

Edith J Zhang

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EDUCATION	Columbia University , New York, NY <ul style="list-style-type: none">▪ Ph.D. in Applied Mathematics Funded by NSF Graduate Research Fellowships Program 2021 – 2025▪ MS in Applied Mathematics 2019 – 2021 University of Virginia , Charlottesville, VA <ul style="list-style-type: none">▪ BA in Mathematics 2015 – 2019
RESEARCH INTERESTS	Infinite graphs, Network Science, Nonlocal PDEs, Calculus of Variations, Interacting Particle Systems, Stochastic Processes
PUBLICATIONS	<ul style="list-style-type: none">[1] Edith Zhang, James Scott, Qiang Du. Graphon reaction–diffusion equations. <i>To be submitted.</i>[2] Kaizheng Wang, Edith Zhang. A particle algorithm for mean-field variational inference. <i>To be submitted.</i>[4] Soumyadip Ghosh, Yingdong Lu, Tomasz Nowicki, Edith Zhang, On representations of mean-field variational inference, <i>arXiv:2210.11385</i>, 2022. Link[1] Edith Zhang, James Scott, Qiang Du, Mason A. Porter, Ginzburg–Landau functionals in the large-graph limit, In revision with minor corrections at Journal of Pure and Applied Functional Analysis, November 2024. Link[4] Edith Zhang, David Blei. Unveiling mode-connectivity of the ELBO landscape, <i>Bayesian Deep Learning Workshop</i>, 2021. Link
CONFERENCES	<ul style="list-style-type: none">▪ Interacting Particle Systems, Providence, RI Workshop at ICERM May 2024▪ Bridges Conference, Richmond, VA Exhibition of two mathematical artworks. Aug 2024▪ Joint Math Meetings, Seattle, WA Talk at the Complex Social Systems minisymposium titled “Higher-Dimension Opinion Dynamics”. Jan 2024▪ Mathematics Research Communities, Java Center, NY Workshop on Complex Social Systems. Jun 2023▪ SIAM New York-New Jersey-Pennsylvania Section, Newark, NJ Poster presentation titled “Ginzburg–Landau on Large Graph Limits”. Oct 2023▪ Columbia University Data Science Day, New York, NY Poster Presentation titled “VI flow: a Statistical Physics Approach to a Statistical Algorithm”. Apr 2022
AWARDS & SCHOLARSHIPS	<ul style="list-style-type: none">▪ 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 <ul style="list-style-type: none">• Written agreement to teach a 4-credit course in Calculus II. Spring 2025 Teaching Assistant , Columbia University, New York, NY <ul style="list-style-type: none">• Partial Differential Equations Fall 2019• Introduction to Numerical Methods Fall 2023 Applied Mathematics Graduate Student Seminar , Columbia University, New York, NY 2022-2024 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• Numerical Methods, Linear Algebra, Mathematics for Data Science Grader , University of Virginia, Charlottesville, VA 2017 – 2019 <ul style="list-style-type: none">• 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.

**OTHER WORK
EXPERIENCE**

University of California, Los Angeles, Los Angeles, CA

May 2022 – Aug 2022

- Collaborated with Dr. Mason Porter on research relating to Ginzburg–Landau theory on large-graph limits.

PROGRAMMING

Proficient in Python, \LaTeX

COURSES READ

During Graduate studies in Applied Mathematics

- Dynamical Systems
- Numerical Methods
- Elementary Stochastic Processes
- Probability Theory I
- Applied Functional Analysis
- Analytic Methods for Partial Differential Equations
- Numerical Methods for Partial Differential Equations
- Machine Learning
- Convex Optimization
- Foundations of Graphical Models
- Geometric Data Analysis

During Bachelor studies in Mathematics (Highlights)

- Abstract Algebra
- Differential Geometry
- Algebraic Combinatorics
- Knot Theory
- Real Analysis

MISC. INTERESTS

Art, Poetry, Cycling, Transportation Activism