

# Edith J Zhang

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## EDUCATION

**Columbia University**, New York, NY

- Ph.D. in Applied Mathematics 2021 – 2025  
Funded by NSF Graduate Research Fellowships Program

- MS in Applied Mathematics 2019 – 2021

**University of Virginia**, Charlottesville, VA

- BA in Mathematics 2015 – 2019

## RESEARCH INTERESTS

Infinite graphs, Nonlocal PDEs, Calculus of Variations, Interacting Particle Systems

## PUBLICATIONS

- [1] Edith Zhang, James Scott, Qiang Du, Mason A. Porter, Ginzburg–Landau functionals in the large-graph limit, Accepted at Journal of Pure and Applied Functional Analysis, November 2024. [Link](#)
- [2] Soumyadip Ghosh, Yingdong Lu, Tomasz Nowicki, Edith Zhang, On representations of mean-field variational inference, *arXiv:2210.11385*, 2022. [Link](#)
- [3] Edith Zhang, David Blei. Unveiling mode-connectivity of the ELBO landscape, *Bayesian Deep Learning Workshop*, 2021. [Link](#)
- [4] Edith Zhang, James Scott, Qiang Du. Reaction–diffusion equations in the large-graph limit. *To be submitted.*
- [5] Kaizheng Wang, Edith Zhang. A particle algorithm for mean-field variational inference. *To be submitted.*

## CONFERENCES

- Interacting Particle Systems, Providence, RI May 2024  
Workshop at ICERM
- Bridges Conference, Richmond, VA Aug 2024  
Exhibition of two mathematical artworks.
- Joint Math Meetings, Seattle, WA Jan 2024  
Talk at the Complex Social Systems minisymposium titled “Higher-Dimension Opinion Dynamics”.
- Mathematics Research Communities, Java Center, NY Jun 2023  
Workshop on Complex Social Systems.
- SIAM New York-New Jersey-Pennsylvania Section, Newark, NJ Oct 2023  
Poster presentation titled “Ginzburg–Landau on Large Graph Limits”.
- Columbia University Data Science Day, New York, NY Apr 2022  
Poster Presentation titled “VI flow: a Statistical Physics Approach to a Statistical Algorithm”.

## AWARDS & SCHOLARSHIPS

- NSF Graduate Research Fellowships Program Awarded Apr 2019
- Echols Scholar at the University of Virginia Awarded Aug 2016

## TEACHING AND OUTREACH

- Adjunct Instructor**, The Cooper Union, New York, NY
- Written agreement to teach a 4-credit course in Calculus II. Spring 2025
- Teaching Assistant**, Columbia University, New York, NY
- Partial Differential Equations Fall 2019
  - Introduction to Numerical Methods Fall 2023
- Applied Mathematics Graduate Student Seminar**, Columbia University, New York, NY 2022-2024
- Initiated and co-lead weekly seminar for graduate students to present topics relating to their research, hard and soft skills, job search, writing, etc.
- Grader**, Columbia University, New York, NY 2019 – 2024
- Numerical Methods, Linear Algebra, Mathematics for Data Science
- Grader**, University of Virginia, Charlottesville, VA 2017 – 2019
- Financial Mathematics, Calculus II, Calculus III.
- Mathematics Tutor**, Charlottesville, VA 2016 – 2019
- Group and walk-in tutoring on calculus, linear algebra, differential equations, statistics, and abstract algebra.

<b>OTHER WORK EXPERIENCE</b>	<b>University of California, Los Angeles</b> , Los Angeles, CA ■ Collaborated with Dr. Mason Porter on research relating to Ginzburg–Landau theory on large-graph limits.	May 2022 – Aug 2022
<b>PROGRAMMING</b>	Proficient in Python, L <sup>A</sup> T <sub>E</sub> X	
<b>COURSES READ</b>	<b>During Graduate studies in Applied Mathematics</b> <ul style="list-style-type: none"> <li>• Dynamical Systems</li> <li>• Numerical Methods</li> <li>• Elementary Stochastic Processes</li> <li>• Probability Theory I</li> <li>• Applied Functional Analysis</li> <li>• Analytic Methods for Partial Differential Equations</li> <li>• Numerical Methods for Partial Differential Equations</li> <li>• Machine Learning</li> <li>• Convex Optimization</li> <li>• Foundations of Graphical Models</li> <li>• Geometric Data Analysis</li> </ul> <b>During Bachelor studies in Mathematics (Highlights)</b> <ul style="list-style-type: none"> <li>• Abstract Algebra</li> <li>• Differential Geometry</li> <li>• Algebraic Combinatorics</li> <li>• Knot Theory</li> <li>• Real Analysis</li> </ul>	
<b>MISC. INTERESTS</b>	Art, Poetry, Cycling, Transportation Activism	