Max Talberg

Email | GitHub | Portfolio | London, UK

Profile

Data science MPhil and Physics BSc with 2 years experience as a data scientist, including a range of machine learning projects. Looking to work on challenging projects while learning from experienced data scientists as part of a welcoming community.

Languages: Python(pandas, NumPy, Scikit-learn, Matplotlib, TensorFlow), Git, Docker, C

Education

University of Cambridge, Queens' College | MPhil Data Intensive Science (Distinction) 2023 - 2024

- Modules: classical and Bayesian statistics, supervised & unsupervised machine learning, deep learning, high-performance computing.
- Thesis: *Re-examining the putative radial velocity detection of L98-59b utilising a Gaussian Process framework: How reliably can we measure the mass of an exoplanet just half the mass of Venus?* (85%)

University of Bath | BSc Physics (First Class) 2018 - 2022

- Modules: fluid dynamics in astrophysics, analysis and research for observational astronomy, mathematics, computational astrophysics, experimental physics & computing, quantum mechanics, thermodynamics, general relativity.

Esher College, UK 2016 - 2018

- Mathematics (A*), Physics (A), Art and Design (A)
- Silver award Physics Olympiad.

Experience

NDA | Developer Aug 2023 - Present

Intorqa (Gaming Security Startup) | Data Scientist Aug 2022 - Sept 2023

- Fine-tuned a LLM using AWS to perform classification tasks including sentiment analysis on video game chat forums.
- Constructed an image processing algorithm to filter thousands of Twitter images, compare to a leaked content database and automate takedown actions for Rockstar Games.

WPP (Formerly Satalia) | Data Scientist Dec 2020 - Aug 2021

- Developed a "Digital Twin" model simulating retail logistics, creating a Python-based user interface in Dash and a backend using deep learning tools (Pandas, TensorFlow, Sklearn).
- Researched and presented "Digital Twin" use cases, leading to a project optimising chemotherapy patient journeys.

Satori Tutoring | Co-Founder May 2017 - Present

- Established a tutoring company that caters to 11+, GCSEs, A levels, STEP and Oxbridge preparation.
- Coached 36 students to date and organised a team of tutors: http://satoritutoringlondon.co.uk.

Projects

Machine Learning & Data Science

- Academic Contribution - *Understanding Deep Learning* by Simon J. D. Prince.
- Cold Diffusion Models (TensorFlow) - Built DDPM diffusion model on MNIST dataset; created custom degradation model.
- EMSOL (Scikit-learn) Data Science - Applied DS and unsupervised ML methods to analyse and inform actionable insight.
- Lighthouse Problem - Implemented Markov chain Monte Carlo statistical method (NUTS) to solve classical lighthouse problem.

Astrophysics & Fluid Dynamics

- Radial Velocity Simulation (Python) - Utilised Gaussian Processes in a nested sampling model on the L98-59 system.
- Exoplanet Analysis (Python) - Identified and investigated four "habitable" exoplanets using the Kepler dataset.
- Runge-Kutta Method (Python) - Simulated Lagrange points in the Restricted Three Body Problem.
- Monte Carlo Simulation (C) - Simulated a Monte Carlo scattering model of photons through an atmosphere.
- Fluid Dynamics Simulation (C) - Solved Euler's equations to simulate fluid dynamics in a shock tube.

Computing & Tools

- High-Performance Computing (CSD3) - Leveraged GPU resources for astrophysics simulations and ML projects.
- LaTeX - Produced technical reports using LaTeX.

Personal Interests

Football

- Played for a club growing up, as well as in school and university, and now play weekly with a team in South London.

Event Manager

- Executed large-scale live music events, managing all aspects of preparation and leading teams to accommodate crowds of up to 600.