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Shaheen Ahmed-Chowdhury

Education

Sep '18 - Apr '21

MSc Mathematical Sciences, *Utrecht University*, The Netherlands

Sep '13 - Jun '17

MPhys Theoretical Physics, *Durham University*, United Kingdom

Professional Experience

Jan '22 - Now

Choreograph (WPP) - Data Scientist

Leading project on implementing contextual multi-armed bandits for dynamic advert generation platform.

Build, maintain and extend agent-based models (mostly in Numpy) via Git CLI.

Part of WPP-wide hackathon-winning team. Created product to model path distribution of event attendees from transport hub to event. Now an active product in pitches.

Jan '19 - Dec '21

ERIKS Digital - Visualisation Specialist → **Junior Data Scientist** → **Data Scientist**

Led research project to estimate stock levels via intermittent demand forecasting (see below).

Seconded to an external data science consultancy, on a project to prioritise incoming sales leads. Tasked with stakeholder communication, feature engineering, model development and deployment.

Conducted multiple business analyses via Python (Jupyter, Pandas, Numpy, Matplotlib). See GitHub link above.

Jul '19 - Aug '19

Oxford University - Institute for New Economic Thinking - Research Assistant

Sourced, processed and visualised open-source data on technological performance.

Estimated title quality via NLP methods in open-source patent datasets.

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 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. Demonstrated 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.

Liaised with separate business unit, to extract forecasts 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 (9), Numpy/Scipy/Matplotlib (9), L^AT_EX (7), SQL (4), Pandas (6), C# (1), PyTorch (0.5), C++ (0.25)

Tools Git (4), Power BI (2), AWS EC2 (0.25)

Specialisations Agent-based modelling (5), Bayesian optimisation (2), model calibration/sensitivity analysis (3)