Curriculum Vitae

Daniel S. Caetano

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Appointments

2022 – present	Towson University, Towson, MD Assistant Professor
2019 – 2021	Universidade de São Paulo, São Paulo, Brazil Postdoctoral researcher Supervisor: Dr. Tiago B. Quental
2017 – 2019	University of Arkansas, Fayetteville, AR Postdoctoral researcher Supervisor: Dr. Jeremy M. Beaulieu

Education

2012 – 2017	University of Idaho, Moscow, ID Ph. D. in Bioinformatics and Computational Biology Advisor: Dr. Luke J. Harmon
2009 – 2011	University of São Paulo, São Paulo, Brazil M. S. in Ecology Advisor: Dr. Glauco Machado
2004 – 2009	University of São Paulo, São Paulo, Brazil B. S. in Biological Sciences (major/minor system does not apply)

Peer reviewed publications

Tejero-Cicuéndez H., Patton A.H., **Caetano D.S.**, Šmíd J., Harmon L.J., and S. Carranza, 2022. "Reconstructing Squamate Biogeography in Afro-Arabia Reveals the Influence of a Complex and Dynamic Geologic Past" *Systematic Biology*, 71(2):261–272

Caetano D.S. and J.M. Beaulieu, 2020. "Comparative analyses of phenotypic sequences using phylogenetic trees" *American Naturalist*, 192(2) E-Article

Caetano D.S. and L.J. Harmon, 2019. "Estimating correlated rates of trait evolution with uncertainty" *Systematic Biology*, 68(3):412–429.

Caetano D.S., O'Meara B.C. and J.M. Beaulieu, 2018. "Hidden state models improve state-dependent diversification approaches, including biogeographical models" *Evolution*, 72(11):2308–2324.

Caetano D.S. and L.J. Harmon, 2017. "ratematrix: a R package for studying evolutionary integration among several traits on phylogenetic trees" *Methods in Ecology and Evolution*, 8(12):1920–1927.

Genevcius B.C., **Caetano D.S.** and C.F. Schwertner, 2017. "Rapid differentiation and asynchronous coevolution of male and female genitalia in stink bugs" *Journal of Evolutionary Biology*, 30(3):461–473.

Uyeda J.C., **Caetano D.S.** and M.W. Pennell, 2015. "Comparative analysis of Principal Components can be misleading" *Systematic Biology*, 64(4):677–689.

Caetano D.S. and A. Aisenberg, 2014. "Forgotten treasures: the fate of data in animal behaviour studies" *Animal Behaviour*, 98:1–5.

Caetano D.S. and G. Machado, 2013. "The ecological tale of Gonyleptidae (Arachnida, Opiliones) evolution: phylogeny of a Neotropical lineage of armoured harvestmen using ecological, behavioural and chemical characters" *Cladistics*, 29(6):589–609.

Caetano D.S., Benà D.D.C. and S.A. Vanin, 2013. "*Copelatus cessaima* sp. nov. (Coleoptera: Dytiscidae: Copelatinae): first record of a troglomorphic diving beetle from Brazil" *Zootaxa*, 3710(3):226–232.

Werneck R.M., **Caetano D.S.** and G. Machado, 2012. "Maternal care in the Neotropical harvestman *Liogonyleptoides tetracanthus* (Opiliones: Gonyleptidae)" *Journal of Arachnology*, 40(1):135–137.

Caetano D.S. and S.A. Vanin, 2008. "A new species of the genus *Pimelerodius* Vanin, 1986 from the Amazon Region, with notes on the geographic distribution of *Pimelerodius motacilla* (Boheman, 1843) (Coleoptera, Curculionidae, Otidocephalini)" *Revista Brasileira de Entomologia.* 52(3):431–433.

Manuscripts in preparation

Caetano D.S., Uyeda J.C., Harmon L.J., and R. Zenil-Ferguson. "Using predictive functions as continuous regimes for rates of trait evolution across a phylogeny" In preparation for *Systematic Biology*.

