

# VIVIANA ROMERO ALARCON

## Computational Biologist (Dipl.Biol., MSc.)

I am a computational biologist at the University of Massachusetts—Boston and a member of the Paul English Applied AI Institute.

I am interested in phylogenetic reconstruction analyses, software development, statistical modeling, And the integration of new artificial intelligence technologies into the phylogenetic comparative field.

## EDUCATION

2023  
|  
Present

- **University of Massachusetts**  
Integrative Biosciences PhD - Bioinformatics 📍 Boston, USA  
  
Firts year classes - Data Analysis - Statistics for Machine Learning -  
Advanced Data Analysis - Artificial Intelligence - Scientific Communication

2020

- **Universidad Industrial de Santander**  
M.Sc. in Biology 📍 Bucaramanga, Colombia  
  
Thesis: Ancestral area for the major clades in Testudines (Pan-  
Testudines:Testudinata): An approach by temporal and geographic  
ranges.

2016

- **Universidad Industrial de Santander**  
B.A. Biology 📍 Bucaramanga, Colombia  
  
Thesis: Panbiogeographic pattern of Choco region.

## RESEARCH EXPERIENCE

2023  
|  
2021

- **Research Assistant**  
Universidad de la Santísima Concepción 📍 Concepcion, Chile  
  
Project:A flexible web platform for learning, teaching, and analysis in  
phylogenetic comparative biology  
  
Fondecyt Leader: Dr. Liam Revell

2021


- **Research Assistant**  
Universidad del Rosario 📍 Bogota, Colombia  
  
Project: New Turtles and Fossil Snakes from the Miocene at the Tatacoa  
Desert, Huila - Colombia: Phylogenetic, histological and  
paleobiogeographic implications - Colciencias  
  
Leader: Dr. Edwin Cadena



## CONTACT INFO

 [vivianaromero-alarcon](https://www.linkedin.com/in/vivianaromero-alarcon)

 [github.com/alarconvv](https://github.com/alarconvv)

 [viviana.romeroalarcon@umb.edu](mailto:viviana.romeroalarcon@umb.edu)

## SKILLS

Experienced in statistical analysis, statistical learning models, data visualization, cleaning data, construction of models in Tensorflow and Pythorch.

Full experience with phylogenetic analysis and comparative methods.

Highly skilled in R, Bash, Shiny framework and Python.

Soft skill: Critical Thinking, Teamwork, Leadership.



## PROFESSIONAL EXPERIENCE

2021



### Professional Biologist

Monitoreos Ambientales Maht Ltda

📍 Bogota, Colombia

INVIMA certification implementation project for production and Health  
Notification for antibacterial sanitizing products



## TEACHING EXPERIENCE

2021

2018



### Statistics for Biologists

Lecturer at Universidad Industrial de Santander

📍 Bucaramanga, Colombia

- Taught R language to beginners.
- Statistic analysis and experimental design

2021

2018



### Systematic

Lecturer at Universidad Industrial de Santander

📍 Bucaramanga, Colombia

- Phylogenetic reconstruction
- Comparative methods
- Parsimony, Maximum Likelihood and Bayesian analysis
- Biogeography

2019



### Biology

High School Teacher at Colegio de la Presentacion

📍 Bucaramanga, Colombia

- Classes preparation in biology
- Projects organization for last-year students



## MENTORING

2019



### Co-tutor

Universidad Industrial de Santander

📍 Bucaramanga, Colombia

Thesis: "Páramo como área biogeográfica"

Student: Carlor Javier Diaz

2018



### Tutor

Universidad Industrial de Santander

📍 Bucaramanga, Colombia

Thesis: "Clave interactiva (DELTA) para los géneros de Anura de  
Santander-Colombia"

