

# Bhaskar Roberts

PHD STUDENT IN COMPUTER SCIENCE

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## Education

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### Princeton University

Princeton, NJ

#### BSE IN ELECTRICAL ENGINEERING

June 2019

- Applied & Computational Math minor
- Summa Cum Laude
- Activities: CS tutor, peer academic advisor, SEAS tour guide, opinion writer for the Daily Prince, musician for Triangle Club

### University of California, Berkeley

Berkeley, CA

#### PHD IN COMPUTER SCIENCE

2020-Present

- Research on cryptography and quantum information

## Research

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### Software with Certified Deletion

BY JAMES BARTUSEK, VIPUL GOYAL, DAKSHITA KHURANA, GIULIO MALAVOLTA, JUSTIN RAIZES, AND BHASKAR ROBERTS

- QIP 2023, Eurocrypt 2024
- We constructed a general compiler to add certified deletion guarantees to a variety of cryptographic primitives, including blind delegation and obfuscation.

### Franchised Quantum Money

BY BHASKAR ROBERTS AND MARK ZHANDRY

- Asiacrypt 2021
- We introduced and constructed a new cryptographic object that achieves many of the desired security properties of public-key quantum money.

### Security Analysis of Quantum Lightning

BY BHASKAR ROBERTS

- Eurocrypt 2021
- Prior work constructed quantum lightning from a novel hardness assumption. We proved that the hardness assumption is false.
- Adapted from my undergraduate thesis, which earned an A+ and the *Peter Mark Prize*.

### Efficient Algorithms for QSPD

BY BHASKAR ROBERTS, BRENNAN SCHAFFNER, FINN VOICHICK, ADVISED BY ANDREW CHILDS

- ERN Conference in STEM 2020. Won *Best Poster in Computer Science*.
- Studied quantum algorithms for Hamiltonian simulation. Implemented in Python and Mathematica an algorithm that finds quantum operations to approximate periodic functions. Proposed several approaches to improve the algorithm.

## Work Experience

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### NTT Research

Sunnyvale, CA

RESEARCH INTERN

Summer 2023

- Developed constructions and techniques for unconditional quantum cryptography.

### Nvidia

Santa Clara, CA

ASIC DESIGN INTERN

Summer 2018

- Built machine learning models to predict and optimize power usage on Nvidia GPUs.

### NASA Langley Research Center

Hampton, VA

HARDWARE ENGINEERING INTERN

Summer 2017

- Designed, built, and tested an optical transceiver for a CubeSat network.
- Designed amplifier circuits and a printed circuit board, and programmed an FPGA.

## Honors

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- Best Poster in CS** ERN Conference in STEM 2020
- Peter Mark Prize** Awarded to two seniors for outstanding senior thesis research in electrical engineering, Princeton University, 2019
- Phi Beta Kappa** Awarded to the top 10% of Princeton's graduating class, Princeton University, 2019
- Tau Beta Pi** Served as chapter president of the engineering honor society, Princeton University, 2017
- Shapiro Prize** Awarded to 3% of juniors to recognize outstanding academic achievement in the past year, Princeton University, 2017