

# OSCAR ALEJANDRO GOMEZ QUINTERO

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## EDUCATION

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### New York University Abu Dhabi

Aug 2016 - May 2020

B.S. Mathematics, B.S. Computer Science - GPA: 3.89/4.00 (Cum Laude)

Abu Dhabi, UAE

- *Data Science For All by Correlation One: DS4A Colombia Cohort 6 (2022)*

## SKILLS

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**Python** (pandas, scikit-learn, pytorch, keras, tensorflow, scipy, numpy, matplotlib, seaborn, plotly, bokeh, flask, django), **SQL Development**: Javascript, Google Cloud, Azure Cloud, Terraform, Docker, K8s, Golang, C, C++, Java, R, Git, Linux,  $\LaTeX$   
**Languages**: English (Bilingual), Spanish

## WORK EXPERIENCE

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### Ignition Associate

June 2022 - Present

Scotiabank (Scotiabank)

Bogota, Colombia

- **Cloud Developer**: Deployed Azure Cloud Infrastructure using DevOps Pipelines and Infrastructure as Code (Terraform) to support application teams across the bank. Developed automated tests using Golang and documented the design and architecture of the pipelines in the project's Security Design Document.
- **Software Engineer**: Contributed to the incremental migration of the Retail Risk Analytics Platform to GCP. Documented SAS code in dataflows and converted it to Python. Participated in code refactoring and architecture processes. Conducted research and Proof of Concepts on GCP technologies (Pub/Sub, Cloud Functions, Airflow/Composer).

### Research Assistant / PhD Student

July 2021 - June 2022

Duke University, Department of Computer Science

Durham, NC, USA

- Researched explanation methods for data-driven systems using causal inference. Developed an interactive webapp for data analysts to perform hypothetical What-If and How-To analysis in relational data with an extension of SQL.
- Developed machine learning models to predict property values for a proptech startup as part of Duke's Advanced Professional Degree Consulting Club Pro-bono Consulting Program.
- Teaching Assistant for the course *Mathematical Foundations of Computer Science*. Completed graduate coursework in Artificial Intelligence, Database Systems, and Privacy and Fairness in Data Science, regularly presenting research papers.

### Data Scientist

Aug 2020 - June 2021

Quantil S.A.S.

Bogota, Colombia

- Developed an end-to-end machine learning solution to predict credit risk for a company focused on the distribution of sport products, successfully detecting more than 90% of the largest delayed payments and overall ROC-AUC of .79.
- Analyzed the dynamic spatio-temporal behavior of homicide data in Bogota using Zero-Inflated Embedding models [3].
- Studied the effect of compliance with quarantines and lockdowns on domestic violence during the Covid-19 pandemic in Bogota using mobility data and Generalized Additive Models (GAMs) [8].
- Developed interpretation methods for Conditional Generative Adversarial Networks (cGAN) to predict robberies using SHAP values. Implemented the calibration of the network for fairness using kernel mean embeddings [2].
- Collaborated within diverse teams of mathematicians, economists, engineers, and scientists. Regularly gathered and presented results through client meetings, progress reports, and 3 academic research publications.

### Data Science Intern

June 2019 - Aug 2019

Nexquare

Dubai, UAE

- Enhanced machine learning models predicting student performance and employability by developing and incorporating an interpretability and visualization module within the analytics platform, collaborating with teams across Dubai and India.
- Integrated the Python and R back-end for the platform, allowing seamless use of models developed in both languages.

### Machine Learning Intern

June 2018 - Aug 2018

NYU Tandon School of Engineering, Visualization and Data Analytics Lab

New York City, NY, USA

- Trained SVMs, Random Forests, and Neural Networks to predict customer credit risk from a FICO home credit dataset.
- Developed visual and interactive explanations for the models based on feature importance and counterfactuals. Our solution [5] earned 2nd place in the **FICO Explainable ML Challenge**. We generalized it for tabular data in the papers [1] and [4].

### Machine Learning Research Assistant

Feb 2017 - May 2018

NYU Abu Dhabi, Music and Sound Cultures Group

Abu Dhabi, UAE

- Led the analysis of the NYUAD library collection of more than 10,000 Arab and African records, using computational audio analysis, machine learning, and visualization techniques [7].
- Developed an interactive webapp to explore musical similarity using k-means clustering, deep autoencoders, and t-SNE [6].

## HONORS AND AWARDS

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**Full Scholarship**: New York University Abu Dhabi

2016 - 2020

**2nd Place Winner**: NYUAD International Hackathon

Apr 2020

**2nd Place Winner**: FICO Explainable Machine Learning Challenge

Jan 2019

**Best Admission Score (Nationally)**: Universidad Nacional de Colombia

Apr 2016

**Honorable Mention/Bronze/Silver**: International/Iberoamerican/Centroamerican Math Olympiads

2014 - 2016