# TAINÁ ROCHA

I am a researcher working on patterns of biodiversity distribution, focusing on the impacts of global change (climate change and land-use and land-cover change). My recent interests and researches comprise: **1.** Analysis of climate data and land use and land cover data under different scenarios of climate change, **2.** Spatial analysisof species diversity (alpha and beta diversity), **3.** Ecological niche models/speciesdistribution models and other niche analyses to assess the impacts of global change onbiodiversity, **4.** Biogeographical patterns and evolutionary history in the Neotropics.Note:I use open-source tools and platforms. I am interested in good practices about open science (open databases, open software, etc.), good workflows, reproducibility and FAIR principles.

## 🎓 EDUCATION

**2017**
|
**2013**

### PhD. in Zoology
Emílio Goeldi Museum
📍 PA, Brazil

· DOCTORAL DISSERTATION: Phylogeographic of disjunct bird between Amazon and Atlantic Forest

**2012**
|
**2010**

### MSc. in Environmental biology
Federal University of Pará
📍 PA, Brazil

· MASTER THESIS: Phylogeographic analysis of *Xiphorhynchus guttatus* from Amazon and Atlantic Forest

**2010**
|
**2006**

### Degree in biological science
Federal University of Pará
📍 PA, Brazil

---

⬇ Download this resume in PDF.

## CONTACT

✉ taina013@gmail.com

⭘ Github

ⓘ ORCID

ℝ⁰ Researchgate

in Linkedin

ᗷ Website

🐦 Twitter

## SKILLS

Ⓡ R

⛰ tidyverse

⑂ Git

⭘ GitHub

Ⓜ Markdown

⬠ HTML

⬠ CSS

# 💻 RESEARCH EXPERIENCE

### Postdoctoral Researcher
📍 RJ, Brazil

Botanical Garden Research Institute
Supervisor: Marinez F Siqueira

- Beta diversity in Caatinga dry tropical forest
  ⌨ https://github.com/Tai-Rocha/Caatinga_Dry_Forest.github.io
- Beta diversity in Caatinga dry tropical forest
  ⌨ https://github.com/Tai-Rocha/Caatinga_Dry_Forest.github.io
- Climatic niche analysis forSyzygiella rubricaulis(Bryophytes)
  ⌨ https://github.com/Tai-Rocha/S_rubricaulis_bryophytes
- The first botanical explorations of bryophyte diversity in the Brazilian Amazon mountains: high species diversity, low endemism, and low similarity
  ⌨ https://github.com/Tai-Rocha/Bryophyte-Amazon-mountains
- Ecological niche models with future projections for Dimorphandra wilsonii Rizzini (Fabaceae) presented to Green List in the three-year activity plan of the Brazilian Plant Red List Authority member of the Plant Conservation Commitee between 2017-2020 and the Species Survival Commission of the International Union for Conservation of Nature (IUCN)
  ⌨ https://github.com/Tai-Rocha/faveiro
- Ferns and lycophytes diversity of Tijuca forest.
  ⌨ https://github.com/Tai-Rocha/Ferns-and-lycophytes

### Researcher of Technological Development and Innovation
📍 UFRJ, Brazil

Ecoly departament
Supervisor: Mariana M Vale

- Analyzed and visualized data for CATOS fish tracking project.
- Head of data mining project to establish temporal trends in population densities of Mysis diluviana (Mysis).
- Ran project to mathematically model the migration patterns of Mysis (honors thesis project.)

# 💼 INDUSTRY EXPERIENCE

# 🖥 TEACHING EXPERIENCE

### Instructor
📍 PUC Rio de Janeiro, Brazil

Biology department

- Served as TA for two day workshop on how to leverage Javascript in Shiny applications
- Lectured on using R2D3 package to build interactive visualizations.[7]

I have worked in a variety of roles ranging from journalist to software engineer to data scientist. I like collaborative environments where I can learn from my peers.

I am passionate about education. I believe that no topic is too complex if the teacher is empathetic and willing to think about new methods of approaching task.

## Instructor
**Biology department**    📍 PUC Rio de Janeiro, Brazil

2019 | 2019

- Served as TA for two day workshop on how to leverage Javascript in Shiny applications
- Lectured on using R2D3 package to build interactive visualizations.[2]

## Guest lecture. Biological Sciences- Bachelor's Degree
**Veiga de Almeida University**    📍 RJ, Brazil

2019 | 2019

- Served as TA for two day workshop on how to leverage Javascript in Shiny applications
- Lectured on using R2D3 package to build interactive visualizations.[3]

## Data Visualization Best Practices
**DataCamp**    📍 RJ, Brazil

2019 | 2019

- Designed from bottom up course to teach best practices for scientific visualizations.
- Uses R and ggplot2.
- In top 10% on platform by popularity.

## Improving your visualization in Python
**DataCamp**    📍 RJ, Brazil

2019 | 2019

- Designed from bottom up course to teach advanced methods for enhancing visualization.
- Uses python, matplotlib, and seaborn.

