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Shaheen Ahmed-Chowdhury

Education

Sep '18 - Apr '21 **MSc Mathematical Sciences**, *Utrecht Univerity*, The Netherlands

Sep '13 - Jun '17 **MPhys Theoretical Physics**, *Durham University*, United Kingdom

Professional Experience

Jan '19 - Now **ERIKS Digital - Data Scientist**

Promoted from Visualisation Specialist to Junior Data Scientist in 2019, and to Data Scientist in 2021.
Created custom Power BI dashboards for marketing team, importing data from SQL.
Conducted analyses for marketing and analytics teams in Jupyter Notebook, via Python (Pandas, Numpy, Matplotlib). Can be found at GitHub link above.
Led research project with external business unit, to improve intermittent demand forecasting (see below).
Currently converting measurably improved forecasts to business value, via safety stock calculations.
Also working with an external data science consultancy, on a project to prioritise incoming sales leads. Tasked with stakeholder communication, feature engineering, model development and deployment.

Jul '19 - Aug '19 **Oxford University - Institute for New Economic Thinking - Research Assistant**

Gathered, processed and visualised data on technological performance, as well as processing patent datasets.
Researched performance metrics of 'buzz-techs' such as quantum computing, ML/AI, blockchain and factory automation/industrial robots.
Performed literature reviews in each field, to find existing performance metrics in the innovation studies literature, and hypothesise my own.

Jul '17 - Jul '18 **EuroABS - Software Engineer**

Created entire full-stack system (ASP.Net, C#, SQL) to log file collections and create alerts of new tasks for data collection team, replacing previous spreadsheet methods. Updated as required with user-requested features.
Redesigned and maintained website via CSS, JavaScript and JQuery.
Designed and implemented entire SQL schema from scratch.

Research Projects

Mar '20 - Apr '21 **MSc Thesis - High-Dimensional Bayesian Optimisation of ABM Calibration Experiments**

Re-implemented leading academic methods for agent-based model (ABM) calibration upon a large-scale, expensive and high-dimensional macroeconomic ABM, which is actively being used for economic research.
Created a novel ABM calibration scheme, and embedded it within a high-dimensional Bayesian optimisation algorithm. Tested performance of frequentist and Bayesian calibration schemes under such sample-efficient algorithms. Showed consistently improved optimisation over random search.

Jun '20 - Feb '21 **ERIKS Digital - Improving Intermittent Demand Prediction**

Discovered issues in existing demand pattern classification methods, and proposed alternatives to business.
Liased with separate business unit, to extract data from existing software and benchmark its prediction performance, with carefully selected loss function.
Compared to benchmark academic methods, and implemented literature from Amazon (DeepAR) to improve demand prediction for over 800,000 products in inventory.

Sep '16 - Mar '17 **MPhys Thesis - The Use of the Ehrenfest and Polya Urn Schemes in an ABM of Financial Markets**

Analysed statistics of GDP/stock price fluctuations across varying timescales, fitting different stochastic models from statistical physics to data, and producing robust statistical conclusions.
Built an ABM of financial markets, which simulated traders' decisions to buy and sell, based on interactions between global and local trader opinions.
Attempted to endogenously replicate leptokurtic nature of stock price returns from micro-interactions of agents.

Skills (years)

Programming	Python (8), Numpy/Scipy/Matplotlib (8), LaTeX (7), SQL (4), Pandas (4), C# (1), PyTorch (0.5), C++ (0.25)
Tools	GitHub (2), Power BI (2), AWS EC2 (0.25)
Specialisations	Agent-based modelling (3), Bayesian optimisation (1), model calibration/sensitivity analysis (1)