

Rajita Chandak

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Education

Princeton University

Princeton, NJ, USA

Ph.D. in Operations Research and Financial Engineering

2019–Present

Ph.D. Candidate in the Operations Research and Financial Engineering (ORFE) Department.

Advisor: [Matias Cattaneo](#)

Relevant Coursework: Statistical Theory, Probability Theory, Stochastic Calculus, Linear and Convex Optimization, Theory of Deep Learning, Mathematics of Data Science.

Brown University

Providence, RI, USA

Sc.B. with Honors in Applied Mathematics-Economics

2015–2019

Relevant coursework: Computational Probability and Statistics, Real Analysis, Operations Research (Probabilistic Models), Econometrics, Theory of General Equilibrium, Honors Linear Algebra, Partial and Ordinary Differential Equations, Honors Statistics and Inference.

Experience

Research Experience

Consistency of generalized regression trees

Princeton University

Joint work with [Matias Cattaneo](#) and [Jason Klusowski](#)

2021–Present

Working paper on consistency and applicability of generalized linear regression trees.

R and Python Software Development

Princeton University

2021–Present

Contributing to the [NP Packages](#) and [RD Packages](#) collection with R and Python package development.

A Boundary Adaptive Conditional Density Estimator

Princeton University

Joint work with [Matias Cattaneo](#), [Xinwei Ma](#) and [Michael Jansson](#)

2020–Present

Developed a new local polynomial kernel density estimation method. Proved uniform consistency and inference procedures using strong approximation methods. Paper and companion R and Python packages to be released soon.

Honors Thesis

Brown University

Department for Applied Mathematics

2018–2019

Researched *energy-aware optimization of scalable load balancing strategies* under guidance of [Kavita Ramanan](#). Thesis focused on understanding stationary behaviour of TABS scheme under general service time distribution and identifying parameters to achieve greater efficiency and lower energy costs. Explored long term stationary behaviour of the system under the TABS scheme through limit theorems.

Research Experience for Undergraduates (REU)

Worcester Polytechnic Institute

Center for Industrial Mathematics and Statistics, Worcester Polytechnic Institute

2018

8-week summer research sponsored by NSF on financial modelling under the mentorship of [Marcel Blais](#) and [Stephan Sturm](#) and industry liaisons Doherty Advisors LLC and State Street Global Services. (*Award DMS 1757685*)

Doherty Advisors LLC Project: Created options pricing model for VIX and TYVIX with real-time data scraping from Bloomberg Terminal for investment strategies. Programming in Python and R.

State Street Project: Worked on methodology to automate trade exception processing with the use of machine learning tools. All programming done in Python.

Research Experience for Undergraduates (REU)

CSU Chico

California State University, Chico

2017

7-week research sponsored by NSF on Stochastic Processes with Dr. Ben Nolting. Developed Spatial Point Analysis of racially segregated communities and environmental justice factors using 2010 Census and EPA data. All programming done in Mathematica. (*Award NSF 1559788*)

Teaching Experience

Graduate Assistant in Instruction

ORFE Department, Princeton University

Graduate AI for the following courses:

ORF 524 (Fall 2021)

ORF 245 (Fall 2020, Spring 2021)

Princeton, NJ

2020-Present

Senior Thesis Writer's Group Co-Leader

ORFE Department, Princeton University

Host programming workshops and office hours to support 4th year undergraduate students in the ORFE department with Thesis research, development and writing.

Princeton, NJ

2020-Present

Undergraduate Teaching Assistant

Applied Mathematics Department, Brown University

TA for Dr. Ben Kunsberg's APMA 1650 (Fall 2017).

TA for Dr. Debankur Mukherjee's APMA1720: Monte Carlo Simulations with Applications to Finance (Spring 2019).

TA for Dr. Srikar Prasad's MPA2065: Intro. to Data Science for the Masters of Public Affairs program (Spring 2018).

Providence, RI
Fall 2017, Spring 2019

Tutor Leader and Peer Tutor

Member of Tutor Advisory Board, Dean of the College, Brown University

Tutored for ECON1110 Intermediate Microeconomics, ECON1210 Macroeconomics and ECON1629 Research Methods courses throughout the academic year. As a Tutor Leader, I organized monthly check-ins with and provided support to other Economics tutors.

Providence, RI
2017-2019

Programming Skills

Advanced Proficiency: Python, R, LaTeX, MATLAB, Mathematica

Intermediate Proficiency: C++, STATA, Java

Conferences

Joint Mathematics Meeting

AMS, MAA

Presented results of research done during REU at WPI (Summer 2018)

Baltimore, MD
16-19 January, 2019

Graduate Research Opportunities for Women

University of Michigan

Ann Arbor, MI
26-28 October, 2018

Women in Mathematics in New England (WIMIN)

Smith College

Delivered a talk based on research done during REU at WPI.

Northampton, MA
22 September, 2018

MIST Workshop

WPI, Applied and Industrial Mathematics Institute for Secondary Teaching

Delivered a talk titled *Option Pricing for the VIX Using a Risk-Neutral Historical Distribution* based on research done during REU at WPI.

Worcester, MA
16 July, 2018

Symposium for Undergraduates in Mathematical Sciences (SUMS)

Brown University

Delivered a talk based on research done during REU at CSU, Chico.

Providence, RI
17 March, 2018

Joint Mathematics Meeting

AMS, MAA

Presented research work done during REU at CSU, Chico.

San Diego, CA
9-13 January, 2018

Languages

English: Native Proficiency

Hindi: Native Proficiency