## Guest lecture. Biological Sciences- Bachelor's Degree
**Veiga de Almeida University**    📍 RJ, Brazil

2018 | 2018

- Served as TA for two day workshop on how to leverage Javascript in Shiny applications
- Lectured on using R2D3 package to build interactive visualizations.[4]

## Guest lecture. Biological Sciences- Bachelor's Degree
**UFRA**    📍 PA, Brazil

2018 | 2018

- TA and lectured
- Topics covered from penalized regression to boosted trees and neural networks
- Highest level course offered in department

## Guest lecture. Biological Sciences Undergraduate
**Estácio de Sá University**    📍 RJ, Brazil

2017 | 2017

- TA and lectured
- Covered introduction to R language for statistics applications
- Graduate level class

**2017 | 2017**

### Guest lecture. Biological Sciences- Bachelor's Degree

UFRA  📍 PA, Brazil

- TA and lectured
- Topics covered from penalized regression to boosted trees and neural networks
- Highest level course offered in department

**2017 | 2015**

### High school teacher

Dinâmica Natural  📍 RJ, Brazil

- TA and lectured
- Covered modern statistical computing algorithms
- 4th year PhD level class

## 📈 SELECTED DATA SCIENCE WRITING

🔖

🔖

## 📖 SELECTED PUBLICATIONS, POSTERS, AND TALKS

**2020**

### Building a software package in tandem with machine learning methods research can result in both more rigorous code and more rigorous research

ENAR 2020  📍 Rio de Janeiro, Brazil

- Invited talk in Human Data Interaction section.
- How and why building an R package can benefit methodological research

**2020**

### Stochastic Block Modeling in R, Statistically rigorous clustering with rigorous code[5]

RStudio::conf 2020  📍 Rio de Janeiro, Brazil

- Invited talk about new sbmR package[6].
- Focus on how software development and methodological research can improve both benefit when done in tandem.

**2020**

### PheWAS-ME: A web-app for interactive exploration of multimorbidity patterns in PheWAS[7]

Bioinformatics  📍 Rio de Janeiro, Brazil

- Manuscript detailing application for the exploration of multimorbidity patterns in PheWAS analyses
- See landing page[8] for more information.

**2019 | 2019**

### Charge Reductions Associated with Shortening Time to Recovery in Septic Shock[9]

Chest · Rio de Janeiro, Brazil

- Authored with Wesley H. Self, MD MPH; Dandan Liu, PhD; Stephan Russ, MD, MPH; Michael J. Ward, MD, PhD, MBA; Nathan I. Shapiro, MD, MPH; Todd W. Rice, MD, MSc; Matthew W. Semler, MD, MSc.

**2019 | 2019**

### Multimorbidity Explorer | A shiny app for exploring EHR and biobank data[10]

RStudio::conf 2019 · Rio de Janeiro, Brazil

- Contributed Poster. Authored with Yaomin Xu.

**2019 | 2019**

### Taking a network view of EHR and Biobank data to find explainable multivariate patterns[11]

Vanderbilt Biostatistics Seminar Series · Rio de Janeiro, Brazil

- University wide seminar series.

**2019**

### Patient-specific risk factors independently influence survival in Myelodysplastic Syndromes in an unbiased review of EHR records

Under-Review (copy available upon request.) · Rio de Janeiro, Brazil

- Bayesian network analysis used to find novel subgroups of patients with Myelodysplastic Syndromes (MDS).
- Analysis done using method built for my dissertation.

**2019**

### Patient specific comorbidities impact overall survival in myelofibrosis

Under-Review (copy available upon request.) · Rio de Janeiro, Brazil

- Bayesian network analysis used to find robust novel subgroups of patients with given genetic mutations.
- Analysis done using method built for my dissertation.

**2018 | 2018**

### R timelineViz: Visualizing the distribution of study events in longitudinal studies

Under-Review (copy available upon request.) · Rio de Janeiro, Brazil

- Authored with Alex Sunderman of the Vanderbilt Department of Epidemiology.

**2017 | 2017**

### Continuous Classification using Deep Neural Networks[12]

Vanderbilt Biostatistics Qualification Exam · Rio de Janeiro, Brazil

- Review of methods for classifying continuous data streams using neural networks
- Successfully met qualifying examination standards

**2015 | 2015**

### Asymmetric Linkage Disequilibrium: Tools for Dissecting Multiallelic LD

Journal of Human Immunology · RJ, Brazil

- Authored with Richard Single, Vanja Paunic, Mark Albrecht, and Martin Maiers.

2015
|
2015

**An Agent Based Model of Mysis Migration**[13]

International Association of Great Lakes Research Conference

📍 RJ, Brazil

· Authored with Brian O'Malley, Sture Hansson, and Jason Stockwell.

2015
|
2015

**Declines of Mysis diluviana in the Great Lakes**

Journal of Great Lakes Research

📍 RJ, Brazil

· Authored with Peter Euclide and Jason Stockwell.

# 🔗 LINKS

1: http://nickstrayer.me/js4shiny_r2d3/slides
2: http://nickstrayer.me/js4shiny_r2d3/slides
3: http://nickstrayer.me/js4shiny_r2d3/slides
4: http://nickstrayer.me/js4shiny_r2d3/slides
5: http://nickstrayer.me/rstudioconf_sbm
6: https://tbilab.github.io/sbmR/
7: https://academic.oup.com/bioinformatics/advance-article-abstract/doi/10.1093/bioinformatics/btaa870/5922817?redirectedFrom=fulltext
8: https://prod.tbilab.org/phewas_me_info/
9: https://www.ncbi.nlm.nih.gov/pubmed/30419234
10: http://nickstrayer.me/rstudioconf19_me-poster/
11: http://nickstrayer.me/biostat_seminar/
12: http://nickstrayer.me/qualifying_exam/
13: https://www.semanticscholar.org/paper/An-Agent-Based-Model-of-the-Diel-Vertical-Migration-Strayer-Stockwell/40493c78e8ecf22bd882d17ec99fd913ec4b9820