

Charlie Atkinson

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Personal Profile

I am a Robotics and AI student at the University of Hull, passionate about Artificial Intelligence and Machine Learning. I am eager to expand my expertise through both my degree and extra-curricular studies, as well as gaining practical work experience. My goal is to develop the technical skills, such as Python programming, machine learning algorithms, computer vision, natural language processing and hands-on knowledge required for a successful career in the AI industry.

Technical Skills

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

Libraries: TensorFlow, NumPy, Matplotlib, Scikit-learn, Pandas

Software: Jupyter Notebook, Arduino IDE, Blender, NLTK, MATLAB, Simulink, Excel, Ubuntu

Professional Qualifications

University of Hull

Sept 2023 – Present

BSc (Hons) Robotics and Artificial Intelligence

- Gained experience developing .NET applications and coded a food takeaway console application as my first-year project.
- Familiar with data structures including arrays, lists, stacks, queues, trees, and graphs, as well as the algorithms used for their traversal and manipulation.
- Worked as part of a team in my “Professional Development” module to design a robot that would solve a real-world problem.
- Developed an understanding of mathematics required for computer science such as matrices and quadratic functions.
- Gained experience with Arduino hardware and software as part of my “fundamentals of Robotics” module where I had to build a door locking system that used RFID cards and readers as well as a car robot that used sensors to navigate its environment.
- Graduating in June 2026

Relevant Work Experience

Virgin Media O2

Summer 2024

- Tasked with completing a data science interview project involving analysing and processing a large dataset.
- Cleaned and prepared data for training.
- Evaluated different machine learning models and decided on a Random Forest Classifier.
- Trained the model and used it to predict outcomes on a separate test dataset.
- Evaluated and improved the model using confusion matrices and the F1 score.
- Enhanced my skills in Jupyter Notebook, Scikit-learn, Matplotlib and Microsoft Excel.

Projects

- **MNIST Digit Classification Using Machine Learning**
 - I developed a digit classification program in Python that uses the MNIST dataset.
 - Used TensorFlow and NumPy to build and train a machine learning model capable of predicting the digit in new images it hasn't seen before. This project introduced me to the fundamentals of computer vision, including image preprocessing techniques such as normalisation and reshaping.
 - Despite initial challenges as it was my first experience with machine learning, I successfully trained an accurate model.
- **Procedural Image Generation with Wave Function Collapse**
 - Created a program written in JavaScript that uses the “Wave Function Collapse” algorithm to generate an image based on a set of rules.
 - Used several arrays to store data about what was being displayed to the user.
 - The program can be viewed on my website charlesxatkinson.co.uk with each refresh of the website generating a brand-new background image.
- **Portfolio Website Development: HTML, CSS, and JavaScript**
 - I used my skills to code and upload my own website which I plan on making the website my professional portfolio.
 - Currently working on a page to explain to the reader how the background image is generated as well as an interactive version of the digit classification program.

Extracurricular Activities and Honors

- My team came in second place at the Computer, Electronics and Robotics residential week at the University of Southampton in 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.