

Alejandro Calle Saldarriaga

APPLIED MATHEMATICIAN · DATA SCIENTIST

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Education

Universidad EAFIT

Medellín, Colombia

APPLIED MATHEMATICS MASTER

January 2019 - December 2020

- GPA: 4.8/5.
- Currently funded by EAFIT University to continue researching Functional Data Analysis, research I started while being an undergraduate student.
- Presented work at XXIX Simposio Internacional de Estadística - 2019, based on my research in Functional Data Analysis.
- Research culminated in the paper <https://www.sciencedirect.com/science/article/abs/pii/S016974392100188X>.
- Research interests include: Functional Data Analysis, robust and non-parametric statistics, computational statistics, optimization, statistical learning.

Pi School

Rome, Italy

SCHOLAR AT THE SCHOOL OF AI AT PI SCHOOL

October 2019 - December 2019

- Received a two-months full scholarship to participate at the School of Artificial Intelligence of Pi School.
- Selected among some of the brightest Engineers in the field, and as a scholarship winner, I worked on a project presented by a real client, developing AI-based business solutions.
- Worked on machine learning techniques applied to voice signals.

Universidad EAFIT

Medellín, Colombia

MATHEMATICAL ENGINEERING UNDERGRADUATE

January 2014 - December 2018

- GPA: 4.5/5.
- Member of the logic and computation group, which ended in the following working paper (<https://repository.eafit.edu.co/handle/10784/11464>) and this github repository (<https://github.com/acalles1/setform>). Was a speaker in the group's seminary two times.
- Researched functional data analysis and took part in EAFIT's days of applied science as a speaker.

Other Courses

COURSERA

- Distributed Computing with Spark SQL.
- SQL for Data Science.

Skills

Programming

Python, R, Julia, SQL, MATLAB, Stata, Haskell, Agda.

Software

TeX, Excel, Linux (Ubuntu/Debian), AWS, Docker.

Languages

Spanish (Native), English (113/120 TOEFL), Japanese (2 years of study).

Data Analysis

Econometrics, Multivariate Statistics, Time Series, Non-parametric Methods, Artificial Intelligence.

Mathematical Modelling

Optimization, Stochastic Processes, Dynamical Systems, System Identification, Formalization, functional analysis, differential geometry.

Computational methods

Deep learning, Computer Vision, Heuristics, Computer Vision, Numerical Analysis.

Experience

World Bank

Remote

DATA SCIENTIST

November 2020 - Current

- Working at the world bank as a data scientist for a project using machine learning/remote sensing techniques to estimate the true population of Haiti, as the last Census had many complications.

Harvard Business School

Remote

RESEARCH ASSISTANT

November 2020 - Current

- Research Assistant for Assistant Professor Jorge Tamayo (<http://www.jorge-tamayo.com/>).
- Assisting in mathematical modelling, implementation of estimation techniques and machine learning techniques for various research projects.

Universidad EAFIT, CEC

UNIVERSITY PROFESSOR

Medellín, Colombia

November 2020 - Current

- Professor for course called “Data Analytics for business decision making” for the CEC at EAFIT University. The course has been given multiple times.
- Topics of the Course: Variable Selection methods, outlier detection, linear regression model, robust linear regression models, ridge and lasso regression models, unsupervised and supervised learning.
- Professor for a leveling course related to some prerequisite mathematics for entering the Data Science Masters at Universidad EAFIT. Topics covered: Sequences/series, Numerical derivation/integration, linear algebra, linear programming, data analysis.

Grupo Konecta, Artificial Intelligence

DATA SCIENTIST

Medellín, Colombia

February 2020 - November 2020

- Data scientist at one of the leading BPO companies in the Spanish Speaking world.
- Improvement of existing models for key areas of the company using state of the art AI techniques.
- Involvement in all the steps of the Software development Life Cycle in order to put AI/Machine Learning applications into production.
- Constant research into AI's state of the art for many business related problems.

Universidad EAFIT, Master of Data Science and Analytics

MATHEMATICS T. A.

Medellín, Colombia

April 2020 - Current

- Tutoring students from the Master of Data Science and Analytics with their doubts/questions regarding mathematics.

Universidad EAFIT, Basic Sciences Department

STATISTICS T. A.

Medellín, Colombia

August 2018-November 2018

- Weekly lectures corresponding to class materials or student needs.

Universidad EAFIT, GRIMMAT (Mathematical Modelling Research Group) and Foreign Language Learning Research Group

RESEARCH INTERN

Medellín, Colombia

January 2018 - July 2018

- Worked on emotion recognition from facial expressions in videos or images.
- Worked on signal analysis and emotion recognition from voice recordings.
- Applied our work on emotion recognition in foreign language learning.

Universidad EAFIT, GRID (Design Engineering Research Group)

RESEARCH ASSISTANT

Medellín, Colombia

August 2017 - December 2017

- Design and implementation of a method to evaluate perceptual variables that affect the aesthetic appreciation of a product.
- Implementation of Chou's AHP model.
- Creation a simple user interface.
- Monitor data gathering.
- Support in visualization of data and results.
- Review of the state of the art for alternative methods and models.

Universidad EAFIT

AUTOMATA AND FORMAL LANGUAGES T.A.

Medellín, Colombia

August 2016 - November 2016

- Give supplemental lessons.
- Design and grade the different programming labs.

Writing

Journal Publication

Journal: Chemometrics and
Intelligent Laboratory Systems

September 2021

- Alejandro Calle-Saldarriaga, Henry Laniado, Francisco Zuluaga, Víctor Leiva, Homogeneity tests for functional data based on depth-depth plots with chemical applications, Chemometrics and Intelligent Laboratory Systems, 2021, 104420,ISSN 0169-7439,https://doi.org/10.1016/j.chemolab.2021.104420.

Honors

2013 **First Place**, ICFES Colegio Cumbres

Envigado,
Colombia

2018 **Fully funded scholarship**, Applied Mathematics Master at Universidad EAFIT

Medellín, Colombia

2019 **Fully funded scholarship**, School of AI at Pi School

Rome, Italy