# ANDRÉS CAMILO ZÚÑIGA GONZÁLEZ

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## EDUCATION

**MRes + PhD in Artificial Intelligence for Environmental Risk**  *Sep 2022 - present*
University of Cambridge - United Kingdom

**M.Sc. Biological Sciences - Biology Focus**  *Aug 2017 - Mar 2020*
Universidad de los Andes - Colombia
<u>Thesis:</u> *Characterization of Methane Production of a Páramo Peatbog in Colombia throughout the Holocene*

**B.Sc. Biology**, Universidad de los Andes - Colombia  *Jan 2012 - Mar 2017*
<u>Thesis:</u> *First record of Ancient DNA from Wood of the Last Glacial Period of the Tropical Andes of Colombia*

**B.Sc. Microbiology**, Universidad de los Andes - Colombia  *Jan 2012 - Mar 2017*

**Minor in Geography**, Universidad de los Andes - Colombia  *Jan 2012 - Mar 2017*

## RESEARCH AND WORK EXPERIENCE

**Data Scientist**, DataLeik - Colombia  *Dec 2021 - Aug 2022*
Develop machine learning models, dashboards and APIs using R and Python for Home Capital, a Colombian proptech. These included writing modules for different microservices and linking them through AWS.

**Data Analyst**, DataLeik - Colombia  *Aug 2021 - Nov 2021*
Web scrape and organize data from real state marketplaces for further integration in a Data Base System. Develop visualization tools for data exploration.

**Research Assistant**, Universidad de los Andes - Colombia  *Nov 2020 - Jan 2021*
Worked at the Tropical Palinology and Palaeocology Lab on several projects including: building the lab website; building $^{14}$C dates Bayesian models and age-depth models using R of Colombian samples from marshes and páramos; analyzing stable isotopic signatures and lipid biomarkers of sediments.

**Research Assistant**, Universidad de los Andes - Colombia  *Mar - May 2019*
Worked at the Tropical Palinology and Palaeocology Lab modeling $^{14}$C dates of archaeological and volcano samples of Colombia and Ecuador from the last 10.000 years to understand the effect of eruptions on human settlements. This was done using a set of R packages for meta-analyses of carbon-dated ages.

**Research Assistant**, Universidad de los Andes - Colombia  *Feb - Jul 2017*
Worked at the Palinology and Palaeocology Lab on the protocol for the extraction and amplification of ancient DNA from wood samples of more than 70.000 years from Colombia.

**Research Assistant**, Cornell University - USA  *Jun - Aug 2016*
Worked at the Bergstrom Lab from the College of Agricultural Sciences modelling and statistical analysis of the epidemiological assessment of the Switchgrass (*Panicum virgatum*) Head Smut (*Tilletia maclaganii*) both from in-field and lab experiments. This was part of a scholarship for a Summer Research Internship awarded by Universidad de los Andes.

## TEACHING EXPERIENCE

**Inference and Informatics**, Universidad de los Andes - Colombia *Jan - Jun 2021*
Introduced students from the biological sciences undergraduate programs and other engineering programs to the core concepts of inferential statistics and probability using R, as well as some bioinformatics tools and pipelines using the Linux CLI. Taught and designed weekly lectures and activities with applied examples in the natural and physical sciences.

**Cell Biology Laboratory**, Universidad de los Andes - Colombia *Aug 2019 - May 2020*
Taught the basics of the scientific method to sophomore students and how to apply concepts from theoretical lectures to experiment-based workshops about several aspects of biology, ranging from microscopy to species diversity. Designed short home experiments to promote empirical thinking on sophomore students of Biological Sciences. Adapted some of the experiments and classes to virtual format. In addition, I designed and assesed questions for a knowledge exam intended for Biology and Microbiology undergrads.

**Biostatistics**, Universidad de los Andes - Colombia *Aug - Dec 2019*
Introduced students from the biological sciences undergraduate programs to the use of statistics in research using the R programming language. Taught weekly lectures and workshops with applied examples using a series of R packages.

**Cell Biology**, Universidad de los Andes - Colombia *Aug 2017 - Dec 2018*
Introduced students to theoretical concepts of life sciences, including evolution, taxonomy, molecular biology and applications in different areas. Directed workshops, lectures and exams.

