THOMAS WILLIAM SPRIGGS

tspriggs@outlook.com | twspriggs | tspriggs | +44 7710987279

Education

University of Hertfordshire Oct. 2017 – Present

PhD. Astrophysics

- Developed a novel, automated, point source detection and analysis pipeline, in Python.
- Multi-dimensional spectroscopic data, deriving unique methods of combining different dimensions for better informed parameter modelling.
- Published results in journals, introducing modern techniques to update ∼20 year old methods.
- Python - Monte-Carlo simulations, statistical analysis, multi-dimensional modelling.

University of Hertfordshire Oct. 2012 – May 2016

MPhys. 2.1 (Hons) Astrophysics

- Conducted a Supernova Survey using the Bayfordbury Observatory.
- Planning observations, plus produced a technical overview and evaluation of telescopes.

Midhurst Rother College Oct. 2010 – July 2012

A levels

- Physics - B, Maths - C, Product design - C.

Technical Skills

Languages: Python (proficient), Bash, Markdown, LaTeX, SQL (beginner), C++ (beginner), Excel.
Developer Tools: Jupyter, git, Linux, Binder, Docker, MatLab, Google and Microsoft services.
Libraries: pandas, numpy, lmfit, scipy, emcee, pymc3, matplotlib, scikit-learn.

Coding Projects

MUSE Planetary Nebulae Fitting | *Python, Jupyter, git* Aug. 2018 – Present

- Planetary Nebulae pipeline detection and modelling scripts and functions.
- Packages used: Pandas, numpy, astropy, LMfit, scikit-learn, scipy, matplotlib, Jupyter.
- Unit testing, git versioning, code-review, profiling and debugging
- Binder environment included. DOI: 10.5281/zenodo.3726795.

Website - WithinError.space | *Jekyll, Markdown, github-pages* Oct. 2016 – Present

- Personal website, currently undergoing refresh of design.
- Self taught HTML and SCSS.
- Personal project that is also great for showcasing astronomy images during outreach.

Experience

Visiting Lecturer Oct. 2018 – Dec. 2020

University of Hertfordshire *In person, Remote, part-time*

- **Foundations of Data Science (MSc.)**: Guided students through Python based practical sessions, covering the methods and applications of different packages.
- **Penetration Testing (MSc.)**: Led tutorials in Cyber-Security Penetration Testing. Introducing concepts, bash scripting and basic commands.
- **Foundations of Cosmology (BSc.)**: Assisted with Observatory sessions, helping students with telescope configuration and related subjects.
- **Further Engineering Mathematics (BSc.)**: Tutorial sessions regarding weekly coursework.
- **Engineering Applications of Mathematics (BSc.)**: MatLab focused teaching sessions.

Outreach Ambassador Sep. 2015 – March 2020

University of Hertfordshire *part-time*

- Monthly open evenings at the Bayfordbury Observatory.
- Shared current and past university research news with members of the public.
- Introduce both adults and children to astronomy. Showing off the Lunar surface like never before.

Student Technology Mentor May 2017 - Sept.2019

University of Hertfordshire *part-time*

- I was a fountain of knowledge for busy lecturers who wanted to update their online materials for the new Canvas system.
- This included answering niche questions quickly, while explaining clearly.
- Reported back on, ideas, suggestions, and bugs that staff were facing.

Sales and Capacity Planner Aug. 2016 – January 2017

Ocado *Full-time*

- Planning each day's potential sales, while balancing capacity to achieve targets.
- Communicating with other departments to understand constraints and opportunities that would impact projected sales goals.
- Infer from previous years data, what might be the likely outcome of the next day's sales trends.

Extracurricular

Code Review and Coffee Jan. 2018 – present

University of Hertfordshire

- Setup and chair Code Review and Coffee sessions. The premise was to provide a friendly, supportive forum to share coding practises, python packages, and questions about general software engineering methods. Plus coffee is great.
- Also contributed an introductory Git document for other PhD students. For this, I wrote a Markdown document to guide them through creating an account, using ssh key authentication and push their first commit.

About Me

- Societies: A fellow of the Royal Astronomical Society (RAS) and a member of the Institute of Physics (IOP).
- Workshops: Attended astronomy related workshops and conferences, presenting research and results. Also attended different Machine Learning workshops and courses.
- Hobbies: Love trying out different coffees. Cycling, badminton and Formula 1 / motor-sport. reading fiction and non-fiction books. Some astrophotography with my own telescope. Also really enjoy board-games, Dungeons and Dragons, video games and Magic the Gathering.
- I thrive on learning new things. I am currently learning about machine learning applications, SQL and software engineering best practises. I also delve into other topics as well, such as crypto-currencies / blockchains.

References

Dr. Marc Sarzi Marc.Sarzi@Armagh.ac.uk

Primary Supervisor

Dr. Ralf Napitwozki R.Napiwotzki@Herts.ac.uk

Primary Supervisor

Dr. Sébastien Viaene Sebastien.v@gmail.com

Collaborator