

ALFONSO BARAJAS

Data Science Undergraduate Student

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🌐 alfonsbc.github.io/Portfolio

🎓 EDUCATION

National Autonomous University of Mexico

Expected Jun 2022

Bachelor's degree in Data Science

GPA: 4.0/4.0

- **Relevant Coursework:** Probability and Statistics, Relational Databases, Concurrent Programming, Discrete Mathematics, Calculus I-IV, Linear Algebra I and II, Convex Sets and Modern Algebra I
- **Clubs:** Competitive Programming Club "Pu++"

🧰 EXPERIENCE

Software Development Intern

January-Present 2021

Subdepartment of Integrated Systems

DGTIC, UNAM

- Research, implementation of software in DGTIC's projects to improve efficiency on management resources, time using Agile/Scrum techniques

📚 SKILLS

Programming Languages: Python, R, SQL, C++, JavaScript, PHP, HTML5, CSS

Libraries: Numpy, Pandas, Matplotlib, Scikit-learn, ggplot2

Work Flow: Git, GitHub, Google Colab, Jupyter Notebook, VS Code, Overleaf (L^AT_EX), Linux, Command Prompt

Languages: Spanish(Native), English(C1)

🚀 PROJECTS

Optimization Cost-Nutrition in Raw Vegan diet | Pandas, Numpy

Feb 2021

- Designed a **Mathematical Model** that provides a efficient solution .
- **Knapsack 0/1** was the implemented algorithm with a dynamic programming .
- Given a limited **budget**, provided the list of fruits, vegetables and oilseeds, the output is the best combination possible that **maximizes nutritional content**.

Currency Exchanges (OLAP) | SQL, PostgreSQL, pgmodeler

Jan 2021

- **Structure and Design** the Data Warehouse consistent with the business rules.
- Work with fine level of granularity (level of detail), uploading 10,000 records
- Made **analytical and prediction queries** to understand the business' behavior.

Finite Differences Method | Numpy, Matplotlib, Seaborn

Jan 2021

The Finite Differences is a numerical method in which we obtain the solution of partial derivatives that gives a understanding about the heat diffusion in a given body.

- Implemented solution using **iterative and direct** methods.
- Give different **visualizations** in $2 - D$ and $3 - D$ to show results

Polynomial Approximation and Weather Forecast | Numpy, Pandas

Nov 2020

- Implemented a efficient solution using **Cholesky Method** to give a polynomial formula of degree 3 that fits the best with the data.
- Proposed a segmentation of 3,5,10 year *period* and with seasons.
- Deal with large data sets and figure out how to load it.

🏆 ACHIEVEMENTS

Contestant [🔗](#)

Nov 2020

ACM-ICPC Grand Prize of Mexico 2020 (Top 20%)

Virtual

Winner, Talent Award of the University Bachelor [🔗](#)

Jun 2018

Prized in the Scientific Research Category

UNAM, Mexico City

Gold Medal/First Place [🔗](#)

'16, '17, '18

7th Knowledge University Olympiad; 31st and 30th Mathematical Olympiad of Mexico City

High School, UNAM