

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 computer vision, **DATA CAMP** in addition to interpersonal skills from a range of hospitality roles. **GIT HUB**

EMPLOYMENT

- 2022 – Now** **Innovative Technologies** – Manchester
POSITION *Machine Learning Engineer*
STACK *Python, Pytorch, Keras, Tensorflow, Numpy, Pandas, Sklearn, Git, Bash*
DUTIES
- **ICU** performs accurate age verification to automate associated policy and allow access to age restricted purchases and premises, through an ensemble of various ML algorithms.
 - Implemented bespoke methods from cutting edge research in SVM's, CNN's, and Bayesian Linear Regression which allow for statistically robust age verification.
 - Designed a system by which spoof detection was achievable through the use of belief propagation and anomaly detection.
 - Deployed trained models in resource-constrained environments.
 - Worked remotely in an agile, communicative, and self-directed manner as part of a collaborative, interdisciplinary, diverse, and geographically-dispersed team.
- 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.
 - Created dashboards with Tableau on data obtained via SQL queries.

EDUCATION

- 2021 – 2022** **Data Science**, University of Bath
MSC *Distinction, Master of Computer Science*
STACK *Python, SQL, Pytorch, Keras, Tensorflow, Sklearn, Numpy, Pandas, 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** - Implementing approaches such as inference and monte carlo.*
- 2020 – 2021** **Astronomy and Astrophysics**, University of Manchester
MSC *Distinction, Master of Physics*
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*
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.
- 2009 – 2014** **Secondary School**, Loughborough College
GCSE'S *Mathematics A* · Further Mathematics A · Physics A · Biology B · Chemistry B · English A · English Literature A · Astronomy A*

GENERAL TECH STACK

LANGUAGE	Python, C++, \LaTeX , 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 Competitions
2020	Tableau Desktop Specialist
2016	Full UK Driving Licence
2015	Grade 8 Violin

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 , <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.
2017 - 2019	Physics Outreach , <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.
SUMMER 2018	Magical Maths – <i>St Mary’s Catholic Primary School, Nottingham</i>
ROLE	Organisation of weekly sessions to promote mathematics to primary school children, in line with the national curriculum.
SUMMER 2014	Research Intern , <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 SPLIT for use on Mars.

VOLUNTARY POSITIONS AND RESPONSIBILITIES

2020 - Now	SPEAR , <i>University of Manchester</i>	2021 - Now	ART-AI , <i>University of Bath</i>
RESEARCHER	Actively contributing to exoplanet detection in the spearnet collaboration.	RESEARCHER	Collaborating with a large research group with an aim to educate interdisciplinary professional experts to make the best, and safest, use of artificial intelligence.

INTERESTS

PHOTOGRAPHY	Avid adventurer and keen astronomer. This hobby pushes the boundaries of my interest in both.	MUSIC	Self taught Guitar, Piano, Violin.
HIKING	Exploring the peaks, lakes and anywhere with hills. Love to spend weeks away camping.	ART	Into optical illusions like the works of Escher, Bridget Riley etc.
		LITERATURE	Love the classics, Jules Verne, H.P. Lovecraft, H.G. Wells etc.
		GENERAL	Into Sci fi and anything spacey!

REFERENCES

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 Department of Physics	University of Southampton Fellow	University of Leicester Department of Physics