

Rajita Chandak

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Education

Princeton University

Ph.D. in Operations Research and Financial Engineering

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

Advisor: [Dr. Matias Cattaneo](#)

Research Interests: Mathematical statistics, theoretical machine learning, causal inference, econometrics.

Princeton, NJ, USA

2019–Present

Princeton University

M.A. in Operations Research and Financial Engineering

Princeton, NJ, USA

2019–2021

Brown University

Sc.B. with Honors in Applied Mathematics-Economics

Honors Thesis: *Energy-aware optimization of scalable load balancing strategies*

Advisor: [Dr. Kavita Ramanan](#).

Providence, RI, USA

2015–2019

Research

Publications

Boundary Adaptive Local Polynomial Conditional Density Estimators

[Arxiv Preprint](#)

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

Developed a new local polynomial kernel density estimation method. Proved uniform consistency and inference procedures using strong approximation methods. Paper, companion R package, and software article information available [here](#).

Working Papers

Consistency of Oblique Regression Trees

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

Working paper on consistency of oblique regression trees.

Software

lpcde: R package Maintainer

lpdensity: Python package maintainer

rddensity: Python package maintainer

Manuscripts

Undergraduate Honors Thesis

Department for Applied Mathematics

Title: *Energy-aware optimization of scalable load balancing strategies*.

Advisor: [Dr. Kavita Ramanan](#).

Brown University

2018–2019

Thesis on understanding stationary behaviour of TABS scheme under general service time distribution and identifying parameters to achieve greater efficiency and lower energy costs. Analysed long term stationary behaviour of the system under the TABS scheme through limit theorems. Simulations programmed in Matlab.

NSF Research Experience for Undergraduates (REU)

Worcester Polytechnic Institute

Center for Industrial Mathematics and Statistics, Worcester Polytechnic Institute

2018

Advisors: [Dr. Marcel Blais](#) and [Dr. Stephan Sturm](#)

Research sponsored by NSF on financial modelling with 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.

NSF Research Experience for Undergraduates (REU)

Math Department, CSU Chico

California State University, Chico

2017

Advisor: Dr. Ben Nolting

Research sponsored by NSF on stochastic processes. Developed spatial point analysis of racially segregated communities and environmental justice factors using 2010 Census and EPA data. (Award NSF 1559788)

Teaching Experience

Graduate Assistant in Instruction

ORFE Department, Princeton University

ORF 524: Statistical Theory and Methods (Fall 2021, Fall 2022),

ORF 245: Fundamentals of Statistics (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. 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),

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

Providence, RI

2017 – 2019

Tutor Leader and Peer Tutor

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

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

Providence, RI

2017–2019

Programming Skills

Advanced Proficiency: R, Python, Latex, Matlab, Mathematica

Intermediate Proficiency: C++, STATA, Java, HTML, CSS

Conferences

Symposium for Undergraduates in Mathematical Sciences (SUMS)

Brown University

Delivered a talk based on undergraduate honors thesis.

Providence, RI

20 March, 2019

Joint Mathematics Meeting

AMS, MAA

Presented results of research done during REU at WPI.

Baltimore, MD

16-19 January, 2019

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 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