

VINÍCIUS BARROS RODRIGUES

FULL CV

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CV

Biologist, Ph.D. in Entomology (2017) at **Federal University of Viçosa** (Viçosa - MG, Brazil) with interuniversity exchange doctorate at *Center for Biorobotics* in the **Syddansk Universitet** (Odense, Denmark).

Topics of interest and experience: - **Biology:** Ecology, Entomology, Social Insects, Quantitative Ecology, Community Ecology, Ecological Interactions, Population Dynamics and Wildfires - **Computer Science:** R, Biostatistics, Machine Learning, Linux, LaTeX, Processing, p5.js, Lua, html - **Education:** Science Education, Active Methodologies, Educational Robotics, Didactics

Personal details

- **Surname:** Rodrigues
- **First names:** Vinícius Barros
- **E-mail:** viniciusbrbio@gmail.com
- **Phone:** +55 31 9 9428 6126
- **Date of the CV:** 2023-01-05

Degrees

- **Ph.D. in Entomology** (2013 - 2017) – Departament of Entomology¹, Termitology Lab, Federal University of Viçosa (Viçosa - MG, Brazil) with *exchange program* at Center for Biorobotics² in the Syddansk Universitet (Odense, Denmark)
- **M.Sc. in Entomology** (2011 - 2013) – Departament of Entomology, Termitology Lab, Federal University of Viçosa (Viçosa - MG, Brazil)
- **B.Sc. Biology** (2007 - 2010) – License Course – Department of Biology, Integrated Colleges of Cataguases (Cataguases - MG, Brazil)

¹ <http://www.pos.entomologia.ufv.br/> – ent@ufv.br

² https://www.sdu.dk/en/forskning/sdu_biorobotics – secretary@mmmi.sdu.dk

Other education and expertise

- **Post-doctoral** (2018 - 2019) – Department of Forest Engineering, Laboratory of Forest Fires and Nature Conservation, Federal University of Viçosa (Viçosa - MG, Brazil)
- **Technical License in Business Administration** (2004 - 2006) – SEBRAE “*Brazilian Micro and Small Business Support Service*” (Cataguases - MG, Brazil)

Language skills

- Native language: Portuguese
- Other language skills: English, Spanish

Current employment

- **Nossa Senhora do Carmo School** (Since 2017) – High School Teacher (Disciplines: Biology, Science, Educational Robotics, Educational Programming, Scientific Method) (Viçosa - MG, Brazil)
- **Forest Fire and Nature Conservation Laboratory** (Since 2018) – Researcher in the project “*Use of Artificial Intelligence to Develop Methodologies to Protect and Recover Springs in Degraded Areas in the Aquifers of Hydroelectrics Furnas and Peixoto*” (Viçosa - MG, Brazil)
- **M.Sc. in Science and Mathematics Education** (Since 2022) – Department of Biology, Federal University of Viçosa (Viçosa - MG, Brazil)
- Secondary occupations: - *Freelancer consultant (Since 2017) in bio-statistics and ecological analysis for companies, such as: Agrisource Data (USA), Microwork (EU), DL Ambiental (Brazil), Vert Ambiental (Brazil), Alura (Brazil), TreinaWeb (Brazil), Ingá Engenharia (Brazil)*

Previous work experience

- **Federal Institute of Education** (2017 - 2018) – Professor of undergraduate, professional, and postgraduate courses (Disciplines: Biology, Microbiology and Environmental Restoration) (Ouro Preto - MG, Brazil)
- **Santana de Cataguases Municipal Government** (2010) – Biologist (Environmental consultant for public policies for environmental protection) (Santana de Cataguases - MG, Brazil)

Internships

- **Federal University of Viçosa** (2013 - 2017) – Internship in education (Teaching Entomology in undergraduate courses) (Viçosa - MG, Brazil)
- **State School Manuel Inacio Peixoto** (2010) – Internship in education (Teaching Science and Biology in high school) (Cataguases - MG, Brazil)
- **Energisa** (2010 - 2011) – Internship in biology (Analyzing environmental impacts of hydroelectric and wind power plants) (Cataguases - MG, Brazil)
- **Vert Ambiental** (2010) – Internship in biology (Analyzing environmental impacts of hydroelectric and wind power plants) (Cataguases - MG, Brazil)

