MARIO H. GARRIDO CZACKI

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EDUCATION

National Autonomous University of Mexico (UNAM) *August 2016 - June 2022 (expected)*

- IIMAS - Bachelor of Science, Data Science. GPA: 9.44/10
- Faculty of Engineering - Bachelor of Engineering, Computer Engineering. GPA: 9.12/10
- Faculty of Accounting and Administration - Diploma Course, Finance.

HONORS & ACADEMIC ACHIEVEMENTS

- Data Science B.S. Academic Council - Student Representative, First Generation (IIMAS, UNAM)
- Telmex Foundation Scholarship Grantee
- UNAM PAPIIT Project IN100719 (Predictive Models Applied to Graphs and Text to Determine Collaboration Networks in Academic Enviroments) - 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 in the UNAM's Faculty of Engineering VLSI Design Contest, 2020.
- Second place in the First UNAM Impulse to Innovation Contest, 2018.

SKILLS

Languages	Spanish (Native), English (Fluent), Japanese (Intermediate)
Programming Languages	C/C++, C#, Java, Python, Julia, Elixir, R, VHDL
Technologies	SQL, Node4j, Redis, MongoDB, CUDA, TF, PyTorch, Spark, Flux.jl

RECENT PROJECTS

AIMPAC Refactoring - Research Project (2021, ongoing)

I am currently the main developer 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, I managed to create 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 IIMAS 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 to each solution.

Academic Collaboration Prediction - Research Project (2020-2021)

Worked under the IIMAS's Department of Systems Engineering and Automatization 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.

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, data augmentation and bootstrap-aggregation 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).