Paula Soares

Cosmology and Data Science PhD candidate at Queen Mary University of London. Motivated by new challenges and able to deal well with competing priorities: I have published five papers in journals and given eight talks in the last year, balanced with other responsibilities. Leading my department's weekly meeting, I developed my creative problem solving and interpersonal skills by re-imagining the structure to fit virtual platforms. My research is innovative and data driven - finding new applications for analysis techniques and new solutions for emerging challenges. I am eager to apply my skills in the context of real-world issues.

Education

2018–2022 **PhD Cosmology and Data Science**, *Queen Mary University of London*.
Tackling challenges at the forefront of neutral hydrogen intensity mapping experiments.
- Released a user-friendly Python toolkit (`gpr4im`) which applied Gaussian Process Regression as a data cleaning technique for the first time in low redshift intensity mapping. Assessed its performance against other methods such as Principal Component Analysis.
- Employed Markov Chain Monte Carlo, a statistical sampling technique, to forecast how well future surveys will constrain cosmology;
- Statistically analysed the distribution of matter in the Universe by looking at its two-point correlation function, and decomposing it into multipoles;
- Critically validated and processed preliminary survey data, by comparing it to simulations;
- Ran my department's weekly meetings as well as the Equality, Diversity and Inclusion forums.

2014–2018 **MSci Astrophysics**, *University College London*, 1st Class.
Received Herschel Prize for Best Performance in 4th Year Astrophysics.
- Master's project involved handling large complex data sets of galaxy properties (e.g. Galaxy Zoo) and using statistical methods such as the Kolmogorov-Smirnov test to find correlations between them.

2012–2014 **International Baccalaureate**, *Graded, the American School of São Paulo*, 40/45 total.

Employment

2019 **Data Science Internship**, *Gresham Investment Management*, London.
- Optimised their Python-based trend following model for new markets;
- Critically assessed data to build convincing proposals, and effectively communicated my findings;
- Implemented a SQL-based solution to determine that bid/ask price is a proxy for closing price.

2018 **Research Internship**, *University College London*, London.
- Developed a new semi-analytical model for determining the molecular gas content of galaxies;
- Effectively utilised Markov Chain Monte Carlo to optimise the scaling relations of galaxy properties;
- Used Python to conduct large scale manipulation and analysis of real galaxy data.

Skills

General Effective communication, critical & analytical thinking, data analysis, seeing the big picture.

Technical Proficient in: Python, GitHub, LaTeX. Experience in: SQL, Linux, HPC, Microsoft Office.

Languages English, Portuguese.

Publications

For an extensive list of my publications, including research papers, associated code, and publicly available talks, please visit *paulassoares.github.io*.

Hobbies & Interests

In my free time, I enjoy weightlifting, cycling and boxing. I also organise and run a D&D campaign for my friends. I enjoy any excuse to bring my friends together, be it my valiant baking efforts, fun board games or so-bad-it's-good movies.

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