Reece Robertson

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EDUCATION

PhD, Computer Science **May 2027**
University of Maryland, Baltimore County *Baltimore, Maryland*
- 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

MS, Computer Science **December 2024**
University of Maryland, Baltimore County *Baltimore, Maryland*
- GPA: 3.94

BS, Applied and Computational Mathematics Emphasis (ACME) **April 2022**
Brigham Young University *Provo, Utah*
- Minor: Computer Science
- Honors Program
- GPA: 3.93

PUBLICATIONS

Simon's Period Finding on a Quantum Annealer **April 2025**
Reece Robertson, Emery Doucet, Zakaria Mzaouali, Krzysztof Domino, Bartłomiej Gardas, Sebastian Deffner
arXiv:2504.10771

Introducing UNIQuE: The Unconventional Noiseless Intermediate Quantum Emulator **September 2024**
Refinement and republication of *Implementing a High-Performance Quantum Computing Emulator*
Reece Robertson & Dan Ventura
arXiv:2409.07000

Simon's algorithm in the NISQ cloud **August 2024**
Reece Robertson, Emery Doucet, Ernest Spicer, Sebastian Deffner
Presented at Quantum Theromodynamics Conference 2024
arXiv:2406.11771

On the Baltimore Light RailLink into the quantum future **August 2024**
Krzysztof Domino, Emery Doucet, Reece Robertson, Bartlomiej Gardas, and Sebastian Deffner
arXiv:2406.11268

Implementing a High-Performance Quantum Computing Emulator **March 2022**
Reece Robertson
BYU Undergraduate Honors Thesis 218

PRESENTATIONS

Introduction to Quantum Error Correction **April 2025**
Guest Lecture for Dr. Matthew Gibson (UTSA)

UMBC Combined Quantum Thermodynamics & Quantum Computation Research Symposium **October 2024**
Organizer & Presenter

Qubit by Qubit High School Summer Program for UMBC **July 2024**
Instructor

EXPERIENCE

Quantum Computing Engineer, Specialist **May 2021–Present**
KBR *Chantilly, Virginia*
- 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

Quantum Computing, Coding Theory, & Software Development Teaching Assistant **August 2022–December 2024**
University of Maryland, Baltimore County *Baltimore, Maryland*
- 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

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**