergraduate student . Mentoring in Systematics, Universidade Federal de Minas Gerais.

PROFESSIONAL DEVELOPMENT

2022	"Creating a more inclusive classroom" Workshop, The Wildlife Society.
2022	"Scientific Teaching" Workshop, UC San Diego.
2021	Species delimitation Workshop. National Museum of Natural History. Virtual.
2019	RNA-Seq Workshop. University of California, Davis.
2018	RevBayes workshop on "Estimating time-calibrated phylogenies and diversification rates". Museo Argentino de Ciencias Naturales.
2013	Coalescent species trees and species delimitation Workshop. Universidade Federal de Minas Gerais.
2012	Higher education teaching course. Universidade Federal de Minas Gerais.
2010	Geometric morphometrics Workshop. Sociedade Brasileira de Zoologia.
2010	Phylogenetic analyses using R. Universidade Estadual Paulista Júlio de Mesquita Filho.
2009	Molecular markers in ecological studies Workshop. Sociedade de Ecologia do Brasil.

PROFESSIONAL SERVICE

Committee Member

- 2024 Mayara Faustino-Magalhães (**PhD dissertation**), Universidade Federal de Minas Gerais, Brazil.
- 2023 Raíla Araújo (**PhD qualifying exam**), Universidade Federal de Minas Gerais, Brazil.
- 2023 Vinícius Diniz (**PhD dissertation**), Universidade Federal de Minas Gerais, Brazil.
- 2023 Rafael Ferreira (**PhD dissertation**), Universidade Estadual Paulista, Rio Claro, Brazil.
- 2022 Arthur Lima (**PhD dissertation**), Universidade Estadual Paulista, Rio Claro, Brazil.
- 2021 Rafael Ferreira (**PhD qualifying exam**), Universidade Estadual Paulista, Rio Claro, Brazil.
- 2020 Vinícius Diniz (**PhD qualifying exam**), Universidade Federal de Minas Gerais, Brazil.
- 2019 Bruno Rodrigues (**PhD dissertation**), Universidade Federal de Minas Gerais, Brazil.
- 2017 Thiago Q. Araújo (**PhD dissertation**), Universidade Federal de Minas Gerais, Brazil.
- 2017 Rafaela Missagia (**MS qualifying exam**), Universidade Federal de Minas Gerais, Brazil.
- 2017 Selection of Teaching Assistant Fellowship, Zoology Department, UFMG, Brazil.

Editorial Board

2018–2024 **Zootaxa. Associate editor** for Araneae: Dionycha (Gnaphosoidea: Ammoxenidae, Cithaeronidae, Gallieniellidae, Gnaphosidae, Lamponidae, Prodidomidae, Trochanteriidae).

Reviewer for Journals (Manuscripts)

2015–present Diversity, Molecular Phylogenetics and Evolution, European Journal of Taxonomy, Zoologischer Anzeiger, Zookeys, Zootaxa, Journal of Biogeography.

Event Organizer

2011 Predictive Species Distribution Models: Applications, Challenges and Future Perspectives.

Society Affiliations

- 2024 Society for the Study of Evolution.
- 2023 Systematics Association.
- 2023 American Arachnological Society.
- 2022 Entomological Society of America.

MUSEUM COLLECTION EXPERIENCE

Curatorial Practices

Arthropod active collecting and standardized collecting protocols; specimen and tissue sample preparation; taxonomic identification; management of records on institutional databases; loan processing; obtaining, and organizing specimen ancillary data (e.g., photographs, SEMs).

Collections visited

American Museum of Natural History (USA), California Academy of Sciences (USA), Centro de Coleções

Taxonômicas da UFMG (Brazil), Instituto Nacional de Pesquisas da Amazônia (Brazil), Lab. Coleções Zoológicas do Instituto Butantan (Brazil), Museo Argentino de Ciencias Naturales "Bernadino Rivadavia" (Argentina), Museu de Ciências e Tecnologia PUC (Brazil), Museu de Ciências Naturais Fundação Zoobotânica (Brazil), Museu de Zoologia da USP (Brazil), Museu de Zoologia da UFB (Brazil), Museu Nacional (Brazil), Museu Paraense Emílio Goeldi (Brazil), Museum of Comparative Zoology (USA), Muséum National d'Histoire Naturelle (France), National Museum of Natural History (USA), SDSU Biodiversity Museum (USA).

Loans

Canterbury Museum (New Zeland), Coleção de História Natural da UFPI (Brazil), Democritus University of Thrace (Greece), Departamento de Zoologia da UnB (Brazil), Museo de Historia Natural de la Universidad Nacional Mayor de San Marcos (Peru), Museo de La Plata (Argentina), Museo Zoologico de "La Specola" (Italy), Museum A. Koenig Biobank (Germany), Museum of Hebei Unversity (China), Museum of Zoology of the Invertebrates (Russia), National Collection of Arachnida (South Africa), Naturalis Biodiversity Center (Netherlands), Queensland Museum (Asutralia), Senckenberg Forschungsinstitut und Naturmuseum (Germany), Universitat de Barcelona (Barcelona), Western Australian Museum (Australia), American Museum of Natural History (USA), California Academy of Sciences (USA), Centro de Coleções Taxonômicas da UFMG (Brazil), Instituto Nacional de Pesquisas da Amazônia (Brazil), Lab. Coleções Zoológicas do Instituto Butantan (Brazil), Museo Argentino de Ciencias Naturales "Bernadino Rivadavia" (Argentina), Museu de Ciências e Tecnologia PUC (Brazil), Museu de Ciências Naturais Fundação Zoobotânica (Brazil), Museu de Zoologia da USP (Brazil), Museu de Zoologia da UFB (Brazil), Museu Nacional (Brazil), Museu Paraense Emílio Goeldi (Brazil), Muséum National d'Histoire Naturelle (France), Museum of Comparative Zoology (USA), National Museum of Natural History (USA).

PROFESSIONAL REFERENCES

Dr. Marshal Hedin mhedin@sdsu.edu

(Postdoc supervisor)
Professor, Curator and Director of Biodiversity Museum
San Diego State University
Department of Biology, SLS 260
5500 Campanile Drive MC4614
San Diego, CA 92182, USA

Dr. Martín Ramírez ramirez@macn.gov.ar

(Postdoc supervisor) Researcher and Curator of Arachnology División Aracnología Museo Argentino de Ciencias Naturales Av. Angel Gallardo 470, C1405DJR, Buenos Aires, Argentina

Dr. Adalberto Santos oxyopes@yahoo.com

(PhD and Masters advisor)
Professor and Curator of Arachnida
Departamento de Zoologia, Instituto de Ciências Biológicas
Universidade Federal de Minas Gerais
Av. Antônio Carlos 6627, 31270-901, Belo Horizonte, MG,
Brasil

Dr. Charles Griswold moggridgea@yahoo.com

(PhD co-advisor) Emeritus Curator of Arachnology Arachnology (Emeritus) California Academy of Sciences 55 Music Concourse Dr. San Francisco, CA 94118, USA