AMRITA BHATTACHARYA

Dublin, CA 94568 | Ph: (314)-728-2046 | Email: amrita@siu.edu

PROFILE

Experienced professional in conducting quantitative research, data mining, data visualization, statistical analysis, hypothesis testing and predictive modeling. Proficient in research of current processes and emerging technologies which need analytic models, data inputs and output and analytic metrics. Equipped with years of experience in dealing with high-dimensional data and cleaning and analyzing large-scale data using different statistical software packages. Performed research and analysis utilizing different analytical applications to identify trends and relationships between different pieces of data and draw appropriate conclusions that drive value.

Authorized to work for any US employer. (No sponsorship required)

EDUCATION

Data Science Career Track, Certification 2021-Present
Springboard, USA

Doctor of Philosophy (Ph.D.), Economics 2014-2018
Southern Illinois University Carbondale, IL, USA **(GPA 3.80/4.0)**
Specialization: Econometrics and Quantitative Economics

M.A., Economics 2014- 2015
Southern Illinois University, Carbondale, IL, USA **(GPA 3.71/4.0)**

M.A., Economics *(with first class)* 2012-2014
Jadavpur University, Kolkata, India **(GPA 4.0/4.0)**

B.A, Economics *(with first class)* 2009- 2012
Jadavpur University, Kolkata, India **(GPA 4.0/4.0)**

TECHNICAL SKILLS

Python, SQL, Minitab, R, STATA, SPSS, EViews, Z-tree, Latex, Microsoft Office, Supervised Learning, Unsupervised Learning, Data Wrangling/Data Mining, Data Visualization, Data Storytelling, Statistical Modeling, Machine Learning, Dimensionality Reduction, Cross-Validation, Imbalanced Data methods, Hypothesis Testing, Quantitative Analytics, Pandas, NumPy, SciPy, Scikit-learn, Matplotlib, Keras, TensorFlow, Survival Analysis, Time Series Forecasting, Logistic Regression, Linear Regression, GLM, Instrumental Variables, GMM, Random Forests, KNN, XGBoost, CatBoost, Gradient Boost, Decision Tree, PCA, Clustering, Natural Language Processing (NLP), ANOVA.

AWARDS/HONORS

- Thomas and Chany Chung Endowed Scholarship, *Department. of Economics, SIUC, USA*
- Graduate Assistantship, *Department. of Economics, SIUC, USA*
- Post-Graduate Indira Gandhi Scholarship, *Jadavpur University, Kolkata, India.*
- Certificate of Merit, *Dr. B.C Roy Memorial Committee, West Bengal, India.*

PROJECTS/PUBLICATIONS

Customer Satisfaction for Airlines; *Springboard*

- Customer satisfaction is always at the top of mind for the aviation industry as unhappy customers mean fewer passengers and lesser revenue.
- The objective of this project is to predict whether a future customer would be satisfied with the Airlines service given the details of the other parameters' values.
- Performed data cleaning, data visualization to understand relationship between variables, data preprocessing to prepare the data for modelling and implementing Machine Learning models for prediction using Python.

Identifying disaster tweets using Natural Language Processing (NLP) methods; *Springboard*

- The task of this project is to predict efficiently if the nature of a tweet indicates disaster or not.
- Performed extensive data wrangling using different statistical methods, exploratory data analysis and text preprocessing using different Python libraries namely, TensorFlow, Keras, Scikit-Learn, NumPy, Pandas, Matplotlib, NLTK.
- Employed different supervised models to build a classifier to detect if a tweet has disaster topics in it.

Technological Innovation in Tobacco Industry in the United States: A Translog Cost Function Framework; *American Journal of Economics, Vol. 8 No. 3, 2018, pp. 123-137*

- Used a data-driven approach to analyze the effect of technological change on the tobacco industry in United States.
- The analysis was carried out in a translog cost-function framework using 45 years of data extracted from Harvard Data verse.
- Modelled research objective and performed the research analysis employing seemingly unrelated regression (SUR) technique and using STATA, Python and Advanced Excel.

Financial Crisis and Trade in Developing Countries; *International Journal of Social Science and Economic Research, Volume 2 Issue 12, Pages 5648-5662*

- Analyzed 52 years of data to understand how the global financial crisis determined the causation from trade to different sectoral shares.
- Modelled research question and performed hypothesis testing using data extracted from World Bank.
- Utilized statistical tools such as R, Minitab and STATA to analyze the data and ran fixed effects panel regression on the model.

Role of Institutional Credit in Indian Agricultural Production: A Detailed Time Series Analysis; *International Journal of Social Science and Economic Research, Volume 2 Issue 12, Pages 5663-5712*

- Employed time-series analysis to analyze how effective allocation of institutional credit can influence agricultural production of India.
- Employed ARIMA modelling. Checked for Stationarity and Co-integration in the analysis.
- Modelled research question and conducted the analysis primarily using SPSS, EViews and STATA.

Product Quality & Export Entry and Exit: Evidence from Indian Product Level Data *(current working paper)*

- Performed survival analysis (discrete time) to understand the effect of product quality on the probability of India's entry and exit from the global market, using random effect probit models.
- Developed analytic framework and used highly disintegrated product-level export data from UN-COMTRADE database.
- Conducted extensive data analysis and estimated the research question using R, Python and STATA.