Caetano D.S. and T.B. Quental. "How important is budding speciation for phylogenetic comparative models?" Resubmitted to *Systematic Biology*. Pre-print available here: https://doi.org/10.1101/2022.05.24.493296

Software

'CorrSeq' (Open source) – https://github.com/Caetanods/CorrSeq
R package for fitting phylogenetic comparative models of trait evolution for sequence phenotypes.
'hisse' (Open source) – https://cran.r-project.org/web/packages/hisse/index.html
R package for testing models of trait-dependent diversification using Hidden Markov models.
'ratematrix' (Open source) – https://cran.r-project.org/web/packages/ratematrix/index.html
R package for the study of evolutionary integration using phylogenies in a Bayesian framework.
'Posterior_Phylo_sampler' (Open source) – https://github.com/Caetanods/Posterior_Phylo_sampler
A memory efficient bash script to randomly sample phylogenies from large nexus files.

Programming languages: R (advanced); C++ (intermediary); python (intermediary); bash (intermediary)

Outreach & Digital media

Caetano D. S. 2017. "Phylogenies, trait evolution and fancy glasses" Invited blog post on *Methods in Ecology and Evolution* - https://methodsblog.wordpress.com/2017/10/19/phylogenies-trait-evolution/
Twitter account (@ds_caetano**):** I share and discuss research with 1,024 followers.
Recorded talk on YouTube: (Evolution 2019) https://www.youtube.com/watch?v=9T3XF5Fq7xE

Awards and fellowships

2023	Society of Systematic Biologists Symposium award - $10,000
2019	Top-reviewer for *Evolution* (SSE).
2016 - 2017	Bioinformatics and Computational Biology Program fellowship - $48,050 University of Idaho

2012 - 2016	Science Without Borders Fellowship - $157,560 CAPES, Brazil
2015	College of Sciences Travel Award - $1,300 University of Idaho
2012 - 2013	GPSA Travel Award - $1,400 University of Idaho
2009 - 2011	FAPESP Master level Scholarship - $14,400 São Paulo state, Brazil
2008 – 2009	FAPESP Undergraduate level Scholarship - $2,316 São Paulo state, Brazil

Invited talks

2023	*Systematics Symposium* "Understanding the Drivers of (Insect) Diversity through the Integration of Phylogenies and Natural History Data" Eastern Branch Meeting of the Entomological Society of America (Provide, RI) Title: "Using phylogenies to understand phenotypic evolution in insects"
2022	University of Maryland College Park, MD Title: "Phylogenetic comparative methods and the macroevolution of complex phenotypes"
2022	University of Maryland, Baltimore County Baltimore, MD Topic: Discussion with students about the academia job market, net-working, and preparation for interviews
2018	Jetz lab – Research Updates Yale University, New Haven, CT Title: "Hidden state models and rate variation on phylogenetic trees"
2016	External IBEST Evaluation – Research Updates University of Idaho, Moscow, ID Title: "Comparative methods to study the evolution of correlated traits using phylogenetic trees"
2014 and 2015	Biology 489 (Herpetology) University of Idaho, Moscow, ID Title: "Evolution of warning signals and mimicry in Neotropical snakes"
2011	Neotropical Harvestmen symposium III Latin-American Congress of Arachnology, Montenegro, Colombia Title: "The ecological tale of Gonyleptidae evolution: phylogeny using behavioral, ecological, and chemical characters"
2011	Seminários da Ecologia (Graduate seminar series) University of São Paulo, São Paulo, Brazil Title: "Binary animal behavior: phylogeny of a harvestmen family and evolutionary patterns of behavioral characters"
2011	Biological systematics class Federal University of São Paulo, São Paulo, Brazil Title: "Use of behavioral characters in phylogenetic inference"

Conference presentations

2019	Evolution Meeting Title: "Comparative analyses of phenotypic sequences: a case study using cricket songs"
2018	Botany Meeting Title: "A new hope: hidden state models improve the adequacy of state-dependent diversification approaches using empirical trees"

