Alexander Xiong

Apex, NC 27523 · (919) 930-1238 · xionga27@gmail.com · US Citizen · github.com/awx1 · linkedin.com/in/alexander-xiong/

EDUCATION

Rice University, Houston, TX | GPA: 3.77 / 4 **Expected Graduation: May 2022**
Bachelors of Science in Computer Science | Bachelors of Arts in Statistics
Coursework: Statistical Machine Learning • Quantitative Financial Risk Management • Tools & Models of Data Science • Statistical Inference • Multivariate Analysis • Computational Finance • Linear Regression • Linear Algebra
Advanced Object Oriented Programming • Operating Systems • Computer Systems • Program Design • Parallel Programming • Reasoning about Algorithms • Probabilistic Algorithms and Data Structure • Computer Engineering

SKILLS

Programming Languages: Python, Java, SQL, HTML/CSS/JavaScript, C++, C, C#, R
Software, OS, Tools: Keras, TensorFlow, MySQL, Hadoop, Selenium, Linux, Flask, React, Node.js, Agile, Gazebo, Rviz, Ros

EXPERIENCE

***Machine Learning Intern* | Virginia Modeling, Analysis and Simulation Center** **June 2020 –- November 2020**
- Evaluated malicious attacks posed by participants for different machine learning algorithms on a federated learning platform using Python and Keras.
- Enhanced existing defenses against collusion-based membership attack frameworks using adversarial examples.

***Student Researcher* | Rice University Kavraki Lab | Houston, TX** **May 2020 –- August 2020**
- Processed experienced-based motion planning datasets for Fetch and UR5 robots using C++ leveraging the Open Motion Planning Library (OMPL), conducting visualizations using Gazebo, Rviz, and Ros frameworks.
- Designed scenarios for realistic motion planning testing for Fetch and UR5 robots.

***Summer Intern* | NSF REU in Big Data Security & Privacy | Cal Poly Pomona** **May 2019 – March 2020**
- Designed a privacy preserving inference algorithm via an ensemble of neural networks, enabling prediction on secure data using fully homomorphic encryption in C#; 1st author for paper accepted at IEEE IPCCC 2020.
- Reconstructed an unencrypted Microsoft's CryptoNets model using Python and Keras to train the encrypted ensemble model; Achieved 94% accuracy in individual vs. 97% accuracy in ensemble models.

***Research Intern* | FREEDM Systems Center | NC State University | Raleigh, NC** **June 2016 – January 2017**
- Modeled solar power effectiveness in Garissa, Kenya by simulating electrostatic, mechanical, and hydrophobic solar panel cleaning with 20 years of weather data using Java; 1st author of paper accepted at PowerAfrica2017.

PROJECTS

FSP-Duncan | Flask, MySQL, Python, and HTML/CSS | http://duncanfsp.pythonanywhere.com/
- Developed a CRUD web application using Flask, MySQL that fuses a job board for students, a point system for completed jobs, and job forms for student availability to manage 100+ students for a residential college at Rice.
- Superusers input jobs, students fill out forms to sign up for jobs, students are algorithmically assigned and notified which jobs are assigned to them, superusers give/take points to students if they complete the job.

Schlumberger Datasets | Python and Plotly | HackRice 8 Competition | https://devpost.com/software/slb-datasets
- Created a user-friendly web application to graphically represent 130,000+ Schlumberger sensor datapoints as multiple interactive log-scaled heatmap charts that is toggle-able to maximize viewing accessibility.

Trawl-sad | Python, Selenium, HTML
- Built a data scraper using Python and Selenium to conduct data analysis on over 2000 posts from a Facebook group.

LEADERSHIP

***CS Teaching Assistant* | Rice University** **August 2020 – December 2020**
- Served as a Teaching Assistant for COMP 382: Reasoning about Algorithms.

***Teaching Instructor* | Rice REMIXCS** **January 2019 - May 2019**
- Conducted CS outreach by teaching a class of 15 high schoolers in the greater Houston community weekly to inspire future computer scientists, specifically underrepresented minorities in CS.

***Committee Member* | Rice CS I/O** **August 2018 - May 2019**
- Maintained an open line of communication between the 400+ CS undergraduates and the Computer Science Department using forums and newsletters for students to voice their opinions and ideas.

AWARDS

AIME score: 5 (2016, 2017) • Honor Roll, Top 2.5% in American Mathematics Competition (AMC) 10, 12 (2015, 2016, 2017)
American Regions Mathematics League (ARML) NC team (2015, 2016, 2017) • Bronze, USA Mathematical Talent Search (2016)
HackRice 8, 2nd place Data Sci. • Siemens Competition Semifinalist • T. J. Watson Fellow • NSF Travel Awardee