

Yujia Zhang

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Education

Cornell University, Center for Applied Mathematics

Ph.D. in Applied Mathematics

Ithaca, NY

Expected May 2024

Cornell University, College of Arts and Sciences

B.A. with Distinction in All Subjects, GPA: 4.074/4.3

Ithaca, NY

August 2015-May 2019

Magna cum laude in Mathematics, German Studies; Minor in Physics

Publications

- P.I. Frazier, J.M. Cashore, N. Duan, S.G. Henderson, A. Janmohamed, B. Liu, D.B. Shmoys, J. Wan, Y. Zhang, "Modeling for COVID-19 College Reopening Decisions: Cornell, A Case Study" [Link]. Submitted to *Proceedings of the National Academy of Sciences*.
- Y. Lin, Y. Ren, J. Wan, J.M. Cashore, J. Wan, Y. Zhang, P.I. Frazier, E. Zhou, "Group Testing Enables Asymptomatic Screening for COVID-19 Mitigation: Feasibility and Optimal Pool Size Selection with Dilution Effects" [Link]. Submitted to *Health Care Management Science*.
- Y. Zhang, K. Song, Y. Sun, S. Tan, M. Udell, "'Why Should You Trust My Explanation?' Understanding Uncertainty in LIME Explanations" [Link]. ICML 2019 Workshop on AI for Social Good.
- A. Ruch, Y. Zhang, M. Macy, "Facebook Interests and the Lifestyles that Divide and Bridge Us". Working paper.
- J. Wan, Y. Zhang, P.I. Frazier, "Correlation Increases Group Testing's Sensitivity". Working paper.

COVID-19 Modeling Work

Based on my analysis, and the analysis of others in Cornell's COVID-19 mathematical modeling team, Cornell successfully conducted in-person instruction in the 2020-21 academic year while keeping COVID-19 infections under control. This section contains reports and press coverage related to this work.

Reports:

- P.I. Frazier, Y. Zhang, J.M. Cashore, "Feasibility of COVID-19 Screening for the U.S. Population with Group Testing" [Link].
- P.I. Frazier, J.M. Cashore, N. Duan, S.G. Henderson, A. Janmohamed, D.B. Shmoys, J. Wan, Y. Zhang, "COVID-19 Mathematical Modeling for Cornell's Fall Semester" [Link].
- The full collection of COVID-19 modeling reports can be found [here].

Press Coverage:

- "Containing COVID-19 at Cornell", Syl Kacapyr, *Cornell Engineering Spotlights*, 2021 [Link].
- "Cornell University gives exclusive look at how it has contained COVID-19" Kaitlyn Folmer, *Good Morning America*, September 22, 2020 [Link].
- "Why Cornell Will Reopen in the Fall", Michael I. Kotlikoff and Martha E. Pollack, *Wall Street Journal*, June 30, 2020 [Link].
- "Group testing could screen entire US, research suggests", Melanie Lefkowitz, *Cornell Chronicle*, June 11, 2020 [Link].
- "With all eyes on coronavirus testing, some researchers say 'group testing' could make up the shortage", Dr. Mark Abdelmalek, *ABC News*, May 13, 2020 [Link].
- "Drs. Fauci & Birx: Here's A Way To Contain Covid-19 And Reopen The Economy In As Little As One Month", Laurence Kotlikoff, *Forbes*, May 3, 2020 [Link].

Teaching

Summer Program for Undergraduate Research, Dept. of Mathematics

Graduate Assistant

Ithaca, NY

Summer 2020

- Assisted Dr. Andy Borum in supervising undergraduate research projects in optimal control

Cornell University Department of Mathematics

Ithaca, NY

Course Assistant, Tutor, and Grader

Spring, Summer and Fall 2017, Spring 2018 and 2019

- Tutor at Cornell Math Support Center, drop-in help for undergraduate math classes at all levels
- Grader for Calculus I, Multivariable Calculus, and Finite Mathematics

Cornell University Department of Physics, Cornell University

Ithaca, NY

Undergraduate Teaching Assistant

Spring 2016, Fall 2016

- Tutor for Mechanics and Electricity and Magnetism

Service and Outreach

Math Explorer's Club

Ithaca, NY

Co-organized with Mallory Gaspard

March - November 2020

- Designed and led in-person and online sessions aimed at introducing topics in applied math to local middle school and high school students (grades 6-12)
- Topics included population dynamics, random walk, PageRank algorithm, optimal control and path planning

Awards and Honors

Dean's List, College of Arts and Sciences, Cornell University

All semesters

Phi Beta Kappa

April 2018

Cornell Mathematical Contest in Modeling, Second Place

November 2018

COMAP Mathematical Contest in Modeling, Meritorious

February 2018

Cornell Graduate School Fellowship

Academic Year 2019-2020

Presentations

- "Calculation and Estimation of the Basic Reproduction Number" Applied Dynamics Seminar, virtual, June 2020.
- "Parameter Estimation for ODE Models" Applied Dynamics Seminar, virtual, November 2020.
- "COVID-19 Modeling for Cornell's Fall Semester" Center for Applied Math Poster Session, virtual, September 2020.
- "COVID-19 Modeling for Cornell's Fall Semester" ORIE 1370 Data Science for All, May 2021.

Skills

Software: Python; R; MATLAB; SQL; Stata; LaTeX; Microsoft Office

Languages: Mandarin (Native); German (Fluent, certified C1 under Common European Framework); French (Elementary)