

# REECE ROBERTSON

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## EDUCATION

### PhD, Computer Science

University of Maryland, Baltimore County

- Dissertation: *Quantum Anti-Fragility: Case Studies in Error-Assisted Quantum Algorithms*
- UMBC Cyber Security Graduate Fellow
- UMBC Quantum Science Institute Affiliated Graduate Fellow
- Advisor: Dr. Sebastian Deffner

May 2027  
Baltimore, Maryland

### MS, Computer Science

University of Maryland, Baltimore County

- GPA: 3.94

December 2024  
Baltimore, Maryland

### BS, Applied and Computational Mathematics Emphasis (ACME)

Brigham Young University

- Minor: Computer Science
- Honors Program
- GPA: 3.93

April 2022  
Provo, Utah

## PUBLICATIONS

### Simon's Period Finding on a Quantum Annealer

Reece Robertson, Emery Doucet, Zakaria Mzaouali, Krzysztof Domino, Bartłomiej Gardas, Sebastian Deffner  
[arXiv:2504.10771](https://arxiv.org/abs/2504.10771)

April 2025

### Introducing UNIQuE: The Unconventional Noiseless Intermediate Quantum Emulator

Refinement and republication of *Implementing a High-Performance Quantum Computing Emulator*  
Reece Robertson & Dan Ventura  
[arXiv:2409.07000](https://arxiv.org/abs/2409.07000)

September 2024

### Simon's algorithm in the NISQ cloud

Reece Robertson, Emery Doucet, Ernest Spicer, Sebastian Deffner  
Presented at Quantum Thermodynamics Conference 2024  
[arXiv:2406.11771](https://arxiv.org/abs/2406.11771)

August 2024

### On the Baltimore Light RailLink into the quantum future

Krzysztof Domino, Emery Doucet, Reece Robertson, Bartłomiej Gardas, and Sebastian Deffner  
[arXiv:2406.11268](https://arxiv.org/abs/2406.11268)

August 2024

### Implementing a High-Performance Quantum Computing Emulator

Reece Robertson  
[BYU Undergraduate Honors Thesis 218](#)

May 2022

## PRESENTATIONS

### Introduction to Quantum Error Correction

Guest Lecture for Dr. Matthew Gibson (UTSA)

April 2025

### UMBC Combined Quantum Thermodynamics & Quantum Computation Research Symposium

Organizer & Presenter

October 2024

### Qubit by Qubit High School Summer Program for UMBC

Instructor

July 2024

## EXPERIENCE

### Quantum Computing Engineer, Specialist

KBR

- Developing software tool for hardware-aware quantum algorithm compilation and resource estimation
- Implementing Qiskit (Python) quantum algorithms on 10+ hardware platforms for practical applications
- Presenting weekly on emerging quantum algorithm and quantum error correction research
- Tied for first place and earned advanced distinction in all 2021–2024 IBM Quantum Challenges

May 2021–Present  
Chantilly, Virginia

### Quantum Computing, Coding Theory, & Software Development Teaching Assistant

University of Maryland, Baltimore County

- Mentored 300+ graduate and upper-class undergraduate students in quantum computing and coding theory
- Mentored 150+ upper-class undergraduate students throughout the software development life cycle
- Wrote course material and formatted it in  $\LaTeX$
- Graded weekly assignments and providing individualized feedback to students

August 2022–December 2024  
Baltimore, Maryland

**Guest Lecturer****August 2022–December 2024***University of Maryland, Baltimore County**Baltimore, Maryland*

- Delivered bimonthly lectures to graduate and undergraduate students on quantum computation and programming
- Organized symposium between 20+ computer scientists and quantum physicists
- Facilitated group and individual project presentation events for 100+ students
- Fielded questions regarding the lecture material and best practices

**Algorithm Design Lab Teaching Assistant****August 2021–December 2021***BYU Department of Mathematics**Provo, Utah*

- Taught 90+ undergraduates in python programming and essential programming concepts
- Enabled students to effectively write and debug code for 8 hours per week

**Undergraduate Researcher in Quantum Field Theory****July 2020–May 2021***BYU Department of Mathematics**Provo, Utah*

- Learned topics in quantum mechanics, quantum field theory, and string theory with no prior background
- Studied interaction of elementary particles in square potential well using partial differential equations
- Presented weekly on topics in quantum field theory

**Web Developer****January 2020–July 2020***BYU McKay School of Education**Provo, Utah*

- Wrote and debugged code in 6 languages to improve performance and accessibility of school website
- Led support team in assisting 300+ users in timely and polite manner

**AWARDS****UMBC Cyber Graduate Fellow****January 2025–December 2025****Full Tuition Academic Scholarship****January 2020–April 2022****PROFESSIONAL MEMBERSHIPS****Association for Computing Machinery (ACM)****2020–Present****Society for Industrial and Applied Mathematics (SIAM)****2020–Present****Phi Eta Sigma National Honor Society****2017–Present**