Carlos Salinas

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OBJECTIVE

Masters student in Theoretical Mathematics seeking a position as a Data Scientist/Analyst. Ample experience with research mathematics, probability, numerical analysis, numerical PDEs, data science, and machine learning. Advanced knowledge of Python, R, and SQL. Experience with designing neural networks, particularly GANs.

EDUCATION

Master of Science, Mathematics — August 2020
Purdue University, West Lafayette, IN
GPA 3.73

Bachelor of Science, Mathematics — May 2014
University of Texas–Pan American, Edinburg, TX
GPA 3.86

SKILLS

Programming languages: Python, C, C++, R, Matlab/Octave, Java, Lisp
Python libraries: numpy, scikit-learn, matplotlib, pandas, keras, spaCy
R libraries: ggplot, tidyverse, tidymodels, dplyr, forcats, modelr, shiny
Misc. software: Emacs, Vim, SQL, Git, Latex, Mathematica, LibreOffice, Google Docs
Operating systems: Linux (Debian, Fedora), FreeBSD, Windows
Languages: English (native), Spanish (native), Russian (fluent), Persian (conversational)

WORK EXPERIENCE

Graduate Student/Teaching Assistant — August 2014 - May 2020
Department of Mathematics, Purdue University, West Lafayette, I

- Led two to three recitation sections per semester for undergraduate math courses, including Calculus 1, 2, 3, and Differential Equations/Linear Algebra.
- Graded homework and wrote quizzes/exam problems for several undergraduate as well as graduate courses, including Linear Algebra, Differential Equations and PDEs for Engineering, and the Sciences, and Advance Mathematics for Physicists and Engineers.
- Maintained a university associated website to which I uploaded relevant course material such as quiz and homework solutions, recitation notes, and quiz and midterm statistics, cut-off ranges.
- Studied the properties of finite quotients of finitely generated nilpotent groups.
- Studied the zeta function associated to finite quotients of the free nilpotent group and wrote code in Sage to compute its coefficients.

Experimental Algebra & Geometry Lab System Admin/Research Assistant — September 2013 - May 2014
University of Texas–Pan American, Department of Mathematics, Edinburg, TX

- Maintained the Geometry Lab's Fedora cluster up to date and operational.
- Configured an NVIDIA GPU-equipped computer for CUDA-enabled parallel computing with Mathematica.
- Operated the lab's 3D printer and kept it in tip-top shape for use in Dr. Lawton's outreach activities.
- Engaged with local schools in math and geometry related outreach activities.
- Performed in several skits for Dr. Lawton's *Your Teachers Are Lying To You!* outreach program.
- Taught K12 students how to crochet a hyperbolic plane.
- Wrote an algorithm in Mathematica to study the trace of representations in character varieties taking advantage of the cyclic property of the trace operator.
- Discovered a correspondence between so-called 2-special pairs and pairs of orientable necklaces.
- Published the associated sequence in the On-line Encyclopedia of Integer Sequences under A237623.

TALKS

Mathematics to Data Science Bootcamp — Summer 2020
PI4 Computational Boot Camp, University of Illinois Urbana-Champaign

- Wrote an RMarkdown notebook to analyze book ratings on a subset of GoodReads' database.
- Performed linear regression to model the popularity of prolific authors.
- Performed ANOVA on the data to get an overview of the different features of the data and how they relate to the *popularity* of a given author.
- Wrote Python code in scikit-learn to classify cases of Parkinson using the k-nearest neighbors classifier achieving a 0.96 success rate on the test data.

Cybenko's Approximations by superpositions of sigmoidal functions — Spring 2019
Machine Learning and Information Processing Reading Group, Purdue University, West Lafayette, IN

- Introduced the audience to a foundational result in the study of artificial neural networks.
- Proved the necessary lemmas to show that sigmoidal functions can approximate any continuous function.