AYUSHMAAN DEV VERMA

+44(0)7778892320, +919967006285 ◇ ayushdv123@gmail.com ◇ LinkedIn Profile ◇ Personal Webpage

EDUCATION AND SCHOLASTIC ACHIEVEMENTS

Master of Science in Mathematical Economics and Econometrics, **The University of Edinburgh**
Relevant Coursework: Microeconomics, Macroeconomics, Econometrics, Applied Mathematics, and Programming
Dissertation: Equilibria in a Signalling Model with Multi-dimensional Abilities
Coursework Grade: Distinction *August 2022 - August 2023*
Dissertation Grade: Distinction

Bachelor of Science in Mathematics, **Indian Institute of Technology (IIT) Bombay**
Relevant Coursework: Mathematics, Statistics, Computer Science, Machine Learning and Data Science
GPA: 7.57 *July 2018 - July 2022*

KVPY Scholarship

- Awarded in January 2018 by the Indian Institute of Science (IISc), Bangalore and the Government of India
- Received a Merit Scholarship for pursuing undergraduate studies in the Natural Sciences and Mathematics due to successful selection in a pan-India competitive examination and a round of rigorous interviews

PROFESSIONAL EXPERIENCE

Analyst, Commercial Excellence (Tools Used: Python, R, SQL, PowerBI) *January 2024 - July 2024*
Axtria - Ingenious Insights *India*

- Developed and delivered data driven insights and analysis for pharmaceutical companies, streamlining processes along the product promotion and marketing pipeline using in-house product solutions
- Independently developed first of its kind Promotional Response Modelling python code for assignment of sales teams to medical practitioners for optimal product marketing
- Analysed multi-dimensional data to derive insights and actionable solutions using Python, R, SQL, and Excel
- Collaborated with the data engineering and development teams to help build and run dashboards

Intern, Business Intelligence Unit (Tools Used: Python, R, SQL, PowerBI) *January 2022 - April 2022*
Piramal Capital and Housing Finance *India*

- Used the Shapley Value analysis technique to determine importance of various features and characteristics in determining the expected credit score and probability of default over a period of time of a loan claimant
- Analysed large, multi-dimensional data to derive insights and actionable solutions using Python and SQL
- Combined numerical, categorical and textual data from multiple sources to build a comprehensive dataset for model building, validation and result-analysis to help identify, visualise and optimise key metrics
- Collaborated with data engineers and data scientists to help build dashboards and easy to use prototypes
  Earned Offer of Full-Time role as a Data Scientist in the Business Intelligence Unit

DISSERTATIONS (THESIS PROJECTS)

MSc Mathematical Economics and Econometrics Dissertation *May - August 2023*
Equilibria in a Signalling Model with Multi-dimensional Abilities

- Formulated a signalling model where agents have two-dimensional heterogeneous abilities. Explored how changing stakes and firm preferences affect the equilibria, and how much information is revealed to the firm
- Equilibria in the model include separating, pooling, and partial-pooling equilibria. The results show that lowering the stakes can guarantee the existence of separating equilibrium, and that firm preferences affect the equilibria when the stakes or manipulation ability of behavioural skills (or interpersonal skills) increase

BS Mathematics Dissertation *January - June 2022*
A Refined Fixed-Effects Estimator to Detect Fraudulent Action

- Developed a statistical classification algorithm to detect fraudulent action, specifically in the context of doping among sprinters, using fixed effects regression analysis, modified hampel filters and data exploration
- Utilized a refined fixed-effects estimator to classify sprinters as clean or potentially doping based on their performance, accounting for individual variation by controlling for other factors that influence performance
- Demonstrated 100% accuracy on a realistic simulated database in detecting potential doping behavior among sprinters, correctly classifying sprinters and identifying key factors associated with potential doping behavior