Student: Silvia Florez



## ORGANIZER AND CHAIR

- 2021 • **Organizer committee**  
Primer Congreso Latinoamericano de Evolución (CLEVOL)  
Santiago, Chile (Online)  
Herramientas Computacionales en Análisis Evolutivo  
Co-organizer: Liam Revell
- 2019 • **Workshop Instructor**  
Universidad Industrial de Santander Bucaramanga, Colombia  
GBIF and cleaning electronic databases using R
- 2017 • **Workshop Teaching Assistant**  
Universidad del Valle Cali, Colombia  
Introduction to phylogenetic methods in R  
Instructor: Liam Revell
- 2017 • **Organizer committee**  
Universidad Industrial de Santander Bucaramanga, Colombia  
The Owen, Darwin and Wallace day



## VOLUNTEERING

- 2016 | 2008 • **Natural History Museum - herpetology collection**  
Universidad Industrial de Santander Bucaramanga, Colombia  
Curator: Martha P. Ramirez-Pinilla
- Recording and cataloging
  - Preparing specimens
  - Taxonomic identification
- 2017 • **Transcription Center - Pollen Colection**  
Smithsonian Tropical research Institute Bucaramanga, Colombia
- Online
  - Label transcription
  - Second and third Checking
- 2010 • **Yare II project**  
PROAVES - Natural History Museum of London Bucaramanga, Colombia  
Leader: Blanca Huertas
- Fieldwork in "Serrania Yariquies"
  - Collecting herpetological fauna
  - Preparing specimens
  - Taxonomic identification



## AWARDS

- 2017 • **1st Place: Poster.**  
VI Simposio Colombiano de Biología evolutiva Cali, Colombia  
Title: Selecting priors in Bayesian Inference: An example with the superfamily Testudinoidea (Testudines: Cryptodira)

- 2016 ● **2nd Place: Poster.**  
 Simposio Nacional de Evolución, Ecología y Medio Ambiente  
 📍 Tunja, Colombia  
 Title: Phylogenetic relationships of the genus *Rhinoclemmys* (Testudines: Testudinoidea): When genes tell different stories
- 2015 ● **1st Place: Presentation.**  
 X Congreso Latinoamericano de Herpetología. 📍 Tunja, Colombia  
 Title: Primary homology hypothesis of Chocó Biogeographic: An approach from amphibians



## PUBLICATION

- 2023 ● **The importance of the Andes in the evolutionary radiation of Sigmodontinae (Rodentia, Cricetidae), the most diverse group of mammals in the Neotropics.**  
 Scientific Report - Nature 13, 2207  
 Paulo Vallejos-Garrido, Kateryn Pino, Nicolás Espinoza-Aravena, Alexander Pari, Oscar Inostroza-Michael, Macarena Toledo-Muñoz, Boris Castillo-Ravanal, **Viviana Romero-Alarcon**, Cristián E. Hernández, R. Eduardo Palma & Enrique Rodríguez-Serrano  
<https://doi.org/10.1038/s41598-023-28497-0>
- 2020 ● **Neotropical páramos as biogeographic units**  
 Revista De Biología Tropical 68(2), 503–516.  
 Diaz Acevedo, C. J., **Romero-Alarcon, L. V.**, & Miranda-Esquivel, D. R.  
<https://doi.org/10.15517/rbt.v68i2.39347>
- 2016 ● **biogeoclean**  
<https://github.com/alarconvv/biogeoclean>  
**Romero-Alarcon, L. V.**, & Miranda-Esquivel, D. R.



## SCIENTIFIC COMMUNICATION

- 2015 ● **Desarrollos computacionales**  
 Boletín Colombiano de Biología Evolutiva COLEVOL. v.3 ISSN: 2500-6762 [https://issuu.com/boletincolevol/docs/boletincolevol\\_2015\\_1/14](https://issuu.com/boletincolevol/docs/boletincolevol_2015_1/14)
- 2016 ● **Desarrollos computacionales**  
 Boletín Colombiano de Biología Evolutiva COLEVOL. v.4 ISSN: 2500-6762 [https://issuu.com/boletincolevol/docs/boletincolevol\\_2016\\_1](https://issuu.com/boletincolevol/docs/boletincolevol_2016_1)
- 2017 ● **Desarrollos computacionales**  
 Boletín Colombiano de Biología Evolutiva COLEVOL. v.5 ISSN: 2500-6762 [https://issuu.com/boletincolevol/docs/boletincolevol\\_2017-1](https://issuu.com/boletincolevol/docs/boletincolevol_2017-1)

