



Edward John Parkinson

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PROFILE

I am a PhD student at the University of Southampton, simulating the light emitted when a star is ripped apart by a black hole, in something known as a Tidal Disruption Event. I am part of the Next Generational Computational Modelling Centre for Doctoral Training (NGCM-CDT) based at the University of Southampton, where I trained in modern computational techniques and numerical modelling. I completed my masters in physics with astrophysics at the University of Kent where I graduated first class with honours in 2016, specialising in fluid dynamic simulations of jetted material ejected from galaxies. During my PhD, I have had the opportunity to build my computational, HPC and communication skills, attending international workshops and conferences to share my work with and learn from the community. I worked with vast quantities of synthetic and real world data, applying a modern toolkit of data analysis techniques, statistical modelling, Python/R frameworks and numerical techniques to confront theory with observations, producing novel and state-of-the-art research. I have been the principle investigator for multiple collaborative and individual research projects and a key team member in cross-disciplinary collaborations and projects.

EMPLOYMENT

2016 – 2017

Customer relation manager

Yorkshire Water Business Services, Bradford

- Account manager for key customer businesses
- Solved complex billing queries and meter readings

2016 – 2016

Data entry clerk

Loop Customer Management, Bradford

- Temporary position, transitioned into permanent role with Yorkshire Water Business Services

EDUCATION

2017 – current

iPhD: next generation computational modelling

School of Physics and Astronomy, University of Southampton

- PhD thesis: *Shining lights, even in death: modelling the emission from Tidal Disruption Events*
- Year 1: integrated master; statistics, computational techniques and programming/dev skills with a strong focus on state-of-the-art high performance computing and cross-disciplinary communication
- Year 2 - 4: PhD research in computational astrophysics; maintained and developed (legacy) Monte Carlo code `PYTHON`

2012 – 2016

MPhys: physics with astrophysics

School of Physical Sciences, University of Kent

- Awarded first class with honours
- Bachelors dissertation: *Measuring the proper motion of nearby stars and brown dwarfs*
- Masters thesis: *Adiabatic hydrodynamic simulations of two-dimensional inviscid extragalactic jets*

SKILLS

Core skills	<p>Data analysis and statistical/numerical modelling</p> <ul style="list-style-type: none">• Applied modern statistical and numerical modelling techniques to my research• Experience with working with big data sets• Published <i>state-of-the-art</i> research using modern computational techniques• Streamlined development work-flow for storage, analysis and presentation of re-search data <p>Software development</p> <ul style="list-style-type: none">• Data structure and algorithm design• Version control• Unit and regression testing• Cross-platform design <p>Project management</p> <ul style="list-style-type: none">• Principle investigator of multiple collaborative and independent research projects• Guided MSc student projects <p>Visualisation</p> <ul style="list-style-type: none">• Experienced with multiple modern visualisation tools• Proficient in creating publication grade figures using, e.g. <code>matplotlib</code> <p>Communication</p> <ul style="list-style-type: none">• Strong technical writing style• Author on multiple journal articles• Experienced presenter for expert and non-expert audiences• Demonstrator for introduction to Python and version control courses <p>Collaboration</p> <ul style="list-style-type: none">• Invaluable member of multiple international and national collaborations
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Programming languages C; Python; Fortran; \LaTeX ; R; Rust; SQL

Software Git; Travis; NumPy; SciPy; Pandas; CUDA; MPI; OpenMP; pytest; TensorFlow; Imfit; Django; Jekyll; Microsoft Office; Unix; Windows; macOS

PROJECTS

pypython	A fully featured Python package designed to analyse and visualise the output from the radiative transfer program <code>PYTHON</code> and also contains a family of functions useful in scientific computation https://github.com/saultyevil/pypython
Monte Carlo radiative transfer	Example programs of a simple Monte Carlo radiative transfer problem, written in multiple programming styles and languages https://github.com/saultyevil/mcrt
atomix	A bespoke terminal based tool, designed for browsing the atomic data files in scientific software https://github.com/saultyevil/atomix
website	A personal webpage and portfolio, developed using Jekyll. https://github.com/saultyevil/saultyevil.github.io
adminbot	A Discord bot, written using discordpy, which uses Markov Chains to generate sentences and learns how to communicate from repeated user interaction https://github.com/saultyevil/adminbot

PUBLICATIONS

2021	Parkinson et al., <i>Optical line spectra of tidal disruption events from reprocessing in optically thick outflows</i> , Monthly Notices of the Royal Astronomical Society, submitted
2020	Parkinson et al., <i>Accretion disc winds in tidal disruption events: ultraviolet spectral lines as orientation indicators</i> , Monthly Notices of the Royal Astronomical Society, Volume 494, Issue 4, June 2020, Pages 4914–4929