

FABRICIO FLORES

APPLIED MATHEMATICS | MACHINE LEARNING | DATA SCIENCE

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ABOUT ME

I specialize in NLP, LLMs, and Computer Vision, with a strong interest in generative AI and quantitative finance. My experience includes developing and deploying advanced computer vision models for major retailers in the USA and a top beverage company in Southeast Asia, enhancing their operational efficiency. Additionally, I've contributed to predictive maintenance in refrigeration systems and automated defect detection in semiconductors, significantly impacting technological innovation.

EDUCATION

- 2018 **M.SC. IN ADVANCED INFRASTRUCTURE SYSTEMS**
Carnegie Mellon University - PITTSBURGH, PA, USA
Courses: Computer Vision, Deep Learning, Machine Learning for IoT, Mathematical Statistics, Python and Javascript
- 2016 **M.SC. IN COMPUTATIONAL MECHANICS**
Carnegie Mellon University - PITTSBURGH, PA, USA
Courses: Finite Element Analysis, Mathematical and Numerical Methods, Sensing and Data Mining for Infrastructure Systems
- 2013 **B.SC. IN MATHEMATICS**
Escuela Politecnica Nacional - ECUADOR

WORK AND RESEARCH EXPERIENCE

- 11/2023 - Present **SENIOR MACHINE LEARNING ENGINEER**
ADVANCED MICRO DEVICES | AMD - USA
- Worked on implementation, testing and profiling on Generative AI models, in particular LLMs and Computer Vision
- 08/2022 - 11/2023 **SENIOR DATA SCIENTIST**
WALMART GLOBAL TECH - USA
- Developed a data science strategy for optimal item-ordering quantity when customers made purchases through the online e-commerce platform.
 - Developed a scoring system to assess product listing quality on an e-commerce platform using computer vision (CV) and natural language processing (NLP). CV identified visual flaws in product images, and NLP conducted Named Entity Recognition (NER) and topic analysis on text data such as descriptions and reviews. This Quality Score aimed to gauge customer sentiment, product reputation, and improve the shopping experience.
- 01/2020 - 08/2022 **DATA SCIENTIST**
FORTIVE - USA
- Data acquisition and Predictive Modelling for Asset Failure Prediction** in refrigeration systems commonly used in supermarket stores and healthcare facilities.
 - Level monitoring and estimation** of raw materials stored in silos through signal processing, filtering and visualization.
 - Machine Learning in Datacenters.** Transceiver Testing and Performance Evaluation by TDECQ computation and estimation using convolutional neural networks.
 - Customer segmentation.** Machine Learning in the exploration, identification and analysis of key customer segments by combining profile attributes (industry, title, company) and behaviors (electronic media, previous purchases).
 - Automatic Defect Detection in Semiconductors.** Machine Learning and Computer Vision for automatic defect detection in silicon-semiconductor manufacturing using Mask R-CNN Instance Segmentation.

02/2019 - 12/2019 **MACHINE LEARNING ENGINEER (CONTRACTOR)**
GRID FRUIT LLC - USA

Software development, data collection and implementation of machine learning algorithms to optimize energy usage in refrigeration systems used in the supermarkets and grocery stores.

01/2019 - 12/2019 **RESEARCH ASSOCIATE**
ELECTRICAL AND COMPUTING ENGINEERING | CARNEGIE MELLON UNIVERSITY - USA

Conducted research on Computer Vision for Object Detection in Retail and Inventory Management, partnering with Carnegie Mellon University Thailand and ThaiBev, Thailand's largest beverage retailer.

Research on human detection and tracking with RGB-D cameras and convolutional neural networks. Developed occupancy estimation for HVAC system optimization in smart buildings to save energy.

01/2017 - 09/2017 **DATA SCIENTIST**
PRODUBANCO GRUPO PROMERICA - ECUADOR

Developed a framework for automated loan origination using Python and Shiny for evaluation and visualization, reducing the time required for loan pre-qualification.

PATENTS & PUBLICATIONS

REAL-EQUIVALENT-TIME FLASH ARRAY DIGITIZER OSCILLOSCOPE ARCHITECTURE

Publication number: 20220334180 | Type: Application | Filed: April 19, 2022 | Publication date: October 20, 2022 | Applicant: Tektronix, Inc.

OPTICAL TRANSCEIVER TUNING USING MACHINE LEARNING

Publication number: 20220311514 | Type: Application | Filed: March 22, 2022 | Publication date: September 29, 2022 | Applicant: Tektronix, Inc.

DATASET: OCCUPANCY DETECTION, TRACKING, AND ESTIMATION USING A VERTICALLY MOUNTED DEPTH SENSOR

DATA'19: Proceedings of the 2nd Workshop on Data Acquisition To Analysis November 2019 Pages 7-9 <https://doi.org/10.1145/3359427.3361916>

SKILLS & ABILITIES

MACHINE LEARNING  90%

STATISTICS  90%

NLP | LLM | LANGCHAIN  90%

COMPUTER VISION  80%

DATABASE MANAGEMENT
SQL / NON-SQL  90%

DEEP LEARNING  80%

PROGRAMMING
PYTHON | R | C/C++  90%

DATA VISUALIZATION  90%

API CREATION:
REACT | FLASK | DOCKER  80%

DATA ENGINEERING
ETL PROCESSES  90%

DATA GOVERNANCE
& ETHICS  70%

LANGUAGES

 90%
ENGLISH
PROFICIENT LEVEL

 100%
SPANISH
FIRST LANGUAGE