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

Princeton University **Princeton, NJ, USA**
M.A. in Operations Research and Financial Engineering *2019-2021*

Brown University **Providence, RI, USA**
Sc.B. with Honors in Applied Mathematics-Economics *2015–2019*
Honors Thesis: *Energy-aware optimization of scalable load balancing strategies*
Advisor: Dr. Kavita Ramanan.

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.

Convergence Rates of Oblique Regression Trees for Flexible Function Libraries **Arxiv Preprint**
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 **Brown University**
Department for Applied Mathematics *2018-2019*
Title: *Energy-aware optimization of scalable load balancing strategies*.
Advisor: Dr. Kavita Ramanan.
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 Polytechnique 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) **California State University, Chico**
Math Department, CSU 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 **Princeton, NJ**
ORFE Department, Princeton University *2020-Present*
ORF 524: Statistical Theory and Methods (Fall 2021, Fall 2022),
ORF 245: Fundamentals of Statistics (Fall 2020, Spring 2021).

Senior Thesis Writer's Group Co-Leader **Princeton, NJ**
ORFE Department, Princeton University *2020-Present*
Host programming workshops and office hours to support 4th year undergraduate students in the ORFE department with Thesis research, development and writing.

Undergraduate Teaching Assistant **Providence, RI**
Applied Mathematics Department, Brown University *2017 – 2019*
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).

Tutor Leader and Peer Tutor **Providence, RI**
Member of Tutor Advisory Board, Dean of the College, Brown University *2017–2019*

Programming Skills

Advanced Proficiency: R, Python, Latex, Matlab, Mathematica
Intermediate Proficiency: C++, STATA, Java, HTML, CSS

Awards

School of Engineering and Applied Science Award for Excellence **2022**
Princeton University

Conferences

Symposium for Undergraduates in Mathematical Sciences (SUMS) **Providence, RI**
Brown University *20 March, 2019*
Delivered a talk based on undergraduate honors thesis.

Joint Mathematics Meeting **Baltimore, MD**
AMS, MAA *16-19 January, 2019*
Presented results of research done during REU at WPI.

Women in Mathematics in New England (WIMIN) **Northampton, MA**
Smith College *22 September, 2018*
Delivered a talk based on research done during REU at WPI.

MIST Workshop **Worcester, MA**
WPI, Applied and Industrial Mathematics Institute for Secondary Teaching *16 July, 2018*
Delivered a talk based on research done during REU at WPI.

Symposium for Undergraduates in Mathematical Sciences (SUMS) **Providence, RI**
Brown University *17 March, 2018*
Delivered a talk based on research done during REU at CSU, Chico.

Joint Mathematics Meeting **San Diego, CA**
AMS, MAA *9-13 January, 2018*
Presented research work done during REU at CSU, Chico.

Languages

English: Native Proficiency

Hindi: Native Proficiency