2018 ● **Desarrollos computacionales**  
Boletín Colombiano de Biología Evolutiva COLEVOL. v.6 ISSN:  
2500-6762 [https://issuu.com/boletincolevol/docs/boletincolevol\\_2018-1](https://issuu.com/boletincolevol/docs/boletincolevol_2018-1)

2019 ● **Desarrollos computacionales**  
Boletín Colombiano de Biología Evolutiva COLEVOL. v.7 ISSN:  
2500-6762 [https://issuu.com/boletincolevol/docs/boletincolevol\\_2019-1](https://issuu.com/boletincolevol/docs/boletincolevol_2019-1)



## ACADEMIC EVENTS

2023 ● **Evolution meeting. Society for the Study of Evolution (SSE).**  
Poster: Viviana Romero-Alarcon; Liam Revell 📍 Albuquerque, USA  
Title: Guane: a shiny platform for comparative phylogenetic methods"

2022 ● **Evolution meeting. Society for the Study of Evolution (SSE).**  
Poster: Viviana Romero-Alarcon; Liam Revell 📍 Cleveland, USA  
Title: Guane: A flexible web platform for learning, teaching, and analysis in phylogenetic comparative biology

2022 ● **LXV Reunion anual sociedad de biologia de Chile**  
Talk: Viviana Romero-Alarcon; Liam Revell 📍 Pucon, Chile  
Title: Guane: A flexible web platform for learning, teaching, and analysis in phylogenetic comparative biology - Phese I

2019 ● **V Congreso Colombiano de Zoología**  
Poster: Yovanny Duran Barajas, L. Viviana R-Alarcon, Daniel R. Miranda-Esquivel 📍 Bogota, Colombia  
Title: Hipótesis del origen de Leishmania  
Asoc. Col. Zoo. pp 16. ISSN 2665-2994 Colombia. 2019. <http://vccz.aczcolombia.org/wpcontent/uploads/2019/02/resumenes.pdf>

2019 ● **V Congreso Colombiano de Zoología**  
Poster: Carlos Díaz Acevedo, L. Viviana R-Alarcon, Daniel R. Miranda-Esquivel 📍 Bogota, Colombia  
Title: Páramos Neotropicales como áreas biogeográficas  
Asoc. Col. Zoo. pp 133. ISSN 2665-2994 Colombia. 2019. <http://vccz.aczcolombia.org/wpcontent/uploads/2019/02/resumenes.pdf>

2017 ● **I Congreso Latinoamericano de Biogeografía. Universidad de IKIAM**  
Talk: L. Viviana R-Alarcon, Daniel R. Miranda-Esquivel 📍 Quito, Ecuador  
Title: Patrón de diversificación y estatus de conservación de tortugas neotropicales

