

# Rajita Chandak

ORFE Department, Sherrerd Hall – Princeton, NJ 08544 – USA  
✉ [rchandak@princeton.edu](mailto:rchandak@princeton.edu) • [rajitachandak.github.io](https://github.com/rajitachandak) • [in](https://www.linkedin.com/in/rajitachandak) [rajitachandak](https://www.linkedin.com/in/rajitachandak)

## Education

### Princeton University

Princeton, NJ, USA

*Ph.D. in Operations Research and Financial Engineering*

2019–Present

Graduate Student in the Operations Research and Financial Engineering (ORFE) Department.

**Advisor:** [Matias Cattaneo](#)

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

### Princeton University

Princeton, NJ, USA

*M.Sc. in Operations Research and Financial Engineering*

2019–2021

*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 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

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### Graduate Assistant in Instruction

ORFE Department, Princeton University

ORF 524: Statistical Theory and Methods (Fall 2021)

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. 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

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

**Intermediate Proficiency:** C++, STATA, Java

## Conferences

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### 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 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

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**English:** Native Proficiency

**Hindi:** Native Proficiency