

# Stuart A. Smith

MSC SPACE EXPLORATION SYSTEMS · BSC PLANETARY SCIENCE WITH ASTRONOMY

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## Professional Summary

Motivated and disciplined professional pursuing a master's degree at the University of Leicester (graduating September 2025), with special research interest in Light Curve Analysis, Instrumentation Design, and the Interstellar Medium. As an Armed Forces Veteran, I excel under pressure, bringing strong analytical, problem-solving, and teamwork skills. I am eager to leverage my research expertise in a doctoral program.

## Education

### University of Leicester

Leicester, United Kingdom

MSC SPACE EXPLORATION SYSTEMS

Sep. 2024 - PRESENT

- **Active Project:** Interstellar Medium Mission Concept focussed on investigating the plasma processes and boundary dynamics of the heliosphere, and its interaction with the Local Interstellar Medium. This project is split between the University of Leicester, and the University of Dayton, Ohio, in conjunction with the Jet Propulsion Laboratory - California Institute of Technology. I oversee the mission's instrumentation, holding responsibility for designing and selecting the appropriate payload packages for the spacecraft.
- Industry-led MSc covering robotic and human space exploration. Developing expertise in space systems engineering, astrodynamics, instrumentation, mission design, and power systems (including nuclear). Gaining hands-on experience in end-to-end space system development and working across academic and industrial sectors. Introduction to key analysis tools such as Geant4 (GRAS) for radiation modelling, and programming languages such as Python and MATLAB. Gaining interdisciplinary skills that bridge systems engineering and planetary science, and preparing for roles in the global space industry.

### Birkbeck, University of London

London, United Kingdom

BSC PLANETARY SCIENCE WITH ASTRONOMY

Sep. 2020 - Sep.2024

- Degree Awarded: **Second Class, Upper Division** (2:1)
- **Dissertation:** "Chasing Shadows: Identifying Undiscovered Exoplanets in Kepler's Historical Data"
- A reanalysis of Kepler/K2 Light Curves, in a research area with little establishment support. My research was reliant on my own ability to set up such a project from scratch. This involved pitching a unique research topic to the School, networking to source the most relevant supervisor, learning how to process large data sets, selecting a relevant analysis tool, and processing results.
- Despite the conclusion of the program, I am now trying to verify the presence of a binary star system that I detected in this research in conjunction with the Mikulski Archive for Space Telescopes (MAST). This has exposed me to new techniques such as analysing Target Pixel Files (TPF's) and coding through Python to identify and model these TPF's.

## Skills

### Technical Skills

Light Curve Analysis, Geant4 (GRAS) Modelling, Astrodynamics, Data Analysis, Operation of Spacecraft Systems, CAD Design, Mission Planning, Individual Research, Supervised Research, Clean Room Trained

### Programming

Python, MATLAB, LaTeX

### Soft Skills

Team Collaboration, Presenting, Exemplary Communication Skills, Time Management, Data Entry

### Leadership

Cadet Forces Instructor

### Languages

English (Fluent), German (Basic), Arabic (Basic)

## Academic References

### Prof. Nigel Bannister

MSc Project Supervisor  
University of Leicester

✉ nigel.bannister@leicester.ac.uk

### Dr. Tim Trent

MSc Personal Tutor  
University of Leicester

✉ t.trent@leicester.ac.uk

### Dr. Andrew Rushby

BSc Project Supervisor  
Birkbeck, University of London

✉ a.rushby@bbk.ac.uk

# Awards & Attendance

## GRANTS

|      |  |          |
|------|--|----------|
| 2025 | <b>Turing Scheme</b> , Funding for international placement to work on an Interstellar Medium Mission Concept. Placement taking place at University of Dayton, Ohio, U.S.A. | £1853.80 |
|------|--|----------|

## CONFERENCES

|      |  |         |
|------|--|---------|
| 2024 | <b>Sagan Summer Workshop</b> , Advances in Direct Imaging: From Young Jupiter's to Habitable Earths. NASA Exoplanet Science Institute            | Virtual |
| 2025 | <b>Astrobiology Spectral Database Workshop</b> , USRA - Lunar and Planetary Institute  | Virtual |
| 2025 | <b>Sagan Summer Workshop</b> , Exoplanet Demographics. NASA Exoplanet Science Institute  | Virtual |
| 2025 | <b>International Workshop on Instrumentation for Planetary Missions 6</b> , Laboratory for Atmospheric and Space Physics, University of Colorado | Virtual |

## MEMBERSHIPS

|      |  |         |
|------|--|---------|
| 2025 | <b>Member of the Institute of Physics</b> , Institute of Physics | Present |
|------|--|---------|

# Work Experience

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|---|---|
| <b>University of Leicester</b><br>PAYROLL AND PENSIONS ADMINISTRATOR        | Leicester, United Kingdom<br>Nov. 2022 - Sep. 2024    |
| <b>Buckinghamshire New University</b><br>PAYROLL AND PENSIONS ADMINISTRATOR | High Wycombe, United Kingdom<br>Jul. 2022 - Nov. 2022 |
| <b>Civil Service</b><br>PROJECT SUPPORT OFFICER                             | High Wycombe, United Kingdom<br>Feb. 2022 - Jul. 2022 |
| <b>Royal Air Force</b><br>CLERK (PERSONNEL SUPPORT)                         | London, United Kingdom<br>Feb. 2018 - Feb. 2022       |
| <b>Tesco</b><br>CUSTOMER ASSISTANT  | Locks Heath, United Kingdom<br>Apr. 2016 - Jan. 2018  |
| <b>Primark</b><br>RETAIL OPERATIVE  | Southampton, United Kingdom<br>May. 2015 - Apr. 2016  |

Full details of each role are available on request.

# Additional Experience

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|---|--|
| <b>Royal Air Force Air Cadets</b><br>CIVILIAN INSTRUCTOR  | Leicester, United Kingdom<br>Nov. 2023 - PRESENT |
| <ul style="list-style-type: none"><li>Teaching and overseeing the deliverance of the Air Cadets Cyber and Space programmes, giving opportunity for 12 - 18 year olds to get unique access to STEM topics.</li></ul> |  |

# Research Interests

My research interests span a wide range of astrophysical and observational topics, with a particular focus on binary star system detection, exoplanet detection and categorization, and the modelling of atmospheric conditions in both terrestrial and exoplanetary environments. I am deeply engaged in studying stellar system structures and mapping, as well as utilising advanced observational techniques with instruments such as JWST, PLATO, and the Roman Telescope. Additionally, I have a strong interest in instrumentation design and the innovative use of CubeSats for exoplanet detection, contributing to the development of next-generation space-based observational capabilities.