ROGER PAREDES

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Engineering PhD with several years of experience in predictive modeling, machine learning, simulation, and programming. Looking to apply and grow my expertise by solving real-world problems in the broad areas of Modeling, Data Science, Optimization and Decision Science.

SKILLS

Programing	Python (Scipy, Numpy, Pandas), SAS, SQL, MATLAB, C/C++, Git.
Software tools	**Machine Learning:** H2O, Scikit-learn, TensorFlow, PyMC3; **Cloud Services:** AWS; **Optimization:** CPLEX, Gurobi, Pyomo; **Network Analysis:** igraph, Boost Graph Library, NetworkX; **Other:** Tableau, Docker, Jupyter Notebooks, Microsoft Office.
Communication	Native proficiency in Spanish and fluent in Italian.

PROFESSIONAL AND TECHNICAL EXPERIENCE

Data Science Modeler   Jan. 2023–Present
Discover Financial Services   Chicago, IL, USA

Machine learning modeling and data testing of the (pre-approved) direct mail response model.
- ○ Prepare and treat datasets with 4,000+ features and over 100M observations.   (*SAS*, *Python*)
- ○ Develop ML quick models to compare sources of data.   (*Python, H2O*)
- ○ Evaluate model performance lift to inform data purchase decisions.   (*Python, H2O, MS*)

Research Associate   Jan. 2015–Present
Rice University   Houston, TX, USA
- Developed predictive modeling software tools for engineering risk evaluation.
- Teaching assistant, guest lecturer, and mentor to graduate and undergraduate students.
- Authored 10+ peer-reviewed articles accruing 100+ citations (see my Google Scholar HERE).
  - ○ Project 1: Bayesian inference using Artificial Intelligence methods.   (*Python, TensorFlow, C/C*++)
  - ○ Project 2: Surrogate modeling using advanced Monte Carlo.   (*Python, Matlab)*
  - ○ Project 3: Variational quantum algorithms for sampling and optimization.   (*Python, Qiskit*)
  - ○ Project 4: Mixed integer optimization (MIP) models of urban network systems.   (*Pyomo, Gurobi*)

Visiting Researcher   Oct. 2014–Dec. 2014
University of Canterbury   Christchurch, New Zealand
- Preprocessed restoration datasets using programming scripts for risk assessment.   (*Python, ArcGIS*)
- Conduct time-series analysis, ANOVA, and regression analysis to calibrate models.   (*Python, Gurobi*)

EDUCATION

PhD in Civil and Environmental Engineering, Rice University, Houston, TX.   Aug 2022
- Award: Graduate scholarship by the International Association for Structural Safety and Reliability.

MS in Civil Engineering, Polytechnic University of Turin, Turin, Italy.   Jul 2014
BS in Civil Engineering, Central University of Venezuela, Caracas, Venezuela.   Dec 2014
- Award: Ranked 1st among civil engineering graduates.

COURSES AND CERTIFICATES

Rice University: Statistical Machine Learning (COMP 540), Computational Complexity (COMP 587).
University of California, Davis: SQL for Data Science, Distributed Computing with Spark SQL.

SELECTED PUBLICATIONS AND PRESENTATIONS   (Click Here For Full List)

A quantum algorithm to count weighted ground states	INFORMS Annual Meeting, 2021
Principled network reliability approximation by counting	Reliability Eng. & System. Safety, 2019
Reliability estimation of power transmission grids	Assoc. for the Advanc. of Artificial Intelligence., 2017