Aryan Sultan Khan

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Recent Master of Business Analytics graduate with a bachelor's in Economics, highly proficient in statistics, quantitative methods, and predictive analytics, I possess advanced programming knowledge and a proven ability to work with complex data, develop statistical models for forecasting and optimisation, and present data-driven insights to senior stakeholders. Additionally, I host a podcast focused on forecasting science and its application in industry and academia at Forecasting Impact – International Institute of Forecasters.

Technical Skills

- **Programming Languages:** R, MATLAB, Python, and Power BI
- **Data Analysis tools:** MS Excel
- **Quantitative Techniques:** Time series analysis, Statistical modelling, Machine Learning, Predictive analytics, Data cleaning and processing, Data visualisation
- **Soft skills:** Communication, Collaboration, Team building, Organising and strategising, Adaptability, Time management

EDUCATION

Monash University **Melbourne, VIC**
Master of Business Analytics February 2021 - December 2023

University of London (Worldwide)
BS in Economics and Management August 2015 - May 2018

Industry Placement Experience

Hudson Institute of Medical Research **Melbourne, VIC**

Forecast Analyst Intern March 2023 – June 2023

- Developed a discrete event simulation model to optimise bed allocation and utilisation in the stroke unit. The model showed that increasing beds from 7 to 11 for an annual patient load of 350 reduced percent of patients waiting to admitted into the stroke unit to under 5%.
- Evaluated bed capacities ranging from 5 to 50 for annual patient loads between 350 and 2,500, assessing their impact on patient wait times, wait percentages, and bed utilisation.
- The analysis demonstrated that optimising bed allocation reduced patient wait times for stroke unit admission to under three hours.
- Engineered an interactive Shiny web application to visualise the effects of patient load and bed capacity on stroke ward efficiency enabling stakeholders to make informed decisions quickly.
- Collaborated closely with medical professionals to validate the simulation model, ensuring alignment with clinical realities.
- Presented project findings to senior stakeholders, effectively communicating key insights on patient outcomes.

Work Experience

Merged Areas Governance Project **Remote work**

Research Assistant to Dr. Samina Afridi November 2022 – February 2023

- Collaborated remotely with Dr. Samina Afridi, a UNDP-affiliated consultant, on the Merged Areas Governance Project.
- Collected and sourced extensive socio-economic data from various government and international databases for the Merged Areas Governance Program.
- Conducted comprehensive data cleaning and preliminary analysis using R, ensuring data accuracy and reliability.

- Utilised advanced R to analyse and visualise key metrics, including population demographics, employment rates, literacy levels, and educational institution distribution.
- Identified and reported key regional economic trends, with a focus on women's and youth employment sectors.
- Maintained a proactive and strategic partnership with Dr. Samina Afridi, ensuring that all research and analysis were meticulously aligned with the goals of the Merged Areas Governance Project.

Project Experience

Retail Forecasting Project April 2022 - May 2022

- Led the development of data-driven economic forecasts for the monthly turnover of the pharmaceutical, cosmetic, and toiletry goods industry in New South Wales (NSW), employing advanced statistical techniques in R. *(Project available here)*
- Conducted a thorough preliminary analysis of the dataset, uncovering underlying trends, seasonality, and cyclic patterns, which were critical for the development of accurate forecast models.
- Expertly applied Exponential Smoothing State Space Models (ETS) and Auto-Regressive Integrated Moving Average (ARIMA) models to generate forecasts, achieving an optimal balance between model complexity and predictive accuracy.
- Performed rigorous back-testing, evaluating the performance of ETS and ARIMA models on training data and comparing it against out-of-sample test data to ensure the robustness and reliability of the forecasts.
- Implemented a systematic model selection process, incorporating both accuracy metrics and business considerations, to identify and recommend the most suitable forecasting model, significantly enhancing the predictive accuracy and value of the forecasting exercise.