Yujia Zhang

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Education

Cornell University, Center for Applied Mathematics Ithaca, NY
Ph.D. in Applied Mathematics Expected May 2024

Cornell University, College of Arts and Sciences Ithaca, NY
B.A. with Distinction in All Subjects, GPA: 4.074/4.3 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". 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

This section contains reports and press coverage related to COVID-19 modeling work for Cornell. Since May 2020, we have used mathematical modeling and simulation to support the university administration in decision-making. Informed by the modeling results, Cornell was able to conduct residential instruction in Fall 2020 and Spring 2021 while keeping infections under control.

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:
- Syl Kacapyr, "Containing COVID-19 at Cornell", Cornell Engineering Spotlights, 2021 [Link].
- Melanie Lefkowitz, "Group testing could screen entire US, research suggests", Cornell Chronicle, June 11, 2020 [Link].
- Dr. Mark Abdelmalek, "With all eyes on coronavirus testing, some researchers say 'group testing' could make up the shortage" ABC News, May 13, 2020 [Link].
- Laurence Kotlikoff, "Drs. Fauci & Birx: Here's A Way To Contain Covid-19 And Reopen The Economy In As Little As One Month", Forbes, May 3, 2020 [Link].

Teaching

Summer Program for Undergraduate Research, Dept. of Mathematics, Cornell University Ithaca, NY
Graduate Assistant Summer 2020
- Assisted Dr. Andy Borum in supervising undergraduate research projects in optimal control

Department of Mathematics, Cornell University Ithaca, NY
Course Assistant, Tutor, and Grader Spring, Summer and Fall 2017, Spring 2018, Spring 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*

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
Second Place, Cornell Mathematical Contest in Modeling	November 2018
Meritorious, COMAP Mathematical Contest in Modeling	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.

Skills

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

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