Curriculum Vitae

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PROFESSIONAL SUMMARY

Dedicated educator and researcher with over **14 years of experience** in the Courant Institute at New York University. Expert in delivering engaging, real-world application-based mathematics instruction to diverse student bodies, having taught approximately **8,000 students** while maintaining high student evaluations. Proven leader in **curriculum innovation**, **student mentorship**, and **high-impact community outreach**.

CORE TEACHING & PEDAGOGY

- **Teaching Philosophy:** Developed a unique instructional style centered on real-world applications and energetic delivery infused with humor to enhance student engagement.
- **Instructional Volume:** Consistently teaching three courses per semester while coordinating multi-section courses.
- **Faculty Training:** Active in training new Teaching Assistants and post-doctoral Instructors to ensure pedagogical consistency and quality.

Courses Taught and Coordinated:

- **Core Mathematics:** Calculus I, II, & III; Linear Algebra; Discrete Mathematics; Pre-Calculus.
- **Specialized Tracks:** Mathematics for Economics I, II, & III.
- **Quantitative Reasoning:** From Data to Discovery (FTDT); Probability, Statistics, and Decision Making (PSDM); Great Ideas in Mathematics (GIM).
- **Graduate Level:** Mathematical Statistics.

CURRICULUM DEVELOPMENT & EDUCATIONAL INNOVATION

- **Modernizing Linear Algebra:** Proposed and implemented a restructured Linear Algebra course (Fall 2024) utilizing free online textbooks, Python-based coding components, and a heavy emphasis on Data Science applications.
- **Generative AI Integration:** Collaborating with NYU IT to pilot a **Personalized Linear Algebra Gen. AI Tutor**, specifically trained on course materials to assist student learning (Fall 2025).
- **CURE Framework:** Currently working to implement the **Course-Based Undergraduate Research Experience (CURE)** into Linear Algebra and "From Data to Discovery" courses to integrate research into standard curricula.

MENTORSHIP & STUDENT SUCCESS

- **NYU Math Society:** Serves as Faculty Mentor, overseeing the post-COVID revival of the club into one of the most successful student organizations on campus.
- **Undergraduate Research Mentoring:** Ten-year history of advising students on research projects, offering annual workshops on **Math Modeling Contests** and one-on-one guidance for selecting research mentors and projects.
- **Committee Service:** Actively participates in selection and review for programs including **SURE, DURF, NYU Fulbright Scholars, HEOP STEM Pathways**, and **Women in Science (WINS)**.
- **Diversity & Inclusion:** Serves as a "Proud to Be First" Mentor for first-generation college students.

EDUCATIONAL OUTREACH & PUBLIC ENGAGEMENT

- **High School Mentoring:**
  - **GSTEM:** Research mentor for female high school students through the Courant Institute (2013–2016).
  - **NYU-Abu Dhabi:** Taught and mentored talented Emirati high school students.
  - **CSPLASH:** Organizer of annual day-long events featuring faculty talks and lab visits for high schoolers (2021 onwards).
  - **Pioneer Academy:** Taught and mentored six highschool students from all over the world in data science and created individualized research projects for each (2025)

- **Community Education:**
  - **New York Public Library:** Delivered public lecture series on "Mathematical Patterns in Nature" and "Physics of Everyday Things".
  - **Center for Mathematical Talent:** Conducted lecture series on Graph Theory for high-achieving students.
- **Global/Local Research Initiatives:**
  - **New York Academy of Sciences:** Mentored global high school teams via the Global Science Academy and served as a Scientist-in-Residence for NYC public middle schools.
  - **ArchaeoHack:** Mentor and judge for the 2025 hackathon focused on AI-driven recognition of Egyptian Hieroglyphs.

PROFESSIONAL EXPERIENCE

- **New York University, Department of Mathematics**
  - **Clinical Associate Professor** | Sept 2024 – Present
  - **Clinical Assistant Professor** | Sept 2012 – Sept 2024
  - **Visiting Assistant Professor** | Sept 2011 – Sept 2012
  - **Courant Instructor / Post-doctoral Scientist** | Sept 2009 – Sept 2011
- **Massachusetts Institute of Technology (MIT)**
  - **Post-doctoral Research Fellow**, Mechanical Engineering | 2006 – 2009

EDUCATION & PROFESSIONAL DEVELOPMENT

• **Ph.D. in Physics** | Duke University | 2006
• **Masters' in Physics** | Northeastern University | 1998-2000
• **Junior Research Fellow** | University of Pune | 1995-1998
• **M.Sc. in Physics** | University of Pune | 1995
• **B.Sc. in Physics** | University of Mumbai | 1993
• **Certification:** Applied Data Science (Leveraging AI for Decision Making), MIT Professional Education | 2023
• **Certification:** Data Science and AI Educators' Program, Alan Turing Institute, UK | 2023

SELECTED PUBLICATIONS & SCHOLARLY RECOGNITION

• **Nature:** "Contact Force Measurements and Stress Induced Anisotropy in Granular Materials" (2005).
• **Physical Review Letters:** "Jamming transition in granular systems" (2007).
• **Rheologica Acta:** "High Shear Rate Viscometry" (2008).
• **Royal Society Journal of Interface:** "Experiments and theory of undulatory locomotion of microorganisms in structured media" (2012).
• **Public Press:** Research featured in **New Scientist Magazine**, **Science (Editor's Choice)**, and **NSF Press Releases**.
