Fernando **Martinez-Lopez**

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Education

Fordham University
New York, N.Y., U.S.

MASTER IN DATA SCIENCE - MSc
January 2022 - May 2023

- **GPA** 4.00/4.00.
- Full Scholarship awarded by the Dominican Ministry of Higher Education, Science, and Technology
- **Relevant Courses:** Cloud Computing, Big Data Computing, Blockchain Technology, Data Mining, Machine Learning, and Deep Learning.

Quantic School of Business and Technology
Washington, D.C., U.S.

MASTER OF BUSINESS ADMINISTRATION - MBA
March 2021 - March 2022

- **Grade**: Honors.
- Full Scholarship to a highly selective program(7% acceptance rate).

Santo Domingo Institute of Technology (INTEC)
Santo Domingo, Dom. Rep.

B.S. IN BUSINESS ENGINEERING
August 2014 - April 2018

- **GPA** 3.81/4.00, Summa Cum Laude.
- INTEC Meritorious Scholarship (Awarded for top 1% program).

Academic & Research Experience

Fordham University
New York, N.Y., U.S.

GRADUATE RESEARCH AND TEACHING ASSISTANT
May 2022 - PRESENT

- Y. Zhao, **F. Martinez**, H. Xue, G. M. Weiss, "Admissions in the Age of AI: Detecting AI-Generated Application Materials in Higher Education," - Submitted (November 2023).
- **F. Martinez**, Y. Zhao, "Integrating Multiple Visual Attention Mechanisms in Deep Neural Networks, " COMPSAC 2023.
- **F. Martinez**, M. Rahouti, A. Chehri, R. Amin, N. Ghani, "Rediscovering Fraud Detection in Bitcoin Transactions Using Machine Learning Models, " WF-IoT23.
- E. Thrall, **F. Martinez Lopez**, T. Egg, S. Lee, J. Schrier, Y. Zhao, "Rediscovering The Particle in a Box: Machine learning regression analysis for hypothesis generation in physical chemistry lab," *Journal of Chemical Education*.
- Y. Ding, Q. Wang , **F. Martinez Lopez**, Y. Wu, Y. Zhao, "A Machine Learning Approach to Examine Personality, Adjustment, and Engineering Identity Among College Engineering Students", - Submitted (October 2023).
- **TA Courses:** Algorithms for Data Science, Data Visualization
- **Award:** GSAS Graduate Research Assistantship Award

Industry Experience

MUFG Americas
New York, N.Y., U.S.

QUANTITATIVE MODELING - AVP
July 2023 - PRESENT

- Develop, implement, and validate quantitative models for multiple desks, risk management, and other securities-related activities in compliance with CCAR planning.
- Ensure that models assess optimal performance and comply with regulatory requirements and internal policies.

Smart Energy
New York, N.Y., U.S.

DATA SCIENTIST
September 2021 - July 2023

- Develop end-to-end Machine Learning models to generate actionable business insights. These models drive marketing campaigns of 10,000+ Warm Leads daily, support customer retention strategies, and multiple operation processes.
- Query and perform hands-on data analyses, A/B experiments, and modeling over enormous datasets towards developing insights, recommendations, and presenting results to various stakeholders.

General Directorate of Internal Taxes
Santo Domingo, Dom. Rep.

DATA SCIENTIST - RESEARCH AND ANALYTICS OFFICE
April 2020 - September 2021

- Create, validate, test, and tune Machine Learning algorithms to detect tax noncompliance, manage risk behavior profiles, reduce tax gaps, and build advanced analytics engines.
- Take defined business objectives and produce analytics to provide stakeholders with data-driven insights that lead to improved tax auditing (the action through which the Tax Administrations seek to prevent taxpayers from incurring tax evasion or fraud).
- Present data results and recommendations to leaders.

General Directorate of Internal Taxes   *Santo Domingo, Dom. Rep.*

Data Analyst - Registry Office   *September 2018 - April 2020*

- Implemented Digital Forms of the National Taxpayer Registry.
- Designed and developed the new engine of automated tax assignation model for the Taxpayers' Registry based on the economic activities and the behavior of the taxpayers.
- Gained knowledge and Hands-on experience in Python and usage of machine learning algorithms.

INABIMA   *Santo Domingo, Dom. Rep.*

Project Analyst   *August 2017 - September 2018*

- Establishment of a Risk-based Project Management System.
- Social Impact evaluated by Statistic indicators implementation.

Research Collaborations and Ongoing Projects

- Developing an Adaptive Multi-Modality Deep Learning Framework, targeting the identification of Zero-day DoS attacks by recognizing anomalies outside established patterns.
- Joint collaboration with the Fordham EDM lab to research methods to detect AI revised and mixed human/AI academic materials, enhancing the use of generative models for academic integrity.
- Joint collaboration with Harvard Medical School and the Massachusets General Hospital exploring the use of ML methods to evaluate risks of Hydroxychloroquine Retinopathy after initializing HCQ medication.

Skills

Programming Languages	Python, R, SQL, Bash, C++.
Data Science, Big Data & Machine Learning	Hadoop MapReduce, PySpark, PyTorch, TensorFlow, Keras, FB Prophet, OpenCV, Python (eg. scikit-learn, XGBoost, pandas, matplotlib, seaborn, plotly).
BI & Miscellaneous Technologies	Power BI, Tableau, ETL, Data science pipeline (cleaning, wrangling, feature engineering, visualization, modeling, interpretation), Google Cloud Platform (GCP), Microsoft Azure, APIs, Docker, BeautifulSoup, Excel, Git.
Languages	English, Spanish, Italian

Program Committees & Volunteering

2019-2022 **Program Advisor**, Program Advisory Committee of Business Engineering   *Dominican Republic*
2017-2018 **Volunteer**, TECHO   *Dominican Republic*

Personal Computing Projects

Academic Application Document Classifier

2023

- Built web application for the paper "Admissions in the Age of AI: Detecting AI-Generated Application Materials in Higher Education"
- Trained using propietary datasets, and wiki dataset, classifying texts as AI-generated or Human-made.
- **Link:** https://huggingface.co/spaces/ferdmartin/GradApplicationDocsApp

Dog Breed Predictor Web Application

2022

- Built web application for the paper "Integrating Multiple Visual Attention Mechanisms in Deep Neural Networks"
- Trained using multiple datasets, predicting up to 130 classes (dog breeds).
- **Link:** https://huggingface.co/spaces/ferdmartin/DogBreedsApp

Fifa Scouting Future Soccer Stars - Machine Learning

2020

- Created a model to find future soccer stars on Fifa (Soccer video game), analyzing historical information and their evolution through time.
- Developed a web scrapper to extract young players' historical characteristics (skill ratings) and specialties.

Netflix Prize Competition - Participation

2019

- Participated in the Netflix Prize Competition hosted on Kaggle to predict user ratings for films towards improving their recommendation algorithm.