ZELLA BAIG

zellbaig@gmail.com · 07860 208 585 · zellaa.github.io · linkedin.com/in/zella-baig

Education

University of Oxford, Mansfield College - MSc Mathematical Modelling & Scientific Computing *2023*

University of Oxford, St. Hilda's College - BA Physics (2.i) *2019 - 2022*

d'Overbroeck's Sixth Form *2016 - 2018*
- 5 A Levels: Maths - A*, Further Maths - A*, Economics - A*, Physics - A*, French - B

Oulder Hill Community School *2016*
- 11 GCSEs A*-A including English, Maths, and Science

Skills

Databases
- Worked with both graphical (neo4j) and traditional databases, using tools such as Cypher Query Language, Tableau, shellscript, awk, and sed

Data Modelling & Analysis
- Python and MATLAB based numerical modelling (e.g. via RK4, Metropolis-Hastings)
- Data analysis utilising Pandas, SciPy, and Jupyter in both experimental and non-experimental contexts
- Analysis and implementation of optimisation methods for numerical methods and ML algorithms e.g. AdaLoss
- Machine learning and data cleaning using the Scikit-learn and XGBoost libraries to predict trade settlements
- Basic natural language processing (e.g. text sanitisation and topic modelling) using NLTK

Computing & Development
- Java in the context of creating JUnit tests (built with Maven) for FX trade spot and tenor behaviour, utilising the Mockito framework to supplement existing in-house infrastructure
- Jira and Confluence for team organisation
- Cucumber testing to deliver features via a BDD framework
- AWS Cloud Development Kit
- Version control with Git, Bitbucket
- Unix based operating systems (Linux, OpenBSD, Plan 9)

Experience

London Stock Exchange Group (Technology Intern with ForexClear, and RepoClear) *Jun 2022 - Aug 2022*
- Incorporated edge-case detection for trade rollovers on holidays
- Tested trade settlement behaviour within larger Java applications using both JUnit and Cucumber tests
- Utilised a BDD testing framework to incorporate these trade settlement tests
- Aided the development of a SAD alongside the DevOps team as part of a migration to cloud within LCH
- Constructed a GUI using macros and VBA within Excel to automate data input to internal databases
- Aided the production of a machine learning model to predict trade failure utilising the XGBoost library
- Tuned the model hyperparameters using bayesian optimisation
- Supported the initial migration to AWS CloudFormation, debugging and deploying the initial stacks
- Liased amongst departments and supported a pitch to initialise BDD testing amongst RepoClear development teams

Ditchley Foundation (Network Analysis Intern) *Jul 2021 - Aug 2021*
- Queried and analysed a neo4j graph database ($\sim$ 110K nodes) using Cypher Query Language alongside Python
- Drew out trends and within the database of people and presented them visually alongside my team
- Began topic modelling using on call notes within the database using the Gensim and NLTK libraries
- Conducted research into themes and roles of key figures for potential Ditchley Conferences

OxFizz (Widening Participation Intern) *Aug 2020*
- Created a month long research report on barriers for disadvantaged Oxbridge applicants with 2 other interns
- Conducted research through provider interviews and student questionnaires distributed to $\sim$ 500 students
- Investigated existing access provisioning and identified lacks therein, presenting these gaps graphically
- Provided recomendations for future access support programmes, bearing in mind resource constraints
- Outlined and began development of a long-term student roadmap resource for Oxbridge applications

Citizens Advice (Campaigns and Research Intern) *Apr 2020*
- Decomposed regional client profile trends ($\sim$ 6,000 entries) using spreadsheet software and Python
- Identified at-risk client demographics over a 6 month dataset
- Analysed the impact of COVID-19 on service usage
- Presented reports based on research to be used in targeting specific demographics of userbase