

EDUCATION

University of Maryland, College Park

Applied Mathematics PhD Student, GPA: 3.89

– Application Area: Quantum Information

College Park, MD

2020–present

SUNY Brockport

B.S. in Mathematics and Physics, GPA: 4.00

– Thesis: “Spectral properties of quaternionic unit gain cycles.”

– Member of the Honors college

Brockport, NY

2016–2020

EXPERIENCE

Los Alamos National Laboratory

Quantum Computing Summer School Fellowship

Advisor: Dr. Yigit Subasi

– Project title: Generating Polynomials of Density Matrices

Los Alamos, NM

Summer 2021

University of Maryland

Training and Research Experiences in Nonlinear Dynamics (TREND) REU

Advisors: Dr. Michelle Girvan, Dr. Ed Ott, Dr. Thomas Antonsen

– Project title: Predicting Network Dynamics with a Parallel Machine Learning Approach

College Park, MD

Summer 2019

University of Rochester

Photonics REU

Advisor: Dr. Benjamin Miller

– Project title: Finite-Element Modeling of Waveguide Structures Using COMSOL Multiphysics

Rochester, NY

Summer 2018

PUBLICATIONS

- [1] F. Belardo, M. Brunetti, N. J. Coble, N. Reff, and H. Skogman, “Spectra of quaternion unit gain graphs”, *Linear Algebra and its Applications*, vol. 632, pp. 15–49, Jan. 2022, ISSN: 00243795.
- [2] N. J. Coble and M. Coudron, “Quasi-polynomial time approximation of output probabilities of geometrically-local, shallow quantum circuits.”, in *Conference on Quantum Information Processing (QIP)*, and *Symposium on Foundations of Computer Science (FOCS)*, 2021. arXiv: 2012.05460.
- [3] Z. Holmes, N. J. Coble, A. T. Sornborger, and Y. Subasi, “On nonlinear transformations in quantum computation”, Preprint, 2021. arXiv: 2112.12307 [quant-ph].
- [4] K. Srinivasan, N. J. Coble, J. Hamlin, T. Antonsen, E. Ott, and M. Girvan, “Parallel machine learning for forecasting the dynamics of complex networks”, Preprint, Aug. 2021. arXiv: 2012.05460.
- [5] N. J. Coble and N. Yu, “A reservoir computing scheme for multi-class classification.”, in *Proceedings of the 2020 ACM Southeast Conference*, ser. ACM SE '20, Tampa, FL, USA: Association for Computing Machinery, 2020, pp. 87–93, ISBN: 9781450371056.

GRADUATE COURSEWORK

- **Computer Science:** Intro to Quantum Information Processing, Quantum Algorithms, Quantum Error Correction and Fault-Tolerance, End-to-End Quantum Applications
- **Mathematics:** Algebra I and II, Brauer Groups*, Complex Analysis, Differential Geometry*, Scientific Computing, Advanced Numerical Optimization*

*—to be completed through Spring 2022

TALKS

- [1] *Divide-and-conquer method for approximating output probabilities of geometrically-local, shallow-depth quantum circuits*, Presented to The IQC-QuICS Math and Computer Science Seminar, 2021.

COURSE PROJECTS

- The Foundation of End-to-End Quantum Applications: Applications of block encodings in quantum computing. Fall 2021
- Quantum Error Correction and Fault-Tolerance: QKD and error-correcting codes. Fall 2021
- Quantum Algorithms: Hidden subgroup problem for semi-direct product groups. Spring 2021
- Artificial Intelligence: Developing a novel classifier using reservoir computing methods. Fall 2019
Completed at SUNY Brockport.

LANGUAGES

- **Intermediate:** MATLAB, Python, Java
- **Beginner:** Bash, LabView

TEACHING

- **Graduate Teaching Assistant** for *Precalculus* at University of Maryland
- **Math Tutor** at SUNY Brockport

SCHOLARSHIPS AND AWARDS

- Aziz Osborn Gold Medal in Teaching Excellence 2021
- University of Maryland Dean's Fellowship 2020
- SUNY Chancellor's Award for Student Excellence 2020
 - Recognizes model students who have integrated academic excellence with other aspects of their lives and is the highest honor bestowed upon a student by the State University of New York system.
- School of Arts and Sciences Outstanding Undergraduate Award 2020
 - Recognizes the School of Arts and Sciences's top undergraduate student.
- Brockport Honors College Scholar Award 2020
- Robert E. Hall Memorial Scholarship for Mathematics 2020
- Department of Computer Science Undergraduate Research Award 2020
- Belva A. Waite Memorial Scholarship 2019, 2016
- Interdisciplinary Award in Mathematics 2018
- Harvard House Award 2018
- Brockport Physics, Mathematics, and Computer Science Award 2018, 2017
- Dean's Citation for Diversity, University of Rochester 2018