

# Kate Wall

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## EDUCATION

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### PhD Mathematics

May 2027

Tufts University

Medford, Massachusetts

- GPA: 3.83

### BS, Applied & Computational Mathematics

April 2022

Brigham Young University

Provo, Utah

- Concentration in Math Theory: additional course work in Network Theory, Numerical Methods for Linear Algebra, Abstract Algebra, Galois Theory
- Minor in Gender Studies
- GPA: 3.96

Dept. of Mathematics Dean's List: Fall 2019, Fall 2020, Winter 2021, Fall 2021

## EXPERIENCE

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### Technical Aide

May 2021 - August 2021, May 2022 - August 2022

John Hopkins Applied Physics Lab

Laurel, Maryland

- Wrote python script to interface with modeling software, running 44% faster than previous solution
- Replaced fragile/redundant XPath data translator with a object-oriented class model for dynamic use
- Led team of interns in implementing a modified depth first search scheduling algorithm, and integrating our result with other teams to create cohesive end product

### Research Team Lead under Dr. Tyler Jarvis

April 2020 - April 2022

Brigham Young University

Provo, Utah

- Utilize team members' individual strengths to solve theoretical and coding problems
- Develop and debug program of over 2000 lines in python, using git version control
- Collaborate with team members on coding and theoretical aspects to utilize our individual strengths
- Independently learn and master new concepts, applying them in code and testing

### Research Assistant under Dr. Enkeleida Lushi

June - August 2020

Mathematical Biosciences institute (MBI) at OSU

N.J. Institute of Technology

- Modeled collective behavior in MATLAB using the Alignment and Vicsek models
- Corresponded weekly with team of biologists to report and explain mathematical findings
- Presented our progress and new findings weekly to a group of 15 other researchers and professors

### Math Tutor

September 2019 - December 2020

Brigham Young University Math Lab

Provo, Utah

- Assisted students in calculus I & II, multivariable calculus, linear algebra, and differential equations

## PAPERS

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- *Analysis of Normal-Form Algorithms for Solving Systems of Polynomial Equations*, Journal of Computational and Applied Mathematics, September 2022, arXiv:2104.03526

## SKILLS

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|----------------------------------|---------------------------------|----------------------------|
| • Python, MATLAB, C++, and LaTeX | • Thompson sampling             | • Numerical Linear Algebra |
| • Unix Shell                     | • A/B Testing                   | • Calculus of variations   |
| • Gradient Descent               | • Markov Decision Processes     | • Optimal control          |
|                                  | • Introductory Machine Learning |                            |
|                                  | • Fourier Analysis, Wavelets    |                            |