## CERTIFICATIONS

**Remote Sensing Image Acquisition, Analysis and Applications**, IEEE GRSS and University of New South Wales - Australia *Jun 2021*
Remote course on the theory behind remote sensing and machine learning techniques in Earth Observation.

**Data Science For All**, Correlation One - USA *Nov 2020*
12-week course on advanced Data Science Techniques funded by Colombia's Ministry of Technology.

**Tensorflow Developer Professional Certificate**, Deeplearning.ai - USA *Oct 2020*
4-course Certificate about the use of Tensorflow on Deep Learning Models through the Coursera Platform.

**Tensorflow: Data and Deployment Specialization**, Deeplearning.ai - USA *Oct 2020*
4-course Specialization about deployment of Tensorflow on different devices through the Coursera Platform.

**Data Science Specialization**, Johns Hopkins University - USA *Ago 2020*
10-course Specialization about data analysis using R through the Coursera Platform.

**Discrete Mathematics for Computer Science Specialization**, National Research University Higher School of Economics - Russia *Ago 2020*
5-course Specialization about discrete mathematics through the Coursera Platform.

**Deep Learning Specialization** , Deeplearning.ai - USA *Jul 2020*
5-course Specialization about deep learning and artificial intelligence through the Coursera Platform.

**High Performance Computing**, Universidad del Rosario - Colombia *Jul 2019*
Weeklong course about parallel computation and optimization of data analysis workflows.

## SKILLS

**Programming Languages and Frameworks**
Proficient in Microsoft Office Suite (Excel, Word, Powerpoint), R, Python, Java, Javascript, HTML5, CSS, D3.js, LaTeX, UNIX Shell, SQL, Git, Docker, API REST, QGIS, ArcGIS Pro, Google Earth Engine and AWS (EC2, S3, SQS and RDS).

**Languages**
Native Spanish, fluent English (C1 Academic IELTS) and basic communication skills in French.

## GRANTS AND SCHOLARSHIPS

**Minciencias Cambridge Scholarship**, Cambridge Trust - United Kingdom          *May 2022*
Scholarship for PhD studies at the University of Cambridge jointly awarded by the Cambridge Trust and the Ministry of Sciences of Colombia.

**Colombia Biodiversa**, Fundación Alejandro Ángel Escobar - Colombia          *Jan 2019*
National grant awarded for the funding of the project *Metabarcoding of Methanogen Communities of a Páramo Peatbog throughout the Holocene.*

**Early Career Grant**, National Geographic Society          *Nov 2018*
International grant awarded for the funding of the project *Metabarcoding of Methanogen Communities of a Páramo Peatbog throughout the Holocene.*

**Proyecto Semilla**, Universidad de los Andes - Colombia          *Jul 2018*
University grant awarded for the funding of the project *Metabarcoding of Methanogen Communities of a Páramo Peatbog throughout the Holocene* and assistance to a scientific meeting.

**Master Teaching Assistantship**, Universidad de los Andes - Colombia          *Aug 2017 - Dec 2019*
University grant to cover full tuition and living expenses for the duration of the Master of Biological Sciences on the basis of academic and research merit.

**Summer Research Internship Grant**, Universidad de los Andes - Colombia          *Jun 2016*
Research grant awarded by Universidad de los Andes in order to work on research at Cornell University.

## SCIENTIFIC MEETINGS AND EVENTS

**American Geophysical Union Fall Meeting**, AGU 100 - San Francisco, USA          *Dec 2019*
Poster: *Metabarcoding of Methanogen Communities of a Páramo Peatbog throughout the Holocene*

**Past Global Changes Open Science Meeting**, 5th PAGES OSM - Zaragoza, Spain          *May 2017*
Poster: *Ancient DNA from Subfossil Wood in the Tropical Andes of Colombia*

## PUBLICATIONS

- Ramírez-Valencia, V., Paez-Reyes, M., Salgado-Bonnet, J., Sangiorgi, F, **Zúñiga-González, A. C.,** Amézquita, A., Ibarra-Avila, H., & González-Arango, C. (2021). Distribution of organic-walled dinoflagellate cysts in surface sediments of the southern Caribbean and the eastern tropical Pacific and its environmental implications. *Marine Micropaleontology.*