Houston, TX • (713)-679-1567
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ROGER PAREDES

[No visa sponsorship required]
paredesroger.github.io

PhD Graduate in Civil Engineering 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 Data Science, Modeling, Optimization and Decision Science.

SKILLS

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

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.

TECHNICAL EXPERIENCE

Research Associate Jan. 2015–Present
Rice University Houston, TX, USA
- Lead scientific research by developing risk models and tools to quantify safety in large-scale systems.
  - Authored 10+ peer-reviewed articles, 100+ citations (Google Scholar profile HERE).
- Develop scalable software tools for risk estimation and component criticality assessment.
  - Project 1: Bayesian inference using Artificial Intelligence methods. (*Python, TensorFlow, C/C++*)
  - Project 2: Data analytics for surrogate models using advanced Monte Carlo. (*Python, Matlab)*
  - Project 3: Variational quantum algorithms for sampling and optimization. (*Python, Qiskit*)
- Develop predictive models of network systems for regional-scale risk assessment.
  - Project 4: Mixed integer optimization (MIP) models of urban network systems. (*Pyomo, Gurobi*)
  - Project 5: Data analytics of system reliability with millions of data points. (*Python, Pandas, SQL*)
- Teaching assistant, guest lecturer, and mentor to graduate and undergraduate students.

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*)

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

Counting-based reliability estimation of power transmission grids AAAI Conference, 2017

SERVICE AND VOLUNTEERING

- Professional Societies: ASCE, SEI, EERI, INFORMS, SIAM.
- Elsevier reviewer 2020-Present: International Journal of Reliability Engineering and System Safety.
- Advisor to Rice University's undergraduate Seismic Design Competition Team.