Relationship between Export Quantity & Product Quality *(current working paper)*

- Performed regression analysis using GMM estimator including importer-time fixed effects to examine whether product quality influence the quantity of Indian exports in the global market.
- Checked for endogeneity issues while performing the regression analysis.
- Used a data-driven approach to model and analyze the research objective using statistical tools namely, R & STATA.

Export Quality Dynamics: Quality Growth and Quality Convergence *(current working paper)*

- Employed panel regression (fixed effects) and OLS methodology to estimate the effect of quality upgrading by the developing countries in the international export market.
- Constructed and developed a new dataset of quality estimates to perform the analysis. Employed Poisson Pseudo-Maximum Likelihood (PPML) methodology to control for heteroscedasticity and deal with multiple zero observations in the data set.
- Conducted both data and research analysis primarily using STATA and Python.

A gender-based analysis of the US workforce: Qualitative response regression models *(current working paper)*

- Performed in-depth analysis of the US workforce using qualitative response regression models.
- Analyzed how different independent variables affect the likelihood of female participation in labor force in the US.
- Conducted extensive data analysis and estimated the research question using R, Excel and STATA.

PROFESSIONAL EXPERIENCE

Data Science Fellow, Springboard, Remote, USA **September 2021 - Present**

- 550+ hours of hands-on curriculum with 1:1 industry expert mentor oversight and working towards completion of in-depth research projects focused on building statistical models and predictive models using programming languages.
- Master skills in Python, SQL, GitHub and Machine Learning.

Data Scientist, Zeta Global, Remote, USA (contract) **February 2022 – June 2022**

- Worked independently and collaboratively throughout the project lifecycle including data preparation, feature engineering, machine learning model implementation and documentation of the results.
- Worked with large scale customer data to identify KPI's and predict if a customer will be willing to purchase a particular product, given three different products a client has to offer.
- Worked with cloud data platform namely Snowflake and different Python libraries namely, TensorFlow, NumPy, Pandas, Matplotlib, Scikit-Learn etc. to perform the analyses.
- Applied various machine learning algorithms like logistic regression, KNN to build robust models with highest accuracy and communicated the results with internal stakeholders.

Visiting Assistant Professor of Economics, Earlham College, USA **July 2019 - August 2020**

- Responsible for mentoring and supervising students' quantitative research projects, developing and instructing courses.
- Teach and train students on data analysis and how to interpret statistical findings in a meaningful way.
- Taught different technical courses namely, Applied Econometrics *(project-based*, using R and STATA*)*, Econometrics, Statistics, Mathematical Foundations for Economics, Intermediate Macroeconomics and Intermediate Microeconomics.

Assistant Professor, State University of New York, USA **January 2019 - June 2019**

- Responsible for conducting research, advising students and developing courses.
- Collaborated with faculty in administrative tasks and curriculum development to increase student retention.

Assistant Professor of Economics, Lebanon Valley College, USA **July 2018 - December 2018**

- Responsible for instructing courses in Money and Banking and Principles of Economics.
- Worked with undergraduate students in helping them develop and design research reports.
- Collaborated with faculty in curriculum development and actively participated in faculty meetings.

Graduate Assistant and Instructor, Southern Illinois University Carbondale, USA **August 2014- June 2018**

- Responsible for assisting faculty with both research and teaching.
- Responsible for teaching different courses as an independent instructor.
- Mentored both graduate and undergraduate students and taught courses in Economics and Advanced Econometrics.

Summer Analyst, State Bank of India (SBI), Kolkata, India **May 2013 - August 2013**

- Worked on a project which analyzed the visibility for Premier Banking services among the existing HNI customers of SBI.
- Collected primary data through survey of customers across three branches in Kolkata.
- Analyzed the data using Advanced Excel and STATA and provided recommendations based on the results obtained.

Analyst, Sangam Processing Pvt Ltd., Kolkata, India **September 2012 - July 2014**

- Investigated business problems and build analytic systems to create value from data using advanced statistical techniques to deepen insights and achieve optimal solution architecture, efficiency and scalability.

- Supported management planning and decision-making team on sales incentives and production by developing predictive models, reporting and sensitivity analysis by customer segment.
- Pro-actively analyzed data to uncover insights that increase business value and impact.

OTHER EXPERIENCES

- Session Chair, Midwest Economics Association, 2018.
- I Create Foundation, Entrepreneurship Program (Workshop), Kolkata; 2011.
- Reviewer, Principles of Macroeconomics, Krueger/Shea/Wu.
- Reviewer, Principles of Economics, Stevenson/Wolfers.

CONFERENCES/PRESENTATIONS

- Crime rates during the pandemic, *Workshop, Committee of Law and Justice, 2022.*
- Future of Connectivity, *Webinar, IoT Marketing, 2022*
- Relationship between Product Quality and Export Quantity: Evidence from Indian Product Level Data; *Southern Economic Association, 2018.*
- Product Quality and Export Entry & Exit: Evidence from Indian Product level data, *Midwest Economics Association, 2018.*
- Product Quality and Export Entry & Exit: Evidence from Indian Product level data, *Southern Illinois University Carbondale, 2018.*
- Role of Institutional Credit in Indian Agricultural Production: A Detailed Time Series Analysis, *Jadavpur University, Kolkata, 2014.*