

# Daniel Gutiérrez Restrepo

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## About me

A mathematician with an engineering mindset. My deep understanding of math allows me to apply the right tool for each job. I'm able to produce code that is useful, clear, and reproducible. I look to implement expert knowledge into the modeling process. I hope to find insights and make sense of the world through data and modeling.

## Education

**ITAM – Mexico Autonomous Institute of Technology**

*BSc in Applied Mathematics*

Focused on Statistics, Data Science, Machine Learning, Optimization, Bayesian Statistics.

## Projects

**K-means for song grouping**

*Python – March 2024*

Designed an application that decomposes a playlist into sub-playlists of similar songs. The algorithm uses Spotify's web API's custom song features and K-means to create the song clusters.

**Computer Vision for Image Recognition**

*Python – Pytorch – February 2024*

Designed a convolutional neural network based on the popular AlexNet architecture for the 10 class CIFAR image dataset. The model achieves an accuracy of 70.2% on the test set and utilizes Nvidia CUDA to train faster on a GPU.

## Skills

**Coding:** Python, Pytorch, Sklearn, Pandas, R, MATLAB.

**Machine Learning:** Neural Networks, Regression, Clustering, PCA, Random Forests, Regularization, Generalized Regression, Exploratory Data Analysis.

**Statistics:** Time Series Analysis, Markov Chains Monte Carlo, Bayesian Modeling.

## Experience

**Mathematics TA**

*Northridge School Mexico – January 2020 – July 2022*

Facilitated classroom instruction and provided one-on-one assistance for multiple high-school grades. Assisted in the development of lesson plans, learning materials, and assessments.