Kate Wall

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EDUCATION

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

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

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

SKILLS

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