Jimmy José Calvo Monge

MATHEMATICIAN AND DATA SCIENTIST

Profile

I enjoy studying and tackling problems related to the areas I love: Mathematics, Statistics, Data Science and Software Development. I have a strong educational background in those areas as I have degrees in Mathematics, Applied Mathematics and Full Stack Web Development.

My work experience deals with a combination of those areas. So far I have worked as a data analyst and statistician at Intel Corporation. I deal with data analysis/ software development problems that involve things like:

- Fitting and measuring classification models for manufacturing data.

- Creating algorithms for multi-variable outlier and anomaly detection in numerical data.

- Using full stack resources (data base design and administration, back-end architecture, front-end frameworks) to create web-based tools to help visualize, access, manage and analyze data for various engineering teams.

Academically I'm always active and enjoy continuing with my education in pure and applied mathematics. I contribute as an assistant professor and work in some research projects.

Employment History

Professor of Mathematics, University of Costa Rica, San Pedro de Montes de Oca

MARCH 2019

Courses given: Calculus I (MA-1001). Principles of Mathematics (a first course for students of a mathematics bachelor degree). (MA-0150). Linear Algebra (MA-1004). Differential Equations for Engineers (MA-1005), Optimization Calculus (MA 1023), Number Theory (MA 00250). Honors Calculus (MA 0250).

Statistician and Data Scientist, Intel Corporation, San José, Costa Rica

JUNE 2021

Statistical support for manufacturing engineers. Creation and management of web-based tools for standard data analysis reports. Automation of data extraction and transformation processes. Development of pipelines and algorithms for anomaly and outlier detection in numerical data.

Education

Masters in Full Stack Web Development, Three Points Bussiness School, Barcelona, Spain (virtual)

JANUARY 2022 — DECEMBER 2022

A complete masters degree in full stack web development, covering fundamentals of front-end and back-end design, use of AWS resources for database and servers allocation, use of git, unit and integration testing and containers. Worked with a team of students creating a real internal administration platform for a client company.

Details

San Pedro de Montes de Oca
Costa Rica
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jimjocamon94@gmail.com

Links

Github

LinkedIn

Languages

Spanish

English

German

Masters degree in applied mathematical methods, University of Costa Rica, San Pedro de Montes de Oca

MARCH 2021 — APRIL 2023

In this program I have been able to study general areas of applied mathematics, including Applied Statistics, Probability, Optimization, Time Series, Data Analysis and Predictive Modeling.

For my master's thesis I'm working on a research project about novel techniques on adaptive human behavior for epidemiological models. Studying topics such as stability of systems of differential equations, Markov decision processes and more. My advisor: Dr. Fabio Sanchez, Cornell University.

Master degree in pure mathematics, University of Costa Rica, San Pedro de Montes de Oca

MARCH 2019 — JUNE 2020

Continuing my studies in pure mathematics I decided to collaborate on a research project in Algebraic and Arithmetic Geometry under the supervision of prof. Dr. Marco Antei. We studied the fundamental group for algebraic schemes with a published article.

Bachelor in Mathematics, University of Costa Rica, San Pedro de Montes de Oca

APRIL 2015 — DECEMBER 2018

Academical Achievements/Activities

GCURS, Houston, TX.

NOVEMBER 2019 — NOVEMBER 2019

Participant in the Gulf Coast Undergraduate Research Symposium at RICE University. Gave a talk on my masters degree research titled: Vector bundles and the fundamental group scheme over abelian schemes.

Academc Record, University of Costa Rica., San José, Costa Rica

JUNE 2019 — JUNE 2020

Second best academic score of University of Costa Rica, 2018.

Best academic record of School of Mathematics of University of Costa Rica, 2019.

Masters research publication, San José, Costa Rica

APRIL 2021 — APRIL 2021

Preprint of masters degree article: Extension of torsors and prime to p fundamental group scheme, published in Annals del' Institut Fourier:

https://aif.centre-mersenne.org/articles/10.5802/aif.3475/

Skills

Technical skills

1. Vast experience with Python: daily use of libraries for data transformations and visualizations such as **pandas, dask, plotly**. Extensive use of packages for web applications, such as **flask** and **dash**. Experience with modules for data analysis and applied modeling, like **scipy, sklearn** and **statsmodels.** Also, connecting and reading mongodb databases with **pymongo** has been a big part of my python related responsibilities. Solving problems with **OOP** has also been really important and a priority in my programming development history. Experienced with **multiprocessing**

and thread handling. *Entry Level Programmer Certificate* from the Python Institute. Certificate code: WJSK.nc5L.m88Q

2 Experience with **R**: use of functions, common packages, fundamental tools for reading, processing, cleaning and visualizing data, applying common regression and

techniques (fundamental algorithms like: linear regression, logistic regression, probabilistic classifiers as Naive Bayes models and Gaussian discriminant analysis), validation techniques (for example applying cross validation to asses model performance). Also trained in theoretical and practical aspects of other fundamental algorithms like support vector machines, and deep learning algorithms (neural networks). Familiarity with libraries for data wrangling such as **dplyr, tidyr, purr, stringr, lubridate, ggplot2** and others for model creation **caret, statsr, h2o, ranger.**

3. Use of **SQL** language, employed platforms such as **MySql Workbench** for queries and presentation/population of data tables. Vast experience managing **Mongo** databases for web applications (use of libraries of **pymongo** to deal with data bases regularly).

4. Experienced with **Matlab** to address numerical problems (numerical integration, matrix decomposition algorithms, solving systems of differential equations by stepwise algorithms and others).

5. Experienced with **HTML** and **CSS** use. Use of **Javascript.** Familiar with web application frameworks as **React.** Accustomed with working with **git** and using git flow for project development and version control.