Research funding and grants

- PhD grant from CAPES and CAPES/PDSE³, advisors Og DeSouza (Viçosa - MG, Brazil) and John Hallam (Odense, Denmark). Title: “*Development of an agent-based model to simulate the coexistence of different termite species in the same nest*”
- Research grant from ANNEL⁴, advisor Fillipe Tamiozzo Pereira Torres (Viçosa - MG, Brazil). Title: “*Use of Artificial Intelligence to develop methodologies to protect and recover springs in degraded areas in the aquifers of hydro-electrics Furnas and Peixoto*”

³ PDSE-88881.132021/2016-01

⁴ PD-00394-2103/2021

Methods, software, infrastructures, materials, guides and tools developed

- biodata - R package for GLM diagnostic⁵ – in development, 2018.
- ecothesis - LaTeX Template for Federal University of Viçosa Dissertations and Theses⁶, 2017.
- openSUSE Linux – EcoLab Spin⁷, 2016.

⁵ <https://github.com/ViniciusBRodrigues/GLMdiagnostic>

⁶ <https://github.com/ViniciusBRodrigues/TeseUFVLatex>

⁷ <https://github.com/ViniciusBRodrigues/openSUSE-EcoLab>

Research supervision and leadership experience

- Number of supervisees (co-supervisor) of undergraduate students – Biology Program at Federal University of Viçosa: 01
- Number of supervisees (co-supervisor) of postgraduate students – Forest Science Program at Federal University of Viçosa: 03

Teaching merits⁸

⁸ For teaching experience, please see “Previous work experience” and “Internships” sections

- **Pedagogical training:**

- Methodologies, pedagogical and technology practices course (2021 - 2022)
- Educacional Robotics (2020)
- STEM: Strategies to apply in Science classes (2021)
- Training in Environmental Education (2007)

- **Pedagogical publications:**

RODRIGUES, V. B. The preferences of teaching methodologies of high school students in Biology⁹

⁹ Accepted in the Luminária journal - 2023

OLIVEIRA, L. L.; MENDONÇA, C. H.; RODRIGUES, V. B.; SANTOS, S. C. Digital technologies in teaching science and mathematics in basic education: a bibliographic survey¹⁰

¹⁰ Submitted to Ponto de Vista Journal

RODRIGUES, V. B.; RIGOLON, G. Teaching biology concepts using programming languages in high school¹¹

¹¹ In development

Other key academic merits

- **Memberships in doctoral dissertation committees:**

- Entomology Program at Federal University of Viçosa, MG - Brazil: 7
- Forest Science Program at Federal University of Viçosa, MG - Brazil: 3

- **Memberships in masters committees:**

- Entomology Program at Federal University of Viçosa, MG - Brazil: 3
- Forest Science Program at Federal University of Viçosa, MG - Brazil: 2

- **Referee for scientific publications:**

- The Journal of Open Source Software
- Communications Biology
- Revista Bosque
- Iheringia
- International Journal of Tropical Insect Science

- **Organising scientific conferences:**

- **IV Symposium of Termitology** (2018) – Federal University of Viçosa, Viçosa - MG, Brazil

- **V International Symposium of Entomology** (2015) – Federal University of Viçosa, Viçosa - MG, Brazil (*General Coordinator*)
- **IV Symposium of Entomology** (2013) – Federal University of Viçosa, Viçosa - MG, Brazil
- **III Symposium of Entomology** (2011) – Federal University of Viçosa, Viçosa - MG, Brazil

Scientific and societal impact

- **Bio-Data**¹² – Personal blog to share R and statistical tips, codes, and texts about ecological analysis
- **Sociedade Civil Pacto Ambiental (NGO)** (2009 - 2010) – Internship in education (Teaching Science and Biology in public schools) (Cataguases - MG, Brazil)

¹²<https://medium.com/bio-data-blog>

Other merits

Minicourses taught:

