

# Jack Greenaway

England | <https://www.linkedin.com/in/jack-greenaway/> | [jack\\_greenaway@outlook.com](mailto:jack_greenaway@outlook.com) | +44 7599 914366

As a highly skilled and knowledgeable aspiring FinTech professional, I possess expertise in machine learning, blockchain, financial engineering, and financial markets. I enjoy a unique blend of skills that can bring a fresh view of the finance industry. My aptitude for programming enables me to develop end-to-end solutions for complex problems. With my education in Financial Technology, I can analyse financial derivatives, develop models, and ultimately cojoin technology and finance. Throughout my experiences, I have demonstrated collaboration and critical thinking, making me an asset to any team.

## EDUCATION

**University of Gloucestershire**, Gloucester, UK

**September 2022 – June 2023**

**Financial Technology MSc** | Distinction

Relevant modules: Artificial Intelligence, Blockchain and Applications, Financial Engineering, Foundations of Financial Technology, Financial Markets and Regulations

Final Project: *An Application of Machine Learning in the Classification of Credit Risk Applicants and its Comparison to Traditional Classification Methods*

**University of Gloucestershire**, Gloucester, UK

**September 2019 - June 2022**

**Sports Strength and Conditioning BSc (Hons)** | 1<sup>st</sup> Class Honours

Relevant modules: Research Design & Analysis, Scientific Enquiry, Monitoring & Data use in Sport

## PROJECTS

### Artificial Neural Network for Credit Applicant Classification

[Repository](#)

- Developed a machine learning neural network to predict credit default risk with a 92.1% accuracy and a 1.35% false positive rate, which is significantly better than traditional models.
- Preprocessed data by removing NaNs, encoding categorical string features, and balancing the dataset before scaling the data to improve model training performance.
- Implemented a hyperparameter-tuned TensorFlow neural network alongside a Sci-kit learn Logistic Regression and Linear Discriminant Analysis model for comparison.
- Evaluated the models' performance using accuracy, precision, recall, AUC-score, and false positive rates.
- Deployed the model using FastAPI with MLFlow to track model versions and check feature drift.
- Utilised SHapley Additive exPlanations (SHAP) to interpret the results of the neural network to add explainability to the results.

### Unsupervised Auto Encoders for Credit Card Fraud

[Repository](#)

- Created an Auto Encoder model to detect anomalous credit card transactions to detect fraud with 97.6% accuracy.
- Preprocessed the data, by checking principal components for NaNs, before splitting the dataset into a train/test split.
- Implemented regularisation techniques for training and fitting to reduce the chances of overfitting.
- Evaluated the model using precision and ROC curve alongside visualising the results with a confusion matrix.

### Interactive Web Application of Financial Markets

[Repository](#)

- Generated a web application to display and forecast real time financial data.
- Created multiple frontend landing pages within the application allowing for the analysis of real-time price and volume data of publicly traded equities, bonds, and derivatives.

- Followed the software development lifecycle by designing, and producing a full-stack interactive web application to enable the easy real-time analysis of financial market data which included the ability to dynamically change time series plots.
- Utilised Prophet to generate an interactive stock price forecasting page.
- Included a web scraper that leveraged free APIs to collect the latest frequency of mentions of stocks on the website Reddit.com.

#### LSTM Model for the Forecasting of Stock Data

[Repository](#)

- Built a Long Short-Term Memory (LSTM) neural network with TensorFlow to forecast stock price data.
- Preprocessed the data by removing NaNs and scaling the dataset.
- Split the time series data into X and Y features to enable supervised learning.
- Designed a hyperparameter-tuned LSTM model that incorporated regularisation techniques to reduce the chances of overfitting.
- Trained the model using historical data and evaluated using mean absolute error and root mean squared error metrics.
- Developed an in-class method to enable the automatic calculation, storage, and presentation of predicted future data points empowering easy analysis of predicted future information.

#### WORK EXPERIENCE

University of Gloucestershire, Gloucester

December 2022 – Present

##### Post-Graduate Teaching Assistant

- Prepared and completed taught lessons for both undergraduate and post-graduate students covering Python, machine learning, and Microsoft Excel ultimately aiming to expand their understanding of Financial Technology.
- Created presentations that kept students engaged throughout lessons, with keen detail being paid to the quantity and quality of information being displayed per slide.
- Researched interactive tasks to enable students to understand how technology can enable better financial decision-making, alongside furthering their knowledge and application of Python and Excel.

**Skills Learnt:** Python, Machine Learning, Presentations, Public Speaking, Environment Setup, Excel

#### LEADERSHIP & ACTIVITY

University of Gloucestershire

September 2019 – June 2020, September 2022 – Present

Course Student Representative

University of Gloucestershire

September 2019 – Present

Men's Rugby Union

#### SKILLS & INTERESTS

**Languages:** Python, C#, SQL

**Packages:** Scikit-Learn, TensorFlow, Keras, Prophet, NumPy, Pandas, Matplotlib, Plotly, SQLAlchemy

**MLOps:** MLFlow, FastAPI

**Technical:** CI/CD, Git & [GitHub](#)

**Miscellaneous:** IBM SPSS, Research Design

**Interests:** Rugby, Golf, Formula 1, Personal Fitness