Alejandro Ortega

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Education

Duke University, Durham NC   Expected May 2019

Mathematics AB, Computer Science BS

Relevant Coursework

Data Structures and Algorithms, Regression Analysis, Linear Algebra, Computer Architecture, Computer Security, Operating Systems, Database Systems, Analysis of Algorithms, Combinatorics, High Dimensional Data Analysis

Skills

C/C++, Java, Python, Git, Linux, PostrgreSQL, JavaScript, R, MATLAB, LaTeX

Experience

Maggs Research Group, *Undergraduate Researcher*   September 2018 − Present

- Conducting experiments analyzing latency and other key metrics for internet infrastructure by working with McKay Brothers' low-latency microwave network and analyzing the proposed SpaceX StarLink Array

Calderbank Research Group, *Undergraduate Researcher*   August 2018 − Present

- Designing quantum circuits that efficiently perform multiplication by primitive element as part of the Kerdock unitary design. Research submitted for publication to the 2019 IEEE ISIT Conference.

Duke Data+ Program, *Software Engineering Intern*   Summer 2018

- Recruited to work on the client Power For All's **Platform for Energy Access Knowledge** in a team of 3 interns
- Engineered a Python application that automated data extraction from PDF documents with a success rate significantly above currently available open source tools
- Refined the search engine by auto-categorizing documents using natural language processing and ontological frameworks
- Automated data collection via a Python web-scraper that identifies relevant documents by a logistic regression model

Duke Data+ Program, *Data Science Intern*   Summer 2017

Project: Photojournalism and the Syrian Refugee Crisis

- Engineered a Java web-scraper that created a unique data set by accessing the AP Images Collection, conducting reverse image searches for relevant articles, and compiling article text into a database
- Conducted statistical analyses and programmed a website that contains project results, including interactive JavaScript visualizations. The site can be visited here: **ortega-alejandro.github.io/syrian-refugee-crisis-project**
- Presented this project in a panel discussion sponsored by the John Hope Franklin Humanities Institute in Spring 2018

Activities

Duke Computer Science Department, *Teaching Assistant*   Fall 2018 − Present

- UTA for CS 590 Graduate Level Computer Security, CS 310 Operating Systems, CS 371D Machine Learning
- Responsibilities include grading assignments, hosting office hours and instructing a recitation section

Duke Mathematics Department, *Teaching Assistant*   Fall 2018 − Present

- Grade assignments for Math 218 *Matrices and Vector Spaces*, a linear algebra course intended for computer science majors

Duke Splash Program, *Instructor*   Fall 2017 − Present

- Designed a curriculum suitable for a three hour class and taught a course on Computer Security aimed at high school students by incorporating material from a Fall 2017 course on Computer Security

Duke GANO Program, *English Tutor*   Fall 2015 − Spring 2016

- Taught usable English skills to recent Hispanic immigrants and recognized by the Administrative Board in Fall 2015 for the passion and dedication to the program