- Biocode - Experimental workshop on programming and biology* (2022) – Nossa Senhora do Carmo School, Viçosa - MG
- Cluster Analysis with R* (2021) – TreinaWeb (Online), São Paulo - SP
- Machine learning with R: Classification of dengue outbreaks* (2020) – Alura (Online), São Paulo - SP
- Introduction to Data Analytics* (2020) – TreinaWeb (Online), São Paulo - SP
- Data visualization and presentation with R* (2020) – TreinaWeb (Online), São Paulo - SP
- Linear Regression Models with R* (2020) – TreinaWeb (Online), São Paulo - SP
- Statistics with R: Introduction to Modeling* (2019) – TreinaWeb (Online), São Paulo - SP
- R - Introduction to Data Science* (2019) – TreinaWeb (Online), São Paulo - SP
- Statistical modeling with R* (2019) – TreinaWeb (Online), São Paulo - SP
- Artificial Intelligence in predicting fire behavior* (2018) – Federal University of Viçosa, Viçosa - MG
- Analysis of fire behavior using machine learning in R* (2018) – Federal University of Viçosa, Viçosa - MG
- Statistical modeling in R* (2018) – Alura (Online), São Paulo - SP
- Data Science in R* (2018) – TreinaWeb (Online), São Paulo - SP

Biostatistics and Ecological Indexes in R (2018) – Vert Ambiental Consultoria e Projetos, Cataguases - MG

Bioindicators: Using insects for environmental monitoring (2018) – Federal University of Viçosa, Viçosa - MG

R - Basics (2017) – TreinaWeb (Online), São Paulo - SP

R Introduction (2017) – Federal University of Viçosa, Viçosa - MG

Termites ecology (2015) – State University of Minas Gerais, Ubá - MG

R - Statistics in biology (2015) – Federal University of Viçosa, Viçosa - MG

Getting Started with Scientific Photo Edition (2013) – Federal University of Viçosa, Viçosa - MG

Termites: Introduction to ecology and taxonomy (2013) – Federal University of Viçosa, Viçosa - MG

Biostatistics (2012) – Vert Ambiental, Cataguases - MG

- **Participation in events:** 32

List of publications

1. COSTA, A. G.; TORRES, F. T. P.; LIMA, G. S.; MELO, F. R.; RODRIGUES, V. B.; SANTANA NETO, V. P.; FERNANDES, T. V. 2022. Fire Influence on the Ants Community in Savanic and Forest Environments of the Cerrado Biome. **FLORAM** **29:1-10**¹³
2. SOUZA, F. M. S. ; TORRES, F. T. P. ; RODRIGUES, V. B. 2022. Fire Effects on Natural Regeneration in Sesona Semideciduous Forest. **Revista Árvore** **46:e4614**¹⁴
3. SILVA, F. A.; VIEIRA, V. O.; CARRENHO, R.; RODRIGUES, V. B.; LOBO JUNIOR, M.; SILVA, G. F. 2021. Influence of the biocontrol agents *Trichoderma* spp. on the structure and functionality of the edaphic microbial community in common bean cultivars (*Phaseolus vulgaris* L.) inoculated with *Sclerotinia sclerotiorum* (Lib.) de Bary. **Applied Soil Ecology** **168:104190**¹⁵
4. RODRIGUES, V. B.; TUCI, E.; HOLSTEIN, H.; BOWEN, M. S.; COSTA, D. A.; TAKAHASHI, L. T.; CRISTALDO, P. F. ; DESOUSA, O. 2021. Macro-symbiosis triggered by a defence-reproduction tradeoff in a social insect. **Ecological Modelling** **462:109780**¹⁶
5. RODRIGUES, V. B.; TORRES, F. T. P. 2020. Fire Behavior Prediction Using Machine Learning Algorithms. **Revista Brasileira de Biometria** **38:343-452**¹⁷
6. PUKER, A.; RODRIGUES, V. B.; CORREA, C. M. A.; KORASAKI, V.; MOTTA, P. C. 2020. Minimizing the Wallacean shortfall: a small sample reveals new occurrences of ground-dwelling spiders in native Cerrado and exotic pastures in the Midwestern Brazil. **International Journal of Tropical Insect Science (Online)** **1:1-8**¹⁸
7. RODRIGUES, V. B.; JESUS, F. M.; CAMPOS, R. I. 2017. Local habitat disturbance increases bird nest predation in the Brazilian Atlantic rainforest. **Animal Biodiversity and Conservation** **41(1): 117-120**¹⁹

