Harry Rendell

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Education

Institute for Astronomy, University of Edinburgh Sep 2019 – Present
PhD Candidate in Astrophysics

St Catharine's College, University of Cambridge Oct 2015 – Jun 2019
Master of Natural Sciences, First Class

Brighton & Hove Sixth Form College Sep 2013 – Jun 2015
A levels: 4 A*s in Physics, Chemistry, Mathematics & Further Mathematics

Technical Experience

PhD Researcher Sep 2019 – Present
Institute for Astronomy, University of Edinburgh
- Carrying out large scale photometric studies of quasars using public survey data
- Constructed an unprecedented database of time-series data and mining this to look for correlations and long term trends
- Developed data reduction pipelines and computationally efficient methods for preprocessing and analysing large datasets

Teaching Assistant Sep 2019 – Present
School of Physics and Astronomy, University of Edinburgh
- Tutor for undergraduate and masters students in theoretical and computational courses
- Courses taught: Data Analysis and Machine Learning Statistics, General Relativity

Software Developer Intern Sep 2022 – March 2023
Blackford Analysis
- Developed and trained CNN machine learning models for anatomy detection of radiography data
- Created data augmentation algorithms to study the effect of orientation of MRI/CT scans on CNN predictions
- Extended current capabilities of anatomy detection from CT to MRI scans.

Masters Research Project Sep 2018 – Jun 2019
Institute of Astronomy, University of Cambridge
- Developed code to extract physically meaningful quantities from a large dataset (∼10TBs) which was generated from a high-resolution simulation of a black hole accretion disk.
- Generated light-curves from the dataset and used time-series analysis to compare with observational data

Undergraduate Research Placement Jul – Sep 2019
Engineering Design Centre, University of Cambridge
- Designed and implemented an intelligent control system for a robotic LEGO Mindstorms model of a production line consisting of 11 Programmable bricks, 19 servo motors and 30 sensors
- Carried out mechanical changes to improve efficiency and reduce instances of failure

Positions of Responsibility

Chair of Astro-ML Reading Group Feb 2021 – Feb 2022
Institute for Astronomy, University of Edinburgh
- Responsible for inviting speakers and organising meetings on applications of Machine Learning in Astronomy

Observation Secretary of Cambridge University Astronomical Society Sep 2017 – Sep 2018
University of Cambridge
- Calibrated and operated the Institute for Astronomy telescopes during society observation nights
- Responsible for training 20 new members correct operation of equipment

Technical Skills

Languages: Python, C++, SQL, MATLAB
Software: Git, Docker, Google Cloud Engine, LaTeX
Python libraries: Pandas, NumPy, SciPy, Matplotlib, Seaborn, Keras, Astropy, TensorFlow, PyTorch