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SAHIL R. ADANE

EDUCATION

M.A. in Public Policy with a Certificate in Research Methods, Sept. 2022-Dec. 2023
Harris School of Public Policy, University of Chicago G.P.A. 3.93/4.0

B.Tech.in Engineering Physics, July 2016-June 2020
Indian Institute of Technology (IIT) Bombay, India G.P.A. 8.49/10 \approx 3.93/4.0

RESEARCH ASSISTANCE EXPERIENCE

Prof. Christopher Blattman, April-Dec. 2023
Harris School of Public Policy, University of Chicago

- Implemented randomized inference standard errors, and created regression tables in Stata
- Helped prepare replication packages to be uploaded for previously completed projects

Prof. Eduardo Montero, June-Sept. 2023
Harris School of Public Policy, University of Chicago

- Created a formal model to explain the evolution of private vs. communal property rights in response to the fallowing requirement – time required for soil-regeneration after cultivation
- Iterated through various payoff functions to identify the basic mathematical properties necessary to tell the story including secondary predictions, while keeping the model tractable

EXPERIENCE

Systems Engineer, Sedemac Mechatronics Pvt. Ltd., India, August 2020-May 2022
Developing control technologies for electronic fuel injection for internal combustion engines

Optimal calibration process for a chosen air-estimation model, July-Oct. 2021

- Collected data at diverse operating conditions to fit an air-estimation model for simulations
- Performed regression analysis for different models followed by diagnostics for OLS estimation to find an interpretable model providing accuracy comparable to stock strategies
- Designed future experiments by choosing a suitable optimality criterion for the chosen model to reduce the cost of calibration while maintaining prediction accuracy

Proof-of-concept of stock electronic fuel injection strategies, Dec. 2020-June 2021

- Studied the physics under corner-cases and benchmarked a competitor's control unit
- Inferred system response after writing scripts for data-cleaning and visualization
- Enhanced the model by incorporating new insights to demonstrate a working prototype

Research Intern, University of Luxembourg, May-July 2019
Supervisor: Prof. Ludger Wirtz, Dept. of Physics, University of Luxembourg

Understanding Raman spectra of Cu_2GeS_3 using ZnS for application in photovoltaics

- Developed a force model using first principles by testing different interatomic potentials
- Compared models by defining a loss function using experimental data and model estimates
- Simulated the change in intensity peaks in Raman spectrum of Cu_2GeS_3 relative to those in spectrum of ZnS by studying intermediate hypothetical lattice structures

SCHOLASTIC ACHIEVEMENTS

Secured an All India Rank of **755** out of **0.2 million** candidates in JEE Advanced, May 2016

Awarded the National Talent Search Examination (NTSE) Scholarship awarded to students with 99.8+ percentile, May 2012

TECHNICAL SKILLS

Coding languages: Python, R, Stata Utilities: Version control with Git

RELEVANT COURSES

PhD level: Applied Econometrics I-III, Applied Microeconomics I-II, Price Theory II, Political Economy of Development, Topics in Information Economics, Formal Models of Domestic Politics

Undergraduate level: Introduction to Economics, Industrial Economics, Environmental Studies, Data Analysis and Interpretation (Introduction to Statistics and Probability), Linear Algebra, Single and Multivariable Calculus, Differential Equations, Numerical Analysis, Introduction to Programming with C++

POSITIONS OF RESPONSIBILITY

Academic Mentor, Department Academic Mentorship Team, Dept. of Physics, Mar. 2019-2020
Selected among 14 mentors based on interviews, peer reviews, and overall performance

- Mentored 6 sophomores to ensure their smooth transition into the Physics department
- Conducted course reviews and AMAs with professors to increase student-professor interaction

Teaching Assistant

- R Coding Camp, Harris School, University of Chicago, September 2023
- Economics for Social Welfare, Crown School, University of Chicago, Spring 2023
- Quantum Physics and Applications, IIT Bombay, May 2018

ACADEMIC PROJECTS

Differential forms, Group Theory and Physics (Supervised Learning Project), July-Nov.2018
Supervisor: Prof. P. Ramadevi, Dept. of Physics, IIT Bombay

- Studied the abstract formalism of differential geometry and its simplifications under specific conditions to known theorems and operators in multivariable calculus
- Examined the nice interplay of group theory symmetries and the conservation laws in field theory, in this case the connections to Chern-Simons theory

Study of BTZ Blackhole and Green's Functions, General Relativity, May-July 2018

Supervisor: Prof. Urjit Yajnik, Dept. of Physics, IIT Bombay

- Studied structural and geometrical properties of 2+1 Dimensional (BTZ) Blackhole and analogies with Kerr blackhole following the paper by M. Banados, C. Teitelboim, J. Zanelli
- Explored Feynman's Path Integral Approach as an introduction to application of Green's functions in Quantum Field Theory for scalar fields
- Identified BTZ Blackhole background as a quotient space of covering space of Anti-DeSitter spacetime and used method of images to relate the Green's function for the two spacetimes as done by S. Carlip

EXTRA-CURRICULARS

Attended GROWTH Winter School to learn astronomical data-analysis techniques, Dec. 2018

Conceptualized and edited video that won 3rd place in Freshiezza Music Video Competition amongst undergraduate freshers, Aug. 2016

Completed one year of training in Volleyball by National Sports Organization, 2016-2017

Part of School Cricket Team that won Under-14 Giles Shield, Plate Division, Mumbai, 2014