Anushka Murthy

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EDUCATION

Stanford University   2022-present
PhD in Mathematics (2022-2023), PhD in Operations Research (2023-present)   Stanford, CA

- Advisors: Ramesh Johari and Irene Lo
- Awarded Stanford Data Science Scholarship, NSF Graduate Research Fellowship, and EDGE Doctoral Fellowship
- PhD minor in Economics with specializations in Market Design, Microeconomic Theory, and Econometric Methods for Causal Inference
- Member of Dean's Graduate Student Advisory Council, co-president of Stanford Women in Math Mentoring, mentor in Undergraduate Diversity in Research program, violinist in music department

M.S. in Computational Social Science (2023-2025)

- Obtained master's degree along the way to PhD, focused on algorithmic economics and data science methods for social science
- Math coursework: Graduate Analysis and Algebra, Stochastic Systems, Queueing and Networks
- CS/Statistics coursework: Optimization; Causal Inference; Topics in Social Data; Graduate Theory of Statistics
- Economics coursework: Game Theory; Topics in Market Design; Simplicity and Complexity in Economic Theory

Columbia University School of Engineering and Applied Science   2018 – 2022
Bachelor of Science in Applied Math   New York, NY

- Graduated *summa cum laude*, GPA: 4.07/4.33
- VP Internal of Columbia Society of Women Engineers, Applied Math Departmental Mentor, Violinist at Manhattan School of Music and in Columbia University Orchestra
- Selected Math Courses: Graduate Probability (MATH GR6151), Graduate Interacting Particle Systems and Markov Processes (MATH GR6153), Graduate Elliptic PDE (MATH GR6152), Statistics (STAT GU4001), Real Analysis (MATH GU4061), Numerical Methods (APMA E4300)
- Selected CS Courses: Graduate Topics in Matching Markets and Algorithms (IEOR E8100), Graduate Complexity Theory (COMS W4236), Data Structures and Algorithms (COMS W3134)

PAPERS AND INTERESTS

Interests: Applied Probability, Market Design, Personalized Learning, A/B Testing, with applications to education and sustainability

1. *When Does Interference Matter? Decision-Making in Platform Experiments*, R. Johari, H. Li, A. Murthy, G. Weintraub. arxiv preprint.
   (a) Selected for talk at Stanford Causal Science Center Conference 2024.
   (b) Extended abstract accepted for parallel presentation at *CODE 2024* at MIT.
   (c) Invited presentation at INFORMS 2024 in Seattle at the session on Randomized Experiments, A/B Tests, and Observational Studies

2. Dynamic Contracting for Payment for Ecosystem Services, I. Lo and A. Murthy. Working paper.
   (a) Contributed talk at MSOM 2024 at the University of Minnesota

3. *One-point asymptotics for half-flat ASEP* , E. Dimitrov and A. Murthy. Appeared in **Annals of Applied Probability** $34(1B) : 1136 - 1176(2024)$.

TEACHING EXPERIENCE

Teaching Assistant   June 2023
Simons Laufer Mathematical Sciences Institute (MSRI)
   * Teaching Assistant for MSRI graduate summer school on the "Mathematics and Computer Science of Market Design"

Course Assistant   2022-
Stanford University
   * Courses Taught:
        1. Math 18: Foundations for Calculus (Lernik Asserian)
        2. Math 113: Linear Algebra and Matrix Theory (Sourav Chatterjee)
        3. MS&E 232H: Accelerated Intro to Game Theory (Irene Lo)
        4. OIT 272: Online Marketplaces (Gabriel Weintraub) (MBA Core Course)

Teaching Assistant   2020-2022
Columbia University
   * Courses Taught:
        1. COMS W3261: Computer Science Theory (Tal Malkin, Mihalis Yannakakis)
        2. MATH GU4061: Modern Analysis I (Abhijit Champanerkar)
        3. MATH GU4032: Fourier Analysis (Yash Jhaveri)
        4. MATH UN3028: Partial Differential Equations (Florian Johne)
        5. MATH UN2010: Linear Algebra (Dave Bayer)
        6. MATH UN1205: Accelerated Multivariable Calculus (Konstantin Matetski)

Tutor   2020-2022
One-to-One Tutoring, Columbia University
   * Math tutor through Columbia's One-to-One Tutoring Community Impact Program.
   * Met with elementary school students from Morningside Heights and Harlem every week to help improve math ability and develop effective study habits.

Awards and Recognition

Stanford Data Science Scholarship   2024-2026
NSF Graduate Research Fellowship   2022-2027
Stanford EDGE Doctoral Fellowship   March 2022
Columbia Provost's Diversity Fellowship   March 2022
UC Berkeley Chancellor's Fellowship   February 2022
Dean's List   All semesters at Columbia

Skills

Languages : Python, Java, C++, Julia, R, MATLAB
Software Libraries/Technologies : Numpy, matplotlib, scikit-learn, cvxpy, Pandas

References

Ramesh Johari, Professor of Management Science and Engineering
Stanford University
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Irene Lo, Assistant Professor of Management Science and Engineering
Stanford University
   * Email: ilo@stanford.edu

Gabriel Weintraub, Professor of Operations, Information, and Technology
Stanford University GSB

   • Email: gweintra@stanford.edu