¹³ <https://doi.org/10.1590/2179-8087-FLORAM-2022-0025>

¹⁴ <https://doi.org/10.1590/1806-908820220000014>

¹⁵ <https://doi.org/10.1016/j.apsoil.2021.104190>

¹⁶ <https://doi.org/10.1016/j.ecolmodel.2021.109780>

¹⁷ <https://doi.org/10.28951/rbb.v38i3.452>

¹⁸ <https://link.springer.com/article/10.1007/s42690-020-00197-6>

¹⁹ <https://doi.org/10.32800/abc.2018.41.0117>

8. FIALHO, V. S.; RODRIGUES, V. B.; ELLIOT, S. L. 2018. Nesting strategies and disease risk in necrophagous beetles. **Ecology and Evolution** 8(6): 3296-3310²⁰
 9. RODRIGUES, V. B.; COSTA, D. A.; CRISTALDO, P. F. 2018. Lagged population growth in a termite host colony: cause or consequence of inquilinism? **Neotropical Entomology** 47(6): 815-820²¹
 10. DESOUZA, O.; CRISTALDO, P. F.; ARAUJO, A. P. A.; FLORENCIO, D. F.; ROSA, C. S.; MARINS, A.; COSTA, D. A.; RODRIGUES, V. B.; CRISTALDO, P. F. 2016. Allometric Scaling of Patrolling Rate and Nest Volume in *Constrictotermes cyphergaster* Termites: Hints on the Settlement of Inquilines. **PloS One** 11(1): e0147594²²
 11. CRISTALDO, P. F.; RODRIGUES, V. B.; ARAUJO, A. P. A.; ELLIOT, S. L.; DESOUZA, O. 2016. Heterospecific detection of host alarm cues by an inquiline termite species (Blattodea: Isoptera: Termitidae). **Animal Behaviour** 120: 43-49²³
 12. CRISTALDO, P. F.; JANDÁK, V.; KUTALOVÁ, K.; RODRIGUES, V. B.; BROTHÁNEK, M.; JIRÍČEK, O.; DESOUZA, O.; SOBOTNÍK, J. 2015. The nature of alarm communication in *Constrictotermes cyphergaster* (Blattodea: Termitoidea: Termitidae): the integration of chemical and vibroacoustic signals. **Biology Open** 4: 1649-1659²⁴
 13. RODRIGUES, V. B.; CAVALARI, D. C.; VIANA, A. C.; JÚNIOR, E. R. N. 2011. Preferência de aranhas do gênero *Aglaoctenus* (Araneae) Tullgren, 1905 por *Astrocaryum aculeatissimum* (Schott) Burret (Arecacea). **Revista Biociências** 17:50-56²⁵
- *Publications in review process*: 02 / *Accepted*: 01

²⁰ <https://doi.org/10.1002/ece3.3919>

²¹ <https://link.springer.com/article/10.1007/s13744-018-0634-3>

²² <https://doi.org/10.1371/journal.pone.0147594>

²³ <https://doi.org/10.1016/j.anbehav.2016.07.025>

²⁴ <https://doi.org/10.1242/bio.014084>

²⁵ <http://periodicos.unitau.br/ojs/index.php/biociencias/article/view/1238/849>

Publications in conference proceedings:

- MIRANDA, L. L.; MENDONÇA, C. H.; RODRIGUES, V. B.; SANTOS, S. C. . Tendências em pesquisas sobre tecnologias digitais no ensino de ciências e matemática na educação básica. In: Simpósio de Interação Acadêmica, 2021, Viçosa - MG
- RODRIGUES, V. B.; TUCI, E.; BOWEN, M. S.; HOLSTEIN, H.; DESOUZA, O. Soldiers, alates or both? Bang-bang strategy for allocation of resources in termites. In: III Simpósio de Termitologia, 2015, João Pessoa - PB

