

# 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 software development, statistical modeling, and the integration of new artificial intelligence technologies into the ecology, evolutionary, and conservation fields. My primary research is to leverage the power of AI to improve reproducibility and replicability in sciences. Moreover, I am interested in studies of biodiversity patterns, traits, and anthropogenic factors that have driven extinction selectivity in the past, are exacerbating the extinction risk in the present, and are determining the retention of the species in the future.



## EDUCATION

- 2023  
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Present
- **University of Massachusetts**  
Integrative Biosciences PhD - Bioinformatics 📍 Boston, USA  
  
First year classes - Data Analysis - Statistics for Machine Learning -  
Advanced Data Analysis - Artificial Intelligence - Scientific Communication
  - **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.
  - **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
  - **Research Assistant**  
Universidad del Rosario 📍 Bogotá, 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

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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 Yariguies"
- 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 {data-icon=layer-group}
- 2013 ● **YARÉ II PROJECT: Serranía de los Yariguíes Assessment and Research of Endangered Species, Santander, Colombia.**  
 Final Report - 2013 Conservation Leadership Programme Follow-Up Award  
 José Aguilar, **Viviana Romero**, John Arias, Yulied Bautista, Thomas Donegan, Blanca Huertas, Juan Carlos Luna, José Pinto and Diana Villanueva [https://www.conservationleadershipprogramme.org/media/2014/12/F0611710\\_Colombia\\_Final-Report\\_YARE-II.pdf](https://www.conservationleadershipprogramme.org/media/2014/12/F0611710_Colombia_Final-Report_YARE-II.pdf)
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- 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 sociaedad 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/librosumenescolevol\\_cali2017](https://issuu.com/boletincolevol/docs/librosumenescolevol_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 carácter.  
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  
📍 Bogotá, Colombia  
Title: Is Choco a biogeographic area? An approach from the optimality criterion
- 2012 ● **Reunion de ecología y evolución del Bororiente colombiano. Universidad de Pamplona**  
Talk: L. Viviana R-Alarcon, Martha P. Ramírez Pinilla  
📍 Bogotá, 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  
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 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 ● **IV Curso latinoamericano de evolución y genética**  
Workshop 48 hrs 📍 Quindio, Colombia  
**Grant:** fee waiver and travel stipend Red latinoamericana de biología evolutiva - Universidad del Quindío
- 2013 ● **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 ● **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 2025-03-12.