DANIEL GUO

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EDUCATION

University of California Santa Barbara   September 2018 – June 2022
B.S. in Computer Science, B.S. in Mathematics   GPA: 3.93
College of Creative Studies Honors
Relevant Coursework: Data Structures & Algorithms, Scientific Computing, Machine Learning, Blockchain, Distributed Systems, Probability & Statistics, Combinatorics, Algebra, Analysis, Topology, Cryptography, Formal Logic

SKILLS

Languages	Python, C++, C, Java, JavaScript, LaTeX
Technologies	Git, Linux, Bash, Vim, Jupyter Notebook

EXPERIENCE

Semiotic AI | Research and Development Intern   June 2020 – Present
Fully Homomorphic Encryption (FHE) for Machine Learning
· Building automated tool in Python to convert ONNX formatted neural networks to Microsoft SEAL (TenSEAL) execution.
· Developing Python package with encryption-friendly operators to add into PyTorch framework for FHE development.
· Completed POC product: a FHE encrypted neural network for detecting fraudulent credit card transactions. Beat neural network from 1st place notebook in Kaggle competition by F1 score and accuracy. Improved F1 score from 0.56 to 0.86.

UCSB Research Group | U.G. Researcher under Dr. Paul Atzberger   Nov. 2018 – Present
Data-Driven Learning of Differential Operators
· Building convolutional neural networks to learn differential operators from data using kernel and numerical methods.
· Gave talk at 2019 RACA conference about modeling the 2D Laplacian operator using CNNs.

PROJECTS

hiwhatsyourname - Flask Web App
· App where users submit their info. to create virtual business cards and share with a QR code. Deployed on Google Cloud.
· Utilized SQL-Alchemy to store users' data and used Jinja & qrcode API to generate the site and QR code.

talkie - Encryption Scheme
· Implemented Regev's PKE scheme in C using TCP sockets to send encryped messages through command line.

GenNet - Optimization Algorithm for Neural Networks
· Evolutionary approach on neural networks to optimize architecture and hyperparameters implemented with PyTorch.
· Applied algorithm on MNIST dataset and achieved 96.6% accuracy in under 2 minutes of training.

INVOLVEMENTS

SB Hacks Organizer | Sponsorships Team   Mar. 2020 – Present
· Planning and organizing SB Hacks VII, the 7th iteration of UCSB's annual hackathon. Managing over 40k budget.

Teaching Assistant | CS130B - Algorithms   Jan. 2020 – Mar. 2020
· Hosted open lab hours for students to ask for help with class concepts and held review sessions before exams.

CCS Community Council Officer and Computing Mentor   Nov. 2019 – Present
· Working with the dean to plan and organize various events for the college. Cohosted the first CCS Integration Bee.
· Organize and participate in peer mentoring program for incoming freshmen to the college.

CLAS Math Tutor   (incoming) Sep. 2020

RESEARCH TALKS

· RACA Conference 2019 - Data-Driven Learning of Differential Operators   Nov. 2019
· RACA Conference 2020   (upcoming) Nov. 2020

AWARDS & ACTIVITIES

· UCSB Science Olympiad Fermi & Code Busters Event Supervisor   2019, 2020
· Grader for MATH8 - Intro. to Proofs   2020
· Top 35% in Putnam Math Competition   2018
· Ohlone College Certificate of Accomplishment in Pure Mathematics   2018