- FIALHO, V. S.; RODRIGUES, V. B.; CRISTALDO, P. F.; DESOUZA, O.; ELLIOT, S. L. Differences in the immune response between host and obligatory inquiline. In: III Simpósio de Termitologia, 2015, João Pessoa - PB
- RODRIGUES, V. B.; CRISTALDO, P. F.; COSTA, D. A.; DESOUZA, O. Host's reproductive status affecting the colonization of obligatory inquilines in termite nests. In: II International Symposium of Ecology and Evolution, 2014, Viçosa - MG
- NUNES, L.; MARINHO, R.; DALSIN JUNIOR, A.; RODRIGUES, V. B.; COSTA, D. R.; REIS JUNIOR, R.; DESOUZA, O. Meu vizinho é meu amigo? Padrões de tolerância de *Constrictotermes cyphergaster* a seu inquilino. In: II Simpósio Brasileiro de Termitologia, 2013, Brasília - DF
- RODRIGUES, V. B.; PUKER, A. ; CORREA, C. M. A. ; KORASAKI, V. ; MOTTA, P. C. Soil spiders of deployed and native ecosystems in the Cerrado-Pantanal ecotone. In: XI Congresso de Ecologia do Brasil, 2013, Porto Seguro - PB
- RODRIGUES, V. B.; OLIVEIRA, M. Efeitos da estrutura de *Yucca* sp. (Asparagales, Agavaceae) na distribuição de *Argiope argentata* (Araneae, Araneidae). In: XXIX Congresso Brasileiro de Zoologia, 2012, Salvador - BA
- JESUS, F. M.; RODRIGUES, V. B.; CAMPOS, R. I. Effect of habitat conservation in predation of artificial nests. In: 49th Annual Meeting of the Association for Tropical Biology & Conservation, 2012, Bonito - MS
- RODRIGUES, V. B.; FARIA, O.; SOUZA, F. A.; JUSTINO, L. L. Notas sobre a ocorrência de *Jacamaralcyon tridactyla* (Vieillot) (Piciiformes, Galbulidae) em Minas Gerais, Brasil. In: VI Simpósio de Meio Ambiente, 2010, Viçosa - MG
- NETTO, T. R.; BRAGA, J. R.; RODRIGUES, V. B. Polinização de *Psidium guajava* L. In: XXVII Encontro Anual de Etologia, 2010, Alfenas - MG
- RODRIGUES, V. B.; JÚNIOR, E. R. N.; CAVALARI, D. C.; VIANA, A. C. Fatores influenciadores da distribuição e diversidade das aranhas orbitelas do sub-bosque na Estação Ecológica Água Limpa, Cataguases, MG, Brasil. In: XXVIII Encontro Anual de Etologia, 2010, Alfenas - MG
- RODRIGUES, V. B.; VIANA, A. C.; CAVALARI, D. C.; JÚNIOR, E. R. N. ; SILVA, L. D. Levantamento preliminar da araneofauna

do sub-bosque Estação Ecológica Água Limpa, Cataguases, MG. In: VI Simpósio de Meio Ambiente, 2010, Viçosa - MG

- SOUZA, F. A.; MACHADO, F. C.; RODRIGUES, V. B.; THOME, M. O. Capacidade de cargas antrópicas das principais trilhas da Estação Ecológica Água Limpa? Cataguases, MG.. In: VI Simpósio de Meio Ambiente, 2010, Viçosa - MG
- COSTA, D. R.; CÂNDIDO, J. R.; RODRIGUES, V. B.; MELO, R. S.; ROCHA, G. N.; SIQUEIRA, E. V.; DUTRA, M. D.; GONZAGA, M. A. O perfil e as tendências do aluno de Ciências Biológicas das Faculdades Integradas de Cataguases, Minas Gerais, Brasil. In: Caderno de resumos, 2010, Alfenas - MG
- RODRIGUES, V. B.; CAVALARI, D. C. ; COSTA, D. R. Araneofauna (arachnida: araneae) da Estação Ecológica Água Limpa. In: IX Congresso de Ecologia do Brasil, 2008, São Lourenço - MG