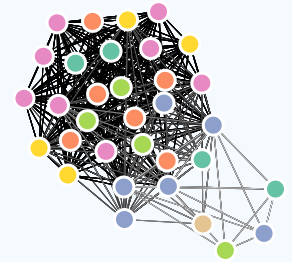


MARIANA ARBOLEDA

As an educator and researcher, I integrate data science, computational thinking, and equitable education to create meaningful learning experiences. I have led initiatives to help teachers incorporate data literacy and developed data-driven processes to evaluate multiple educational projects. My classroom experience enriches my data analysis work just as much as my involvement in projects enhances the relevance and impact of my teaching.



EDUCATION

current
|
2022

PhD., Education

Universidad del Norte

📍 Barranquilla, Colombia

- Data Science Education
- Advisor: Camilo Vieira, PhD

June
2025
|
Aug 2024

Visiting Scholar

University of Virginia

📍 Charlottesville, USA

- Fulbright scholar
- Advisor: Jennifer Chiu, PhD

2022
|
2019

MS Engineering

Universidad EAFIT

📍 Medellín, Colombia

- Applying Machine Learning Models in sales forecasting
- GPA: 4.78/5.0

2016
|
2012

BS Production Engineering

Universidad EAFIT

📍 Medellín, Colombia

- GPA: 4.64/5.0

INDUSTRY EXPERIENCE

2019
|
2017

Young Professional (Career Development Program)

Ternium Siderúrgica de Caldas

📍 Manizales, Colombia

- Managed an innovative project to monitor on-site construction and maintenance activities using drones
- Designed training courses tailored for new employees enhancing their onboarding experience
- Led regular meetings focused on industrial safety and continuous improvement, fostering a culture of ongoing learning

View this CV online with links at
[_https://marianaarboleda.github.io/cv/_](https://marianaarboleda.github.io/cv/)

CONTACT



marianaarboleda@uninorte.edu.co



github.com/marianaarboleda



marianaarboleda.github.io



<https://www.linkedin.com/in/marianaarboledaf/>

LANGUAGE SKILLS

R

Python

Bash

SQL

Last updated on 2025-02-19.



PROJECT AND CONSULTING EXPERIENCE

Present
|
2024

Instructional developer

Charlottesville, VA, USA

📍 University of Virginia

- Designed lesson plans fostering data science with global perspectives.
- Created instructional videos to guide educators in integrating data literacy into their practice.
- Developed assessment tools to measure the effectiveness of instructional materials and track educators' progress.

2024

Pedagogical coordinator and instructional developer

Barranquilla, Colombia

📍 Universidad del Norte

- Coordinated a team of 5 experts to design 30 lesson plans and evaluations for the K-11 Colombian curriculum
- Designed lesson plans introducing computational science, and data science, and artificial intelligence concepts through unplugged and technology-based activities

2024
|
2022

Research assistant

Barranquilla, Colombia

📍 Universidad del Norte

- Validating psychometric instruments for measuring Teacher well-being and socio-emotional learning of students from two different countries, and leading the report of quantitative results.

2023
|
2020

Leading Data Analyst

Barranquilla, Colombia

📍 Universidad del Norte

- Developed an innovative online visualization platform enabling seamless customization and download of charts, facilitating efficient data-driven analyses for the team.
- Led a team of data analysts to collect, clean, and analyze program data, ensuring data accuracy and integrity for evidence-based decision-making.
- Collaborated closely with other leaders and stakeholders, leveraging data insights to identify areas for improvement.
- Pioneered the implementation of an automated evaluation process for a computational thinking maturity model.

2022

Curriculum developer assistant

Barranquilla, Colombia

📍 Asociación Colombiana de Facultades de Ingeniería

- Cooperated with senior curriculum developers to enhance the K-12 mathematics curriculum by integrating computational thinking concepts.
- Conducted extensive research to identify opportunities for including computational thinking in the curriculum and aligning it with learning objectives.
- Suggested, revised, and improved a year-by-year learning progression, ensuring a seamless course-by-course progression, which is now published and accessible at Guidelines for the Integration of Computational Thinking in Mathematics.

While my primary focus is in education and research, I have worked across disciplines, from developing computational thinking guides for K-12 to designing data-driven projects that foster critical inquiry. I have led monitoring and evaluation strategies for multiple educational projects, ensuring data quality and availability. My experience spans curriculum design, teacher training, educational technology, and data-informed decision-making.

2020

Assistant consultant

Medellín, Colombia

📍 Universidad EAFIT

- Worked closely with the client to ensure effective translation of their needs into the tool's features and functionalities
- Created an intuitive user interface using Python's tkinter package for an electrical connections forecasting tool, enhancing user accessibility and usability.
- Built a robust data processing pipeline, streamlining the input data for accurate forecasting and ensuring the tool's reliability.
- Trained the client's in-house team on how to operate the application and interpret the forecasting results, facilitating seamless knowledge transfer and long-term usability.