- 2017 ● **VI Simposio Colombiano de Biología Evolutiva. Universidad del Valle**  
 Poster: L. Viviana R-Alarcon, Daniel R. Miranda-Esquivel  
 📍 Cali, Colombia  
 Title: Selecting priors on Bayesian Inference: An example with the Testudinoidea (Testudines: Cryptodira) superfamily  
 Aso. Col. Biol. Evol. pp 55. ISSN 2500-6762 Colombia. 2017. [https://issuu.com/boletincolevol/docs/libroresumenescolevol\\_cali2017](https://issuu.com/boletincolevol/docs/libroresumenescolevol_cali2017)
- 2017 ● **XL Congreso Latinoamericano de Herpetología. Pontificia Universidad Católica del Ecuador**  
 Poster: Alejandra Ruiz, L. Viviana R-Alarcon, Daniel R. Miranda Esquivel  
 📍 Quito, Ecuador  
 Title: Más no es mayor. Genes con muestreo incompleto no suma a la resolución de las relaciones del grupo lacrimosus (Pristimantis: Craugastoridae).
- 2016 ● **I Congreso Colombiano de Herpetología**  
 Poster: L. Viviana R-Alarcon, Daniel R. Miranda-Esquivel  
 📍 Medellín, Colombia  
 Title: Consistencia estadística de pesos implícitos bajo un modelo simple de transformación de estados de caracter.  
 Aso. Col. Herp. pp 41. ISSN 2590-6984 Colombia. 2016. [http://www.acherpetologia.org/wpcontent/uploads/2017/10/Libro\\_Resumenes\\_1CCH-2016.pdf](http://www.acherpetologia.org/wpcontent/uploads/2017/10/Libro_Resumenes_1CCH-2016.pdf)
- 2015 ● **XX Congreso Colombiano de Ciencias Biológicas. Universidad Industrial de Santander**  
 Talk: Karen Mendez-Camacho, L. Viviana R-Alarcon, Viviana Ayus, Daniel R. Miranda-Esquivel  
 📍 Bucaramanga, Colombia  
 Title: Diversificación de la biota amazónica: Ríos como barreras vicariantes  
<http://www.asociacioncolombianadecienciasbiologicas.org/wpcontent/uploads/2017/12/50-Memorias-L-ACCB2015.pdf>
- 2015 ● **Simposio Nacional de Ecología, Evolución y Medio Ambiente. Universidad Pedagógica y Tecnológica de Colombia**  
 Talk: L. Viviana R-Alarcon, Daniel R. Miranda-Esquivel  
 📍 Tunja, Colombia  
 Title: Relaciones filogenéticas del género Rhinoclemmys (Testudines: Testudinoidea): Cuando los genes cuentan diferentes historias  
<http://www.asociacioncolombianadecienciasbiologicas.org/wpcontent/uploads/2017/12/50-Memorias-L-ACCB2015.pdf>

- 2015 ● **Fourth Meeting of the Network for Neotropical Biogeography (NNB4)**  
Talk: L. Viviana R-Alarcon, Daniel R. Miranda-Esquivel  
📍 Ciudad de Panama, Panama  
Title: GeoCAMT: A package in R to cleaning geographical data
- 2015 ● **X Congreso Latinoamericano de Herpetología. Asociación Colombiana de Zoología**  
Poster: L. Viviana R-Alarcon, Daniel R. Miranda-Esquivel  
📍 Cartagena, Colombia  
Title: Tortugas continentales como modelo para evaluar el cierre del Istmo de Panamá  
Asoc. Col. Zoo. Pp 533. ISSN 2422-5134. Colombia. 2015. [http://ivccz.aczcolombia.org/docs/IVCCZ\\_Libro%20res%C3%BAmenes%20ISSN.pdf](http://ivccz.aczcolombia.org/docs/IVCCZ_Libro%20res%C3%BAmenes%20ISSN.pdf)
- 2015 ● **X Congreso Latinoamericano de Herpetología. Asociación Colombiana de Zoología**  
Video-Presentation: L. Viviana R-Alarcon, Daniel R. Miranda-Esquivel  
📍 Cartagena, Colombia  
Title: Hipótesis primaria de homología del Chocó biogeográfico: Una aproximación desde anfibios  
Asoc. Col. Zoo. pp 555. ISSN 2422-5134. Colombia. 2015. [http://ivccz.aczcolombia.org/docs/IVCCZ\\_Libro%20res%C3%BAmenes%20ISSN.pdf](http://ivccz.aczcolombia.org/docs/IVCCZ_Libro%20res%C3%BAmenes%20ISSN.pdf)
- 2014 ● **Third Meeting of the Network for Neotropical Biogeography (NNB3)**  
Poster: L. Viviana R-Alarcon, Daniel R. Miranda-Esquivel  
📍 Bogota, Colombia  
Title: Is Choco a biogeographic area? An approach from the optimality criterion
- 2012 ● **Reunion de ecología y evolución del Bororiental colombiano. Universidad de Pamplona**  
Talk: L. Viviana R-Alarcon, Martha P. Ramírez Pinilla  
📍 Bogota, Colombia  
Title: Fauna herpetológica de Santander
- 2011 ● **XLVII Congreso Colombiano de Ciencias Biológicas. Universidad ICESI**  
Poster: L. Viviana R-Alarcon, Daniel R. Miranda-Esquivel  
📍 Cali, Colombia  
Title: Proyecto YARE II: Lista preliminar de herpetofauna de la Serranía de los Yariques (Santander-Colombia).



