MARIO H. GARRIDO CZACKI

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EDUCATION

National Autonomous University of Mexico (UNAM)

School of Engineering Institute of Research in Applied Math & Systems School of Accounting & Administration

HONORS & ACADEMIC ACHIEVEMENTS

- Fulbright-Garcia Robles Scholar, 2022
- UNAM Data Science B.Sc. Alumni Association Founding member
- ▲ UNAM PAPIIT Project IN100719 (Predictive Models Applied to Graphs and Text to Determine Collaboration Networks in Academic Environments) Research Scholarship Grantee, 2020
- ▲ UNAM PAPIIT Project IA104720 (MCMC Methods for Solving Linear Systems at Large Scale Using Parallel Computing Architectures) Research Scholarship Grantee, 2020 & 2021
- ♥ First place UNAM's School of Engineering VLSI Design Competition, 2020
- ♥ Second place First UNAM Impulse to Innovation Contest, 2018
- ♥ Telmex Foundation Scholarship for Academic Excellence Grantee, 2017

SKILLS

Languages	Spanish (Native), English (Fluent), Japanese (Intermediate)
Programming Languages	C/C++, C#, Java, Python, Julia, Elixir, R, VHDL
Technologies	SQL, Neo4j, Redis, MongoDB, CUDA, TF, PyTorch, Spark, Flux.jl
Platforms	AWS (Advanced), Azure (Basic), DataBricks (Basic)

WORK

Kuona Analytics - Data Scientist/Machine Learning Engineer (February 2022 - ongoing)

- Regular meetings with clients to identify data requirements in order to guarantee consistent and precise forecasting.
- Evaluation of the usefulness of alternative datasources originating within the client's organization that could further improve our models.
- Design, implementation, testing and deployment of a Machine Learning Pipeline that generates weekly demand forecasts for all of Heineken Mexico's product catalog in each of its distribution centers. I rewrote the entire system from scratch in order to improve results and performance for this process that spans more than 500 servers, training approximately 3500 recurrent neural networks weekly.
- P Redesign and standardization of one of Kuona's main products, the Perfect Order demand forecasting system.
- P Design and implementation of a new time series forecasting library for Kuona's exclusive use. It features transparent multi-horizon predictions, automatic hyperparameter search and native support for ensemble models.
- P Design and implementation of a custom task orchestration system for Kuona's Machine Learning Pipelines. Its architecture has native support for heterogeneous distributed computing, arbitrary horizontal scalability, and easy management for remote tasks by abstracting the compute resources behind a UNIX-like process control interface.

GPA: 9.18/10
GPA: 9.44/10
GPA: 9.57/10

August 2016 - June 2022

AIMPAC Refactoring - Research Project (2021, ongoing)

Leader of a multidisciplinary group that is working on a Julia language replacement for the AIMPAC software suite for describing the quantum structure of molecules. By analyzing the original Fortran code, we created a parallel, highly performant, GPU-ready replacement for several functions of the original program. This is a work-in-progress between researchers of UNAM's Institute of Research in Applied Math & Systems and School of Chemistry.

PSO Supply Chain Optimization - Research Project (2021)

Designed a parallel implementation for supply chain optimization (based on the decision to enable factories and distribution centers in a supply graph) that can execute on Nvidia GPUs using CUDA and the Julia programming language. A binary particle swarm optimization algorithm iteratively proposes solutions that satisfy constraints such as conservation of flow in the network, and a linear programming solver calculates the cost function associated with each solution.

Academic Collaboration Prediction - Research Project (2020-2021)

Worked under the Institute of Research in Applied Math & Systems's Department of Systems Engineering and Automation to recreate and afterwards improve upon previous results in predicting future academic collaborations between authors using only associated topological data. My contributions improved upon the results presented in *Link Prediction using Supervised Learning* (Hasan et al., 2006) by creating a reduced feature vector for a given author via using SVD on the collaboration network's adjacency matrix.

Detection of Toxic Language - Class Project (2020)

Implemented a recurrent model (GRU) to detect spans of toxic text in social network posts. This was one of the tasks in the 2021 SEMEVAL International Workshop on Semantic Evaluation in which several companies and research institutions participate. My team's model greatly outperformed the baseline results, placing us above 50 other participating teams.

COVID-19 Lung CT Segmentation ConvNet - Class Project (2020) ⊿

Implemented a U-Net Convolutional Neural Network capable of identifying pneumonia indicators generated by COVID-19 in radiology images. By using transfer learning and domain-specific data augmentation techniques, I was able to obtain remarkable results in this task while training with a small (\sim 60 images) annotated dataset that was available in the early stages of the pandemic (April 2020).

CERTIFICATIONS AND COURSES

- Certificate by Deeplearning.ai Neural Networks and Deep Learning
- Certificate by Deeplearning.ai Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization
- Certificate by Deeplearning.ai Natural Language Processing with Classification and Vector Spaces
- Certificate by Deeplearning.ai Natural Language Processing with Probabilistic Models
- Certificate by Deeplearning.ai Structuring Machine Learning Projects (Deeplearning.ai)
- Certificate by Deeplearning.ai Build Basic Generative Adversarial Networks (GANs)
- Certificate by Deeplearning.ai Sequence Models