Pilar Zarco Villegas | email: pilarzarcovillegas@gmail.com | +44 7596840090
LinkedIn: www.linkedin.com/in/pilarzarcovillegas/ | Edinburgh, UK. Pre-settled status.

Summary

Final-year MPhys Astrophysics student at the University of Edinburgh, with a strong foundation in Python programming, Machine Learning, and data analysis. Experienced in High Performance Computing (HPC), statistical modeling, and predictive analysis. Eager to apply analytical skills and technical expertise to opportunities in Data Science and analytics, leveraging knowledge in complex data-driven environments.

Technical skills

- Proficient in Python (Numpy, Scipy, Pandas, Scikit-Learn), SQL, and C programming.
- Expertise in data visualization using Matplotlib and Seaborn.
- Strong understanding of Data Science methodologies and Machine Learning algorithms.
- Familiar with Jupyter, Git, GitHub, and Linux-based workflows.
- Hands-on experience with High Performance Computing, including parallelization on CPU and GPU.

Soft skills

- Teamwork and leadership
- Experimental and analytic skills
- Critical thinking and problem-solving.

Education

The University of Edinburgh 2020-2025 *MPhys Astrophysics (5-year program)*
Acquired extensive knowledge in data science, computer simulation, and machine learning techniques.
Relevant Courses: Data Analysis and Machine Learning, Numerical Recipes, Computer Simulation, Telescope Group Project.

EPCC High Performance Computing Summer School 06/2024-07/2024
Learned and practiced HPC technologies, including parallel programming using OpenMP, GPU acceleration and MPI using C.

Relevant project experience

How to predict accurate cosmological statistics in any model of gravity 09/2024 – Ongoing
Optimizing parameter selection for cosmological simulations and generating statistical predictions for different models of gravity using a Machine Learning emulator which allows for predictions beyond the standard models of gravity.

Using Machine Learning to find growing supermassive black holes 01/2024 – 05/2024
Using the scikit-learn module in Python to assess the effectiveness of Machine Learning algorithms (t-SNE) on clustering the imaging data provided by the GAMA09 field survey (around 3 million candidates). Focusing on identifying potential galaxies hosting Active Galactic Nuclei (AGN) within the dataset.

Work experience

President, University of Edinburgh Physics and Astronomy Society 2022 - 2023
Successfully managed a team of 10, organizing academic and social events. Demonstrated effective communication and time management skills, contributing to a positive and safe environment. Co-planned and managed a successful collaboration event with the UK Space and Exploration Development Society (UKSEDS). Strengthened relationships with other Edinburgh University societies by collaborating with them to plan successful events.