

LUCAS MARTINEZ

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EDUCATION

New York University

September 2023 - May 2025

Master's, Computer Science

GPA: 3.8

- Relevant Coursework: Machine Learning, Predictive Analytics, Computer Vision, Deep Learning, ML and Cloud

Universidad Catolica Nuestra Señora de la Asuncion

January 2017 - November 2022

Bachelor's, Computer Science

PROFESSIONAL EXPERIENCE

TECHNOLOGY DEVELOPMENT OF PARAGUAY

Asunción, Paraguay

Software Engineer

January 2022 - August 2023

- Managed and optimized in-server payment processing for 400,000+ users, handling over 3 million daily transactions and reducing processing time by 80%
- Led the development of a scalable digital banking and wallet system, serving 60,000+ users, with AI-driven user verification (e.g., computer vision, facial recognition, OTP integration, and LLM chatbot)
- Enhanced the in-app public transit routing system with real-time data, improving accuracy and boosting user satisfaction (gained viral traction on Twitter).

CADI S.A.

Asunción, Paraguay

Software Developer

November 2018 - February 2020

- Built a robust billing system for a web platform serving small and medium businesses, streamlining operations and reducing manual errors
- Redesigned the inventory control system enabling real-time inventory updates across multiple devices.

PROJECTS & OUTSIDE EXPERIENCE

GradRag LLM

New York, NY, USA

Machine Learning Engineer

October 2024 - Present

- A Retrieval-Augmented Generation (RAG) application for PhD aspirants to search professors/tutors using embeddings and vector-based similarity
- Implemented and compared multiple NLP models, including TF-IDF, BERT, and SBERT, for optimized search accuracy.

Improving State Space Models for Computer Vision

New York, NY, USA

Machine Learning Research Engineer

September 2024 - December 2024

- Enhanced state-space models for computer vision tasks by experimenting with optimization techniques for Vision Mamba and MambaVision architectures
- Introduced efficient pruning techniques, attention mechanisms, and convolutional adjustments, improving accuracy, generalization, and computational efficiency.
- [Link to project](#)

Hedge Fund alpha: Clustering stocks for portfolio enhancement using a novel approach

New York, NY, USA

Quant Research Engineer

- Implemented a predictive model to classify sector-based stock clusters, leveraging alternative data sources
- Analyzed interdependencies within S&P 500 indices and 13-F filings, using a new proposed technique, to inform strategic portfolio decisions, outperforming the S&P 500 (10.22% vs 6.5%)

Mentorship: Mentor in Software Engineering

Remote

Co-mentor

2022 - 2022

- Co-mentored alongside an NVIDIA Autonomous Car Machine Learning Infrastructure Engineer, helping students build and deploy microservice applications.

IBM DATAJAM "PASOS LIBRES": ForcedData

Remote

Data Scientist

2022 - 2022

- Led a team of four to develop ForcedData, a data-driven platform to help users identify and act on potential forced labor situations using machine learning, big data, and the cloud.

Teaching Assistant

Asunción, Paraguay

Teaching Assistant

2019 - 2022

- Teaching assistant in courses: Introduction to Algorithms, Software Engineering 1, and Software Engineering 2.

PUBLICATIONS

- **On the Measurement of io_uring Performance: a Strategy and Experience in the Envoy Service Mesh -**
<https://doi.org/10.19153/cleiej.27.2.3>
- **A Measurement Strategy for io_uring Performance in the Envoy Service Mesh -**
<https://doi.org/10.1109/CLEI60451.2023.10346093>

SKILLS

Skills: Python, C/C++, Machine Learning, Computer Vision, Deep Learning, Data Analysis, Cloud Computing, SQL, Pytorch, Tensorflow, Scikit-learn, API Endpoints, Web Development