TEACHING EXPERIENCE

Dec 2023
|
Jan 2023

Mathematics Tutoring

Universidad del Norte - I.E El Cañahuate

📍 Barranquilla, Colombia

- Providing tailored mathematics tutoring sessions to high school students, with a strong emphasis on statistics, probability, and data visualization
- Instilling an appreciation for Mathematics and its practical applications, with a focus on real-world examples and relevance
- Utilizing various teaching resources to enhance comprehension of statistical concepts and data representation while recognizing the environmental limitations

Dec 2023
|
Jul 2022

Computational Thinking for Everyone

Universidad del Norte

📍 Barranquilla, Colombia

- Teaching Computational Thinking, Data Science, and Machine Learning fundamentals for multidisciplinary students
- Implementing a design-based research approach to refine the program using evidence from the initial offerings

Nov 2021
|
Apr 2021

Computational Thinking for High School Level Students - Remote Learning

Universidad EAFIT

📍 Medellín, Colombia

- Engaged students in beginner-friendly activities fostering the development of computational thinking skills
- Encouraged collaborative learning through online platforms, creating an interactive and inclusive virtual classroom

Dec 2016
|
Jan 2014

English as Second Language for Children and Adolescents

Universidad EAFIT

📍 Medellín, Colombia

- Participated in ongoing pedagogical training programs, continuously enhancing teaching techniques
- Designed and implemented engaging, age-appropriate curriculum

I am passionate about making computational thinking and data science accessible to all learners. I believe that engaging, context-rich learning experiences can empower students to see themselves as creators and problem solvers. My approach centers on interactive pedagogy, inclusive practices, and real-world applications, with a strong emphasis on data literacy and its role in education.



AWARDS, FELLOWSHIPS, & GRANTS

2025
|
2024

Fulbright scholarship - Estudiante doctoral colombiano

Fulbright Colombia

📍 Colombia

- Awarded for academic excellence and leadership potential, as part of a highly competitive selection process supporting Colombian doctoral students in international research and study.

2022
|
2019

Full-Funded Research Project in Engineering

Universidad EAFIT

📍 Colombia

- Awarded to fully support my master's degree in engineering, recognizing the quality and impact of my research proposal.

2016
|
2012

Bachilleres por Colombia Scholarship

Ecopetrol

📍 Colombia

- Full scholarship for the entire undergraduate program

2015

Roberto Rocca Education Program Scholarship

Ternium, Techint Ingeniería y Construcción and TenarisTamsa

📍 Colombia

- Awarded based on academic performance and a rigorous selection process

2014

Jóvenes ingenieros del DAAD 2014-2015. Precandidate

Universidad EAFIT

📍 Colombia

- Language scholarship based on academic merit

2014

Honorary scholarship for academic performance

Universidad EAFIT

📍 Colombia

- Awarded for achieving the highest average score in my engineering program.



SELECTED PUBLICATIONS, POSTERS, AND TALKS

2023

Opening the Machine Learning Black Box for Multidisciplinary Students: Scaffolding from GUI to Coding

2023 IEEE Frontiers in Education Conference (FIE) 📍 College Station, TX, USA

- Arboleda, M., Vieira, C., & Chiu, J. L.
- Opening the Machine Learning Black Box for Multidisciplinary Students: Scaffolding from GUI to Coding
- DOI: <https://doi.org/10.1109/FIE58773.2023.10343043>¹

Interpreting Direct Sales' Demand Forecasts Using SHAP Values

Production



2023

- Arboleda-Florez, M., & Castro-Zuluaga, C.
- Interpreting direct sales' demand forecasts using SHAP values
- DOI: <https://doi.org/10.1590/0103-6513.20220035>²

2021

Introduction

In Influencing Customer Demand: An Operations Management Approach

CRC Press

- Castro-Zuluaga, C., & Arboleda-Florez, M.
- Introduction to the book 'Influencing Customer Demand: An Operations Management Approach'
- DOI: <https://www.routledge.com/Influencing-Customer-Demand-An-Operations-Management-Approach/Hemmati-Sajadieh/p/book/9780367619985>³

2021

Sales Forecasting Difficulties' Analysis on Colombian Direct Sales Companies

In Proceedings of the International Congress of Industrial Engineering (ICIE2019)

Springer International Publishing

- Castro-Zuluaga, C. A., & Arboleda, M.
- Sales Forecasting Difficulties' Analysis on Colombian Direct Sales Companies
- DOI: https://doi.org/10.1007/978-3-030-49370-7_12⁴

Oct 2024

Integrating Data Science in the classroom: Research experiences

Cátedra Europa 2024U - niversidad del Norte

Barranquilla, Colombia

Panelist

June 2024

AI: Enemy or Ally?

Deeper Learning LATAM 2024

Medellín, Colombia

Workshop Facilitator

2023

Master class: Applied Computational Thinking in Education

Institucion Universitaria Americana

Barranquilla, Colombia

Panelist

2023

Navigating the World of Data. VII Technology Forum: "Innovation for Life. New Educational Technologies for the Integration of Society"

Colegio Biffi la Salle

Barranquilla, Colombia

Panelist

2023	Data for Change: How Can Young People Contribute to the SDGs Using Data Science. “Innovation and Sustainability Forum: A Youthful Perspective on the SDGs” Barranquilla Territorio STEM 📍 Barranquilla, Colombia Panelist
2022	Public Policy Dialogue CFK. Computational Thinking: The Future is Now British Council Colombia 📍 Bogotá, Colombia Panelist
2021	Computational Thinking in School Universidad EAFIT 📍 Medellín, Colombia Workshop Facilitator
2019	Student Research Groups Fair Universidad EAFIT 📍 Medellín, Colombia Volunteer Judge

LINKS

- 1: <https://doi.org/10.1109/FIE58773.2023.10343043>
- 2: <https://doi.org/10.1590/0103-6513.20220035>
- 3: <https://www.routledge.com/Influencing-Customer-Demand-An-Operations-Management-Approach/Hemmati-Sajadieh/p/book/9780367619985>
- 4: https://doi.org/10.1007/978-3-030-49370-7_12