2017 Society of Systematic Biologists – Standalone Meeting
Title: "ratematrix: a R package for studying evolutionary integration among several traits on phylogenetic trees" (lightning talk)
2016 Evolution Meeting
Title: "Estimating correlated rates of trait evolution from phylogenies with uncertainty"
2015 Ernst Mayr symposium (Evolution Meeting - SSB Student Award competition)
Title: "The colors of deception: Evolution of warning signals in Neotropical snakes (Colubroidea: Dipsadidae)"

Teaching and student supervision

Semester-long courses
since 2023 BIOL208 – Biodiversity (Towson University)
since 2022 MBBB 301 – Introduction to Bioinformatics (Towson University)
since 2022 BIOL206L – Introduction to Ecology and Evolution (Towson University)

Short courses and workshops
2021 Short course – Introduction to statistical modeling in R (Universidade de São Paulo)
2020 Workshop instructor, Cleveland, OH (*Evolution* Meeting 2020)
"Using Simulations in Phylogenetics and Comparative Studies"
2020 Workshop instructor, Gainesville, FL (Meeting of the *Society of Systematic Biologists*)
"State-dependent diversification models via graphical models and RevBayes"
2017 Workshop instructor, University of São Paulo
"MCMC step by step: Applications of Monte Carlo methods in phylogenetic comparative methods"
2016 Workshop instructor, University of São Paulo
"MCMC step by step: Applications of Monte Carlo methods in phylogenetic comparative methods"

Teaching assistantships
2018 Assistant instructor, University of Arkansas
"Molecular Phylogenetics" (undergraduate / graduate level)
2015 Workshop helper, Washington State University, Pullman, WA
"Software carpentry"
2014 Teaching assistant, University of Idaho
"Computer Skills for Biologists"
2011 Teaching assistant, University of São Paulo
"Use of the R Language to analyze ecological data"
2010 Teaching assistant, University of São Paulo
"Introduction to Ecology" (undergraduate level)

Student supervision
2018 - 2020 Supervision of M. S. student Peter Hasik at the University of Arkansas
2018 - 2020 Supervision of Ph. D. student James Boyko at the University of Arkansas

Student mentorship
since 2022 Mentoring 11 undergraduate students (Towson University)
since 2023 Selected mentor for graduate students by the *Society of Systematic Biologists*.

Reviewer

I am a reviewer for *Systematic Biology*; *Proceedings of the Royal Society B: Biological Sciences*; *The American Naturalist*; *Ecology Letters*; *Evolution*; *Methods in Ecology and Evolution*; *PLOS One*; *PLOS Computational Biology*; *Evolutionary Bioinformatics*; *American Journal of Botany*; *Biological Journal of the Linnean Society*; *Nature Communications*; *Zoologia; Revista Brasileira de Entomologia; Austral Ecology; BMC Evolutionary Biology; Journal of Insect Behavior; Journal of Natural History; New Phytologist; PeerJ*

I also review grant submissions for CONICYT (Chile).

Professional service

2023 -	Committee member of the Student Awards and Scholarships Towson University, Towson, MD
2015 - 2017	Committee member of the Bioinformatics and Computational Biology seminar series University of Idaho, Moscow, ID
2015 - 2016	Graduate student representative Bioinformatics and Computational Biology program (University of Idaho)
2011	R study group – Introduction to the R language (Graduate level) University of São Paulo, São Paulo, Brazil
2009 - 2010	R study group – Phylogenies and the R language (Graduate level) University of São Paulo, São Paulo, Brazil
2010 - 2011	Committee member of the Department of Ecology seminars University of São Paulo

Synergistic activities

2023	Organizer of the Society of Systematic Biologists Symposium at the 2023 *Evolution* meeting (Albuquerque, NM). Title: "Paving the road to the phenome: challenges in working with a large number of phenotypes"
2018	ARBOR Hackaton: Cornell University Organizers: Dr. Chelsea Specht and Dr. Luke Harmon
2016 and 2017	Behavior Data Meeting; Cornell Lab of Ornithology Organizer: Dr. Mike Webster

Consulting service

2011-2012	Project manager – Collection and identification of insects (Coleoptera) Location: Cerrado region (Belo Horizonte, Brazil)
2011-2012	Field assistant – Collection of insects (Lepidoptera) Location: Amazon region (Rondônia, Brazil)