

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
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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 📍 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

 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

📍 Bogotá, 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

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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.conservationalleadershipprogramme.org/media/2014/12/F0611710_COLOMBIA_FINAL-REPORT_YARE-II.PDF)

- 2015 ● **Desarrollos computacionales**
Boletín Colombiano de Biología Evolutiva COLEVOL. v.3 ISSN:
2500-6762 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
- 2017 ● **Desarrollos computacionales**
Boletín Colombiano de Biología Evolutiva COLEVOL. v.5 ISSN:
2500-6762 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
- 2019 ● **Desarrollos computacionales**
Boletín Colombiano de Biología Evolutiva COLEVOL. v.7 ISSN:
2500-6762 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/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
📍 Medellin, 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

- 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
- 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
- 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 evolucion del Bororiente 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 Serrania 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  Quindío, Colombia
Grant: fee waiver and travel stipend Red latinoamericana de biología evolutiva - Universidad del Quindío
- 2013 ● **Herramientas informáticas para colecciones biológicas**
Workshop 40 hrs  Bogota, 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 2024-12-17.