## TRAINING AND COURSES

- 2024 ● **2024 AI+Science Summer School**  
Workshop 30 hrs  Chicago, USA  
**Grant:** fee waiver and travel stipend: University of Chicago Data Science Institute (DSI) - AI+ Science Research Initiatives; Institute for Mathematical and Statistical Innovation (IMSI)
- 2023  
|  
Current ● **Mastering Software Development in R**  
Specialization  Online  
Coursera – Johns Hopkins University
- 2019 ● **Introducción a Data Science: Programación Estadística en R**  
Course 30 hrs  Online  
Coursera – Universidad Autónoma de México
- 2019 ● **Phylogeny DevelopE R Workshop**  
Workshop 30 hrs  Nantucket, USA  
**Grant:** University of Massachusetts Boston. Conference fee waiver and travel.
- 2019 ● **Applied Phylogenetics**  
Workshop 55 hrs  Bodega Bay, USA  
**Grant:** fee waiver University of California – Davis; travel stipend. Science Department. Universidad Industrial de Santander.
- 2018 ● **Mediación para la enseñanza y el aprendizaje universitario**  
Training 64 hrs  Bucaramanga, Colombia  
Universidad Industrial de Santander
- 2018 ● **Revbayes Workshop**  
Workshop 24 hrs  Buenos Aires, Argentina  
**Grant:** fee waiver Museo Argentino de Ciencias Naturales; travel stipend. Science Department. Universidad Industrial de Santander.
- 2017 ● **Biogeografía histórica teórica y Práctica computacional**  
Classes 120 hrs  Sao Paulo, Brazil  
**Grant:** fee waiver Universidade do Sao Paulo
- 2016 ● **Anatomía craneal de mamíferos: una vista comparada del árbol de amniotas**  
Workshop 24 hrs  Tunja, Colombia  
**Grant:** fee waiver Universidad Pedagógica y Tecnológica de Colombia
- 2016 ● **Intensive short course on phylogenetic comparative methods in R**  
Workshop 30 hrs  San Juan, Puerto Rico  
**Grant:** fee waiver and travel stipend university of Massachusetts - Boston



- 2015

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**IV Curso latinoamericano de evolución y genética**  
Workshop 48 hrs 📍 Quindío, Colombia  
**Grant:** fee waiver and travel stipend Red latinoamericana de biología evolutiva - Universidad del Quindío
- 2013

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**Herramientas informáticas para colecciones biológicas**  
Workshop 40 hrs 📍 Bogotá, Colombia  
**Grant:** fee waiver and travel stipend Instituto Alexander von Humboldt Quindío
- 2012

●

**II Curso internacional de biología de la conservación - Sede Andes Peruanos**  
Workshop 90 hrs 📍 Machu Picchu, Peru  
**Grant:** fee waiver and travel stipend Universidad Autónoma de México
- 2012

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**Historia natural y conservación de tortugas continentales de Colombia**  
Workshop 108 hrs 📍 Isla Palma, Colombia  
**Grant:** fee waiver and travel stipend Universidad del Valle

This resume was made with the R package [pagedown](#).

Last updated on 2024-05-18.