Daniel Guo

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EDUCATION

UNIVERSITY OF CALIFORNIA SANTA BARBARA

B.S. in Computer Science
B.S. in Mathematics
Expected June 2022 | GPA: 3.90
College of Creative Studies | Honors

SKILLS

LANGUAGES
Python • C++ • Java • C
LIBRARIES
PyTorch • NumPy • Matplotlib • Flask
Java AWT & Swing • OpenMP & Pthreads
TECHNOLOGIES
Git • Linux • Vim • Jupyter Notebook
LaTeX

COURSEWORK

COMPUTER SCIENCE

Algorithms
Data Structures
Computer Programming & Organization
Machine Learning
Parallel Scientific Computing
Computer Architecture
Automata & Formal Languages
Blockchain & Distributed Ledgers
Compilers
Distributed Systems

MATHEMATICS

Discrete Math
Probability & Statistics
Combinatorics
Linear Algebra
Abstract Algebra
Real Analysis
Topology
Multivariable Calculus
Differential Equations

GRADUATE COURSES

Logic in Computer Science
Post-Quantum Cryptography

LINKS

Github: **github.com/d-guo**
LinkedIn: **linkedin.com/in/d-guo**
Blog: **danielguo.dev**

PROJECTS

hiwhatsyourname | Flask Web App

- Users create online business cards and share it with a QR code.
- Implemented backend with Python Flask to process requests and generate a web business card & a QR code using Jinja & qrcode API.
- Project for CalHacks 2020.

2D Laplacian Modeling | Paid Research Project

- Built periodic convolutional neural networks in PyTorch to model the Laplacian differential operator for 2 dimensional functions.
- Used Jupyter Notebook and Matplotlib for neat visualization of training.
- Sponsored by NSF and SUF fellowships. Presented at 2019 RACA-con.

talkie | Post-Quantum Public Key Encryption Scheme

- Implemented Regev's PKE Scheme based on the Learning with Errors problem, which is (supposedly) secure against quantum attacks.
- Used C sockets and TCP protocol to simulate sending messages.

GenNet | Genetic Algorithm + Neural Networks

- Implemented architecture & hyperparameter search for neural networks using a genetic algorithm with PyTorch.
- Applied algorithm on MNIST dataset and achieved 96.6% accuracy.

RESEARCH

Data-Driven Learning of Differential Operators | U.G. Researcher
Nov. 2018 – Present | Santa Barbara, CA
Working with Dr. Paul Atzberger in the mathematics department to build neural networks to model differential operators. Gave talk at 2019 RACA conference.

OTHER EXPERIENCE

Teaching Assistant for CS 130B – Algorithms
Jan. 2020 – Mar. 2020 | UC Santa Barbara
Host open lab hours for students to come in and ask for help with homework and programming assignments. Work with professor and TAs to improve class.

Grader/Reader for MATH 8 – Intro. to Higher Math
Jan. 2020 – Mar. 2020 | UC Santa Barbara
Grade homework and offer feedback to students in Math 8.

College of Creative Studies Community Council Officer
Nov. 2019 – Present | UC Santa Barbara
Plan events for CCS students. Cohosted the first CCS Integration Bee.

AWARDS & ACTIVITIES

2019-20 UCSB SciOly Fermi & Code Busters Event Supervisor
2019-20 CCS Computing Peer Mentor
2018 Top 35% in Putnam Mathematics Competition
2018 Lockheed Martin CodeQuest & Stanford ProCo Coding Competitions