ACADEMIC PROJECTS

MSc Degree Econometrics Project *December 2022 - January 2023*

- Worked in a team of three, used the cutting-edge statistical and machine learning techniques to analyse the gender-wage gap between men and women in the workplace over the past few decades in the UK
- Used large cross-sectional datasets of approximately 11,000 individuals for every year, for ten years, to gain new insights by comparing the usual decomposition methods with the LASSO machine learning techniques
- Accounted for seasonal and business cycle trends in the data over the years to accurately compare and contrast results from 2011 to 2021 using STATA and R for the programming, visualisation and analysis

Cryptocurrency Analysis and Forecasting Machine Learning Project (Project Link) *May - July 2021*

- Worked in a team of two to build a cloud-based API used for cryptocurrency analysis and forecasting
- Acquired real-time data from Yahoo Finance of the prices so that user can perform relevant analysis
- Developed an ML model for time-series analysis of the price movements, using Autoregressive Integrated Moving Averages (ARIMA) modelling, using the model to forecast the prices in the future
- Deployed the model on the web, by creating an interactive dashboard using the Shiny package in R

Bank Note Authentication Project (GitHub Repository Link) *January - May 2021*

- Built an ML model to predict the authenticity of banknotes, making a front-end to boost ease-of-use
- Utilised hyperparameter tuning and model selection and evaluation techniques to build a model with 99.7% accuracy and used the NumPy, pandas, matplotlib, flask, swagger, flassger and pickle libraries
- Deployed the model using the online Heroku cloud-based platform on the web, improving ease of use

Stock Market Analysis and Trading Data Science Project (Project Link) *May - June 2020*

- Captured real-time data from Yahoo Finance of the stocks so that user can perform relevant analysis
- Used technical indicators such as Bollinger Bands, Exponential Moving Averages, Relative Strength Index and MACD, and plotted the Daily and Cumulative returns and the Drawdowns for major stocks
- Plotted the returns of the common trading strategies for some stocks over a user-defined time-period
- Developed a cloud-based interactive dashboard by using the Shiny package in R and deployed it online

TECHNICAL SKILLS

Programming Languages	Python, R Programming, STATA, SQL, MATLAB, C/C++
Software	Anaconda (Python and R), R Studio (R), Microsoft Office, PowerBI

KEY COURSES UNDERTAKEN

Mathematics: Functional Analysis, Partial Differential Equations, Basic Number Theory, General Topology, Measure Theory, Ordinary Differential Equations, Graph Theory, Introduction to Numerical Analysis, Multivariable Calculus, Complex Analysis, Linear Algebra, Real Analysis, Combinatorics, Probability Theory and Calculus

Statistics: Optimisation, Introduction to Derivative Pricing, and Probability and Stochastic Processes

Computer Science, Data Analysis and Machine Learning: Statistical Machine Learning and Data Mining, Introduction to Machine Learning, Data Analysis and Interpretation, and Computer Programming

Economics and Econometrics: Construction Economics and Finance, Game Theory and Economic Analysis, Industrial Economics, Managerial Economics, Microeconomics, Macroeconomics, Econometrics, Time-Series Econometrics, Analytical Techniques in Macroeconomics, Labour Economics

EXTRA-CURRICULARS

National Social Service (Sustainable Social Development Cell)

- Completed 80+ hours of volunteering related to sustainable development over the course of two semesters
- Explained critical concepts of sustainability and environmental awareness to underprivileged students of varying ages at municipality schools in the region of Mumbai in a hands-on and practical manner

Qualified for the pan-India Boeing Aeromodelling Competition held by Techfest, IIT Bombay in collaboration with Boeing, after qualifiying in the Top 10 among 80 entries from IIT Bombay in the first round of the competition

Selected for a three-day photography workshop held by Shirish R. Karrale Mumbai School of Photography in collaboration with the Ministry of Culture, Government of India, held in 2019 in the city of Jaipur, India

Member of the Inter-IIT Cultural Meet 4.0 Quizzing Contingent, representing IIT Bombay