

Benjamin Goff

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EDUCATION

Brown University

Providence, RI

Concurrent Sc.B. and Sc.M of Applied Mathematics and Computer Science · GPA: 3.97

Sep 2020 - May 2024

- Selected Coursework: Applied Cryptography; Software Security/Exploitation; Computer Architecture; Programming Languages; Probabilities in Quantum Mechanics; Discrete Structures and Probability; Stochastic Calculus and Optimization
- Master's Project: Secure Multi-Party Fixed-Point Multiplication for Machine Learning

TECHNICAL EXPERTISE

- **Proficient:** C, C++, Java, Racket
- **Knowledgeable:** Python, JavaScript, HTML

RESEARCH EXPERIENCE

Miyake Research Group

University of New Mexico, Albuquerque, NM

Quantum Computing Research Assistant · Advisor: Dr. Akimasa Miyake

May 2023 - Aug 2023

- NSF-sponsored research optimizing quantum circuits for modular arithmetic using mid-circuit measurement
- Developed an algorithm that shrunk input circuit while maintaining computational guarantees
 - 28% reduction in space-time resources
 - 75% reduction in qubit count, allowing for real-world use of circuits not previously possible on NISQ devices
- Currently working with partner group to run circuits on an 18-qubit device and publish findings
- Presented findings to Physics faculties of UNM and neighboring universities

Brown Dog Lab

Brown University, Providence, RI

Computational Research Assistant · Advisor: Dr. Daphna Buchsbaum

Jan - May 2022

- Developed experiments that faced dogs with object-choice discrimination tasks
- Collected and coded data sets; used them to train first classification recognition algorithm for canine viewpoint
- Presented research findings to group of a dozen researchers from various institutions

TEACHING EXPERIENCE

Computer Science Department

Brown University, Providence, RI

Head Teaching Assistant: CSCI0220 (Discrete Mathematics), CSCI1730 (Programming Languages)

Jan - Dec 2023

- Implemented a rigorous screening process to increase hiring efficiency of over 100 applicants by 80%
- Designed assignments with professors and collaborated course development
- Ran weekly meetings: allocated grading duties and set focus for upcoming office hours

Undergraduate Teaching Assistant: CSCI0220 (Discrete Mathematics), CSCI1730 (Programming Languages)

Jan - Dec 2022

- Held office hours; wrote and graded homework assignments and exams
- Developed materials to introduce students to probability and mathematical proof-writing

LEADERSHIP EXPERIENCE

Brown Taekwondo

Brown University, Providence, RI

President

Jan - Dec 2023

- Manage team of 15 board members in running Brown's largest athletic group of 100+ active members
- Increased competitor capacity by 25% for the annual Brown Taekwondo tournament, attracting 600+ competitors from around the country
- Train 20 hours a week year-round for regional and national tournaments

Equipment Chair

Jan - Dec 2022

- Manage club inventory and athlete gear orders; handled supplier logistics of orders totalling \$10,000+ per term

TECHNICAL TRAINING

Microsoft Azure Quantum Winter School

Feb 2023

- 20 hour training program building quantum computing foundation and developing Q# software
- Developed quantum key distribution protocols and ran them on quantum hardware

AWARDS

Karen T. Romer Undergraduate Teaching and Research Award

May 2022

- *How do dogs think and learn about the physical and social world around them?* · Advisor: Dr. Daphna Buchsbaum

INTERESTS

- Captained the 2019 World Robot Olympiad Robotic Soccer US Champion Team
- Ranked #1 in NA for the Pokemon Video Game Championships 2017-2018; sponsored to compete internationally