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, simulation, risk and reliability, programming, and machine learning. Looking to apply and grow my expertise by solving real world problems in the broad areas of Risk and Reliability Modeling, Data Science, 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, OR-Tools; **Network Analysis:** igraph, Boost Graph Library, NetworkX; **Other:** ArcGIS, QGIS, Docker, Jupyter Notebooks, Microsoft Office.
Communication	Native proficiency in Spanish and fluent in Italian.

EDUCATION

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

Master of Science in Civil Engineering, Polytechnic University of Turin, Turin, Italy. Jul 2014

Bachelor of Science 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 structural infrastructure research by developing probabilistic risk assessment methods and models to quantify the safety of large-scale utility systems and services (Seaside, OR; Lumberton, NC; among others).
  - Authored 10+ peer-reviewed articles, 110+ citations (Google Scholar profile HERE).
- Develop scalable system reliability software tools for risk and component criticality assessment.
  - Design of experiments and hypothesis testing to quantify impact of infrastructure interventions.
  - Project 1: Bayesian inference using Artificial Intelligence methods. (*Python, TensorFlow, C/C++*)
  - Project 2: Data analytics with surrogate models using advanced Monte Carlo. (*Python, Matlab*)
- Develop predictive models of network systems using algorithms to enable regional-scale risk assessment.
  - Project 3: Mixed integer optimization models of network systems. (*Pyomo, Gurobi*)
  - Project 4: 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 infrastructure restoration datasets after the 2010-2011 Christchurch-Canterbury Earthquakes using programming scripts for data analytics and regional risk assessment. (*Python, ArcGIS*)

Visiting Researcher July 2014–Dec. 2014
Rice University Houston, TX, USA
- Conduct data analysis of infrastructure in the 2010 Chile earthquake using time-series analysis, ANOVA, and regression analysis to calibrate damage and recovery models. (*Python, Gurobi*)

SELECTED PUBLICATIONS AND PRESENTATIONS (Click Here For Full List)

Principled network reliability approximation: A counting based approach — Reliability Eng. & System. Safety, 2019

Decomposition algorithms for system reliability estimation [...] — Earthquake Eng. and Struct. Dyn., 2018

Counting-based reliability estimation of power transmission grids — Assoc. Adv. of Artificial Intelligence, 2017

SERVICE AND VOLUNTEERING

- Professional Societies: ASCE, SEI, EERI, INFORMS, SIAM.
- Elsevier reviewer 2020-Present: International Journal of Reliability Engineering and System Safety.