

STEPHEN CHARLES

OVERVIEW

PORTFOLIO Proficient *pythonista* with a background in mathematics and computer science. Particular expertise in managing software pipelines and large data sets involving time series analysis and machine learning algorithms, in addition to interpersonal skills from a range of hospitality roles.

DATA CAMP

GIT HUB

EMPLOYMENT

2022 – Now **Innovative Technologies** – Manchester

POSITION *Machine Learning Engineer, Placement*

STACK *Python, Pytorch, Keras, Tensorflow, Numpy, Pandas, Sklearn, Git, Bash*

DUTIES

- **ICU** performs accurate age verification to automate the policy and allow access to age restricted purchases and premises, through an ensemble of convolutional neural networks.
- With AI algorithms developed over many years, ICU offers an accurate (99.88%) precise and affordable facial recognition system.

2019 – 2020 **Facebook (Meta)** – London - Remote

POSITION *Data Scientist, Analytics Intern*

STACK *Tableau, SQL, Python*

DUTIES

- Performed large-scale data analysis to extract useful business insights.
- Identified the ones which were actionable, suggesting recommendations, and influenced the direction of the business by communicating the results to cross-functional groups.
- Classified leads so that the team could work on the most valuable cases, and suggested improvements in the tools and techniques to help scale the team.

EDUCATION

2021 – 2022 **Data Science**, University of Bath

MSC Master of Computer Science

STACK *Python, SQL, Pytorch, Keras, Tensorflow, Numpy, Pandas, Sklearn, Matplotlib, Seaborn*

MODULES

Statistics for Data Science - Probability and statistics, with a focus on translating real-world problems into a mathematical framework in data science contexts.

Machine Learning - Covered both supervised and unsupervised machine learning algorithms from **Bishop**, including how to develop, evaluate and deploy trained models. The second semester involved advanced techniques focused on **neural networks** with both regression and classification.

Reinforcement Learning - Implemented various agents to solve **environments** from **Sutton & Barto**, including Dynamic Programming and Temporal Difference methods.

Bayesian Machine Learning - Employing approaches such as inference and monte carlo.

2020 – 2021 **Astronomy and Astrophysics**, University of Manchester

MSC *Distinction*, Master of Physics

STACK *Python, Numpy, Pandas, Sklearn, Matplotlib, Seaborn, Git, Bash*

RESEARCH Published a program to facilitate the data acquisition and analysis pipeline for **TESS** automatically, dubbed **firefly** (the best Sci-fi show!), which applies nested sampling (**dynesty**) to find best fit variables (**TransitFit**) between the host star and exoplanet.

2016 – 2020 **Mathematics with Computer Science**, University of Nottingham

MMATH *Upper Second-Class Honours*, Master of Mathematics

STACK *C++, Python, R, Numpy, Pandas, Matplotlib, Seaborn*

RESEARCH Dissertation involved working with python to numerically solve spherical cavitation bubble collapse.

2014 – 2016 **Space Engineering**, Loughborough College

A-LEVELS *Mathematics A* · Further Mathematics A · Physics A · Engineering A*

A specialised course focused on Engineering with guest lectures at the Space Centre in Leicester.

GENERAL TECH STACK

LANGUAGE Python, C++, L^AT_EX, SQL

PACKAGES Numpy, Pandas, SciPy, AstroPy

ML PACKAGES Sklearn, Tensorflow, PyTorch

WEB HTML, Markdown, CSS

SCIENTIFIC SOFTWARE Matlab, R, Fortran, Mathematica

Microsoft Office, Tableau, Blender

AWARDS AND QUALIFICATIONS

2022 **DataCamp: Data Science Track**

2021 Kaggle Expert

2020 Tableau Desktop Specialist

2016 Full UK Driving Licence

2015 Grade 8 Violin



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PUBLICATIONS

AUTHOR -
CO-AUTHOR [Hayes, J J C, E Kerins, J S Morgan et al. \(2021\)](#) “[TransitFit](#): an exoplanet transit fitting package for multi-telescope datasets and its application to WASP-127 b, WASP-91 b, and WASP-126 b”, 1–14.

ACADEMIC WORK EXPERIENCE

AUTUMN 2018 **Scholarship**, *National University of Singapore*
SCHOLARSHIP Obtained a scholarship to study a crash course in Korean language for 5 weeks and to learn about the culture and history of the changing landscapes of Singapore. Upon completion, applied to spend the Autumn semester here successfully.

JULY 2017 **Physics Outreach**, *The University of Nottingham*
OUTREACH I began, on a voluntary basis, promoting physics via social media which eventually evolved into a paid role in which I mediated with events staff in the department to ensure successful participation. Part of the role was ensuring inclusivity, and how best to target minority groups.

JULY 2014 **Research Intern**, *Space Research Centre, The University of Leicester*
INTERN During my first college year I gained work experience at the University of Leicester Space Research Centre, assisting in the development of an astrobiology rock-sampling tool called [SPLIT](#) for use on Mars.

POSITIONS AND RESPONSIBILITIES

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|--------------------|---|--------------------|---|
| 2018 - 2019 | Mature Student Mentor , <i>UoN</i> I was a point of contact for mature students, helping them settle, and be there in a support capacity. | 2017 - 2018 | Ambassador , <i>UoN</i> I presented, and gave advice to prospective students. |
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PUBLIC SPEAKING

2017 **Department of Physics**, *The University of Nottingham*
Gave introductions to guest speakers and shout outs in lectures to ensure everyone was informed of important events.

2014 **Space Research Centre**, *The University of Leicester*
Presented my findings to a crowd of 50 post doc students and an astronaut! My presentation was based on exoplanet research and the feasibility of alien civilizations to be space faring.

VOLUNTEERING

2017 **Magical Maths** – *Nottingham*
ROLE Organisation of weekly sessions to promote mathematics to primary school children, in line with the national curriculum.

INTERESTS

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| PHOTOGRAPHY | Avid adventurer and keen astronomer. This hobby pushes the boundaries of my interest in both. | MUSIC | Self taught Guitar, Piano, Violin. |
| | | GENERAL | Science fiction and anything spacey. |
| HIKING | Surviving extreme conditions makes me feel alive. | | |

REFERENCES

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|--------------|--|--|--|
| NAME | Dr. Eamonn Kerins | Prof. Chris Harris | Dr. John Holt |
| TITLE | <i>Senior Lecturer</i> | <i>Research Professor</i> | <i>Research Engineer</i> |
| EMAIL | eamonn.kerins@manchester.ac.uk | chrisharris57@msn.com | jmch1@le.ac.uk |
| | University of Manchester | University of Southampton | University of Leicester |
| | Department of Physics | Fellow | Department of Physics |
