

# ANUVA S. AGARWAL

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## EXPERIENCE

### Data Science Graduate Research Assistant, Duke University

Jan 2022 - May 2023

- Used **Python** and **scikit-learn** to predict employee retention using **Random Forest**, **LightGBM** and **XGBoost** algorithms. Computed feature importance scores that were used to determine actions that reduced attrition from 20% to 8%
- Analyzed **causal impact** of labeling organic products on sales revenue for grocery chain; used **A/B testing**; worked with large longitudinal dataset
- Estimated Price Elasticity of Gold in India to understand effect of national income on gold imports with data from RBI using **time series data**. Used **feature engineering** to mitigate issues such as heteroskedasticity
- Collaborated with engineering and finance teams to develop a **trading algorithm** using **Hidden Markov Model based regime switching trading and pairs trading strategies** to reduce drawdowns from 20% to 5%
- Utilized **prompt engineering** techniques for generative AI models in various projects, shaping model responses to meet project objectives and improve outcomes
- Modeled a behavioral study to estimate feature importance for factors affecting monetary decisions in the Economics of Plea Bargaining

### Data Scientist, Vision India Foundation

Aug 2016 - Jul 2021

- Managed and led a **\$1.2 million project roadmap studying the impact of policy training programs** among youth in India with interventions involving email campaigns, classroom training, and travel programs to inform policy decisions in various ministries for the Government of India
- Analyzed **Google Analytics data on website user traffic** and used **pre-post analysis** to optimize marketing campaigns which drove 40% growth YoY growth in customer acquisition
- Drove** organizational **strategy** and operations; **delivered** a highly **customer-centric market and competitor analysis** via interviews to capture voice of customer and pain points for **product lifecycle, pricing, and monetization**; **led teams of 6+** people
- Optimized data flow** between operations and finance teams, to set up an integrated process pipeline
- Used Data Visualization tools for communicating information to investors to seek funding of approx. **USD quarter million**

### Data Scientist, Indian Statistical Institute

May 2014 - Jan 2015

- Conducted a behavioral study (field experiment) to assess the effect of priming on the tariff structure in the Autorickshaw (three-wheeled taxicab) market in Delhi, India, while controlling for confounders such as weather, distance, paying capacity
- Led a team of ~60 RAs; delegated responsibilities and jointly conducted thousands of interviews for this causal study

## SKILLS AND CERTIFICATIONS

- Programming:** Python, SQL, R, Power BI, Tableau, Microsoft Excel, LaTeX
- Machine Learning:** Tree-based models, Bagging and boosting, Random Forest, A/B testing, Predictive Modeling, Clustering, Optimization
- Miscellaneous:** Causal Inference, Experimentation, Statistics, Applied Econometrics, Instrumental Variables, Exploratory Data Analysis
- Certifications:** Applied Data Science (Massachusetts Institute of Technology & Great Learning), and BMC (Bloomberg, ongoing)

## RESEARCH AND PROJECTS

### Research

The First-Generation Conundrum: A Model of Wage Outcomes as determined by Information Endowment (S. Agarwal, A [2023]; Working Paper)

- Computing Research Association CRA-WP IDEALS conference; Honolulu, Hawaii
- GRADx @Duke; a TEDx-style talk for academic research at Duke
- Duke Computer Science Graduate Student Retreat Symposium.

### Projects

- Massachusetts Institute of Technology J-PAL** and MITx - **1 of 7 TAs chosen** from 2366 active learners - Facilitated learner experience for data science projects, reported issues to senior team, acknowledged for excellence by Nobel Laureates
- Built **predictive model** for IMDb movie ratings on a **cross-sectional dataset** of **10.6 million** movie titles, improving MSE by 12%

## EDUCATION

- Duke University**, M.Sc. in Computer Science and Economics  
Awards: Co-president for Duke's Student Council; leading ~230 strong graduate student body  
Aug 2021 - May 2023
- Massachusetts Institute of Technology & J-PAL**, MITx MicroMasters - Data, Economics, and Development Policy (via Edx)  
Jun 2020 - Sep 2023
- Shiv Nadar University**, Master of Science in Economics; Valedictorian  
Jul 2014 - May 2016