

# ALFONSO BARAJAS

Data Science Undergraduate Student

☎ +52-55-4878-3505 | ✉ [alfonsobarcer@gmail.com](mailto:alfonsobarcer@gmail.com) | in [linkedin.com/in/alfonsbc](https://www.linkedin.com/in/alfonsbc) | [github.com/AlfonsBC](https://github.com/AlfonsBC)  
🌐 [alfonsbc.github.io/Portfolio](https://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<sup>A</sup>T<sub>E</sub>X), 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 an 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 to work with.

## 🏆 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

7<sup>th</sup> Knowledge University Olympiad; 31<sup>st</sup> and 30<sup>th</sup> Mathematical Olympiad of Mexico City

High School, UNAM