Charlie Atkinson

Market Harborough, Leicestershire

07504331346 charlie@charlesxatkinson.co.uk charlieatkinson.github.io

Personal Profile

Final-year Robotics and AI student at the University of Hull with a passion for Artificial Intelligence, Machine Learning, and Data Science. Skilled in Python, machine learning algorithms, computer vision, and NLP, with practical experience through projects and self-directed study. Seeking a graduate role in Data Science to further develop technical expertise.

Technical Skills

Programming: Skilled in Python and C# with experience in JavaScript, CSS, HTML and Arduino.

Machine Learning & Data Science: TensorFlow, Scikit-learn, NumPy, Pandas, NLTK, Matplotlib

Software & Tools: Jupyter Notebook, Arduino IDE, MATLAB, Simulink, Blender, Excel, Ubuntu, ROS2

Key Competencies: Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, Data Visualisation.

Professional Qualifications

University of Hull **Sept 2023 – Present**

BSc Robotics and Artificial Intelligence

- Achieved top grades in several modules, including Artificial Intelligence and Data Analysis & Visualisation, demonstrating strong AI, machine learning, and data analysis skills.
- Completed AI projects involving Python-based predictive models, *search algorithms (DFS, BFS, Dijkstra, A)**, and Q-learning for smart city logistics and reinforcement learning tasks.
- Conducted data analysis and predictive modelling using classification algorithms (Decision Trees, XGBoost, Ensemble methods), applied clustering (K-medoids), and performed model explainability with SHAP and LIME, including fairness evaluations.
- Developed .NET applications and Arduino-based robotics projects, including a food takeaway console app, RFID door locking system, and sensor-driven robot car.
- Collaborated in a team for the Professional Development module to design a robot solving a real-world problem, pitched the solution, and achieved a first class grade (**92%**) for the project.
- Graduating in June 2026

Relevant Work Experience

Virgin Media O2 **Summer 2024**

- Tasked with completing a data science interview project involving cleaning, analysing and processing a large dataset.
- Evaluated different machine learning models and decided on a Random Forest Classifier.
- Trained and tuned the model, evaluated performance using confusion matrices and F1 score, improving accuracy.
- Enhanced my skills in Jupyter Notebook, Scikit-learn, Matplotlib and Microsoft Excel.

Projects

- **Disaster Tweet Classification Using Deep Learning**
  - Built a text classification model in Python to identify disaster-related tweets using a Kaggle dataset with text, keywords, and location data.
  - Conducted NLP preprocessing (text cleaning, tokenisation) and used pre-trained GloVe embeddings for semantic understanding.
  - Designed a multi-input neural network with bidirectional LSTMs, embedding layers, dropout regularisation, and class weighting to handle imbalanced data.
  - Tuned decision thresholds and evaluated model performance using accuracy (81.9%), F1 score (0.787), and ROC AUC, demonstrating strong model generalisation.
- **Netflix Catalogue Trends Visualisation Using Amazon QuickSight**
  - Analysed and visualised Netflix's catalogue data using Amazon QuickSight to identify trends in content releases and genres.
  - Integrated data from AWS S3 and created interactive dashboards using filters, aggregations, and charts for insight discovery.
  - Gained practical experience in cloud-based business intelligence (BI), data analytics, and data visualisation workflows on AWS.
- **MNIST Digit Classification Using Machine Learning**
  - Developed a digit classification model in Python using the MNIST dataset.
  - Implemented and trained a neural network with TensorFlow and NumPy to recognise handwritten digits.
  - Applied computer vision techniques including image normalisation and reshaping for data preprocessing.
  - Successfully achieved a high model accuracy while gaining hands-on experience with supervised learning and deep learning fundamentals.

Extracurricular Activities and qualifications

- 2nd place, Computer, Electronics and Robotics residential week (University of Southampton, 2022), which was run by the Smallpeice Trust and sponsored by Thales. Teams of 4 had to work together to design, build and code a fully autonomous robot which would compete against other teams in a 'robot wars' style game.
- While at 6th form my friends and I entered the CyberCenturion cyber security competition. Teams had 6 hours to find vulnerabilities and security risks in 3 Linux virtual machines. I did this competition twice and really enjoyed competing while learning a lot about cyber security and Linux operating systems
- I entered Bebras, a problem-solving competition run by the University of Oxford and the Raspberry Pi Foundation and in 2021 came in the top 10% of students in the country in the Elite category which qualified me for the Oxford University Computing Challenge
- Currently studying Machine Learning and Data Science using Kaggle.com and have completed their "introduction to machine learning" and "Intro to Deep Learning" courses.
- Student Member of the British Computer Society
- HSK 1 and HSK 2 Mandarin Exams Passed

Other Education

Bishop Stopford School **September 2021 – June 2023**

Achieved a grade of B in A-Level Maths and C in Physics and Computer Science, along with an Extended Project Qualification (EPQ) titled "Should We Be Afraid of Artificial Intelligence?"

Robert Smyth Academy **September 2016 – June 2021**

Achieved 3 Grade 8s, 5 Grade 7s and a 6 in my GCSEs.