

# Lucas Bouck

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## Education

**George Mason University**  
B.S., Mathematics, May 2018 (Expected)  
Minor: Computer Science  
Overall GPA: 3.99  
Math GPA: 4.00

## Research Interests

Partial Differential Equations, Numerical Analysis

## Research Experience

**Department of Mathematical Sciences, George Mason University**  
January 2016-Present  
Currently conducting research in applied mathematics on modeling quantum random walks with fractional partial differential equations, under the mentorship of Dr. Harbir Antil.  
**Summer Undergraduate Research Fellowship, NIST**  
May 2017-August 2017  
Conducted research on 2 dimensional root finding using Chebyshev polynomials with Dr. Ian Bell in the Applied Chemicals and Materials Division of the National Institute for Standards and Technology.

## Talks & Poster Presentations

**SIAM Central States Section Meeting Mini Symposium**  
Colorado State University, Ft. Collins, CO, September 2017  
Title: "Fractional Dynamics for Quantum Random Walks"  
**Applied and Computational Math Seminar Talk**  
George Mason University, Fairfax, VA, September 2017  
Title: "Root Finding with Chebyshev Polynomials in Two Dimensions"  
**Summer Undergraduate Research Fellowship Colloquium Talk**  
National Institute of Standards and Technology, Boulder, CO, August 2017  
Title: "Root Finding with Chebyshev Polynomials in Two Dimensions"  
**Invited Seminar Talk**  
Naval Research Lab, Washington, D.C., May 2017  
Title: "Fractional Dynamics for Quantum Random Walks"  
**Extreems-Qed Undergraduate Research Conference**  
University of William and Mary, Williamsburg, VA, March 2017  
Title: "Fractional Dynamics for Quantum Random Walks"  
**Joint Math Meetings Student Poster Session**  
Atlanta, GA, January 2017  
Title: "Introducing Fractional Dynamics to Quantum Random Walks"  
**Shenadoah Undergraduate Math and Statistics Conference**  
James Madison University, Harrisonburg, VA, September 2016  
Title: "Introducing Fractional Dynamics to Quantum Random Walks"

Software Contributions	<p><b>ChebTools</b>          GitHub: <a href="https://github.com/usnistgov/ChebTools">https://github.com/usnistgov/ChebTools</a>          Description: C++ tools for working with Chebyshev Expansions. I provided Jupyter notebooks for documentation and am the main contributor to the 2D functionality of the library that is currently under construction.</p>
Professional Events Attended	<p><b>Nonlocal School on Fractional Equations</b>          Iowa State University, Ames, IA, August 2017          Attended a summer school on fractional order partial differential equations.</p>
Education Experience	<p><b>Learning Assistant, George Mason University</b>          January 2017-May 2017          Hold office hours and teach students supplementary material for a Calculus III class</p> <p><b>Math Tutor, George Mason University</b>          August 2016-Present          Tutor students in math and physics courses ranging from lower to upper-level.</p> <p><b>Grader, George Mason University</b>          September 2015-December 2015          Graded quizzes for a Discrete Mathematics Class</p>
Awards	<p><b>Goldwater Scholarship Honorable Mention</b>          March 2017          Received an honorable mention for the most prestigious undergraduate scholarship in the natural sciences, mathematics, and engineering in America.</p> <p><b>Outstanding Poster Award</b>          January 2017          Awarded to the top 15% of posters based on judges' scores in each topic area at the student poster session at the 2017 Joint Math Meetings.</p> <p><b>Amer Bešliagić Award</b>          April 2016          Awarded for performance in math classes during first two years at GMU.</p> <p><b>University Scholarship</b>          August 2014          George Mason University's highest value and most prestigious scholarship.</p> <p><b>Dean's List</b>          Fall 2014-Spring 2017</p>
Technical Skills	<p>Python, C++, Java, <math>\text{\LaTeX}</math>, Matlab</p>