

# 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<sup>A</sup>T<sub>E</sub>X, 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

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AUTHOR	-
CO-AUTHOR	<a href="#">Hayes, J J C, E Kerins, J S Morgan et al. (2021)</a> “ <a href="#">TransitFit</a> : 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

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AUTUMN 2018	<b>Scholarship</b> , <i>National University of Singapore</i>
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	<b>Physics Outreach</b> , <i>The University of Nottingham</i>
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	<b>Research Intern</b> , <i>Space Research Centre, The University of Leicester</i>
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 <a href="#">SPLIT</a> for use on Mars.

## POSITIONS AND RESPONSIBILITIES

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

## PUBLIC SPEAKING

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2017	<b>Department of Physics</b> , <i>The University of Nottingham</i>
	Gave introductions to guest speakers and shout outs in lectures to ensure everyone was informed of important events.
2014	<b>Space Research Centre</b> , <i>The University of Leicester</i>
	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

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

## INTERESTS

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<b>PHOTOGRAPHY</b>	Avid adventurer and keen astronomer. This hobby pushes the boundaries of my interest in both.	<b>MUSIC</b>	Self taught Guitar, Piano, Violin.
		<b>GENERAL</b>	Science fiction and anything spacey.
<b>HIKING</b>	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	<a href="mailto:eamonn.kerins@manchester.ac.uk">eamonn.kerins@manchester.ac.uk</a>	<a href="mailto:chrisharris57@msn.com">chrisharris57@msn.com</a>	<a href="mailto:jmch1@le.ac.uk">jmch1@le.ac.uk</a>
	University of Manchester	University of Southampton	University of Leicester
	Department of Physics	Fellow	Department of Physics