

Alexander J. Zaitzeff

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Education

University of Michigan (Ann Arbor, Michigan)

September 2015 – April 2020

Ph.D. in Applied and Interdisciplinary Mathematics; Graduate Certificate in Computational Discovery and Engineering

- Current research in image processing, partial differential equations, and material science
- Relative Coursework: Machine Learning, Computer Vision, Nonlinear Optimization, Probability Theory, Image Processing

Brigham Young University (Provo, Utah)

June 2009 – August 2015

B.S. Mathematics: Applied and Computational Mathematics Emphasis; Computer Science Minor

- Cumulative GPA 4.00
- Awards:
 - Monson Presidential Scholar (BYU's highest academic scholarship awarded to 50 first-year students)
 - Orson Pratt Award (highest mathematics award given to a graduating senior)

Experience

Ph.D. Work

September 2015 – April 2020

University of Michigan

- Used mathematical techniques to validate and develop algorithms for grain growth in polycrystal materials
- Developed relationships across departments and with the Air Force research lab to solve relevant problems
- Wrote efficient image segmentation code for grain segmentation to improve analyses of Ti-alloys

Curriculum Developer

September 2012 – September 2014

BYU Mathematics Department

- Developed algorithms in Python to solve programmable problems in applied mathematics
- Expanded outlines into labs to be used in teaching intermediate applied mathematics
- Written and edited over 400 pages of text
- Managed and directed students in order to meet deadlines

Service

Volunteer Representative

June 2010 – June 2012

The Church of Jesus Christ of Latter-day Saints (Carlsbad, California)

- Applied a religious curriculum to individual families
- Organized and participated in various public service projects
- Taught free English language classes offered to Hispanics in the local community

Publications and Projects

- On the Voronoi Implicit Interface Method. [SIAM Link](#), [ArXiv Link](#)
- Variational Extrapolation of Implicit Schemes for General Gradient Flows. [ArXiv Link](#)
- Second Order Threshold Dynamics Schemes for Two Phase Motion by Mean Curvature. [ArXiv Link](#)
- Active Learning and Best Arm Identification: Efficient Idea Screening with Bandit MaxDiff. [PDF](#)
- Used machine learning to identify which homes in Flint, MI high risk for lead contamination with water test data
- Used machine learning to predict whether potential clients would end up getting a mortgage based on the loan product originally offered to them by Quicken Loans. [Link to post](#)

Skills

- Python, Numpy, Scikit-Learn, Matlab, Git (<https://github.com/AZaitzeff>), and Public Speaking