# **Job Description**

# Space Detector Calibration Scientist

Fixed term contract until March 2025

Full time, AC2/3

Walton Hall, Milton Keynes

The position is being offered until the end of March 2025, however, an extension beyond this date will be considered if external project funding allows nearer the time.

**About the Role**

This is an exciting opportunity for a Detector Calibration Scientist to join a world class research team conducting research into advanced imaging technologies for science applications.

The Centre for Electronic Imaging (CEI) is a research centre based within the School of Physical Sciences at the Open University. The CEI is a collaboration between the Open University and Teledyne e2v, a world-leading manufacturer of scientific and industrial image sensors. The CEI is dedicated to conducting research into advanced imaging technologies for science applications and conducts its research in collaboration with many universities, agencies and companies including the UK Space Agency, European Space Agency (ESA), NASA and Teledyne e2v.

One such mission is the Canadian-led Cosmological Advanced Survey Telescope for Optical and ultraviolet Research (CASTOR), which is a 1m space telescope that will provide high-resolution imaging in the ultraviolet (UV) and blue-optical wavelengths. The CEI is working with NASA/JPL and several UK and Canadian research institutions on the imaging instrument for CASTOR and is responsible for the testing, modelling and verification of the performance of the UV enhanced CMOS Imaging Sensors (CIS) used for this instrument.

We are seeking to appoint an enthusiastic individual with experience in astronomy and/or detector physics to join the CEI CASTOR project team as a CASTOR Detector Calibration Scientist. The successful candidate will be trained by the team as necessary to enable them to work with the CEI CASTOR project team, with a focus on the development, test and space qualification of the UV-enhanced CIS devices for CASTOR and related calibration and correction procedures for in-flight operations of the CASTOR instrument. The role holder will be engaged in all aspects of the development, planning and calibration campaigns for the detector test and simulation activities designed to characterise and optimise the performance of the detectors for flight, while connecting between the laboratory testing and radiation campaigns and the UV astronomy science requirements, interfacing between the related teams at the OU, NASA/JPL, Canadian Space Agency (CSA), University of Leicester (UoL) and wider technical and science collaborators.

The role holder will also attend regular project meetings and conferences, deliver progress reports and interface with team members and external scientists and engineers from NASA/JPL, the University of Leicester, and CSA. Ultimately, the role holder is expected to become a key expert in the development, operation and performance of the CASTOR detectors and UV performance in relation to the instrument science requirements.

In addition, the role holder will have the opportunity to be involved in a variety of other research projects across the Centre for Electronic Imaging, including other space missions and mission concepts for ESA (e.g. Euclid, SMILE, Theseus, X-ray Interferometry) and NASA (e.g. the Nancy Grace Roman Space Telescope).

**Key Responsibilities**

* Support and/or lead on the UV calibration and data correction activities of the Open University CASTOR team (commensurate with the level of experience and appointment).
* Analyse detector calibration data to provide recommendations on operations to maximise CASTOR instrument science performance.
* Support detector testing at external testing facilities with project partners.
* Analyse the results of the CASTOR detector electro-optical test, characterisation and radiation campaigns and provide insights into those results based on the project and science requirements.
* Document role activities and contribute to the CEI CASTOR project documentation and data deliverables to the CASTOR Consortium and CASTOR detector Working Group.
* Work within the CEI CASTOR Project Team to ensure that the work progress in a timely manner and report any problems to the Project Team.
* Attend regular Project meetings, workshops and conferences. Report progress verbally and in written form
* Attend relevant training, as required, to build experience in the role.
* Contribute additional material and inputs as required for publications by the academic team.
* Support external collaborators (e.g. NASA/JPL, CSA, UoL) as directed by the Project Lead.
* Promote knowledge and technology exchange with Teledyne e2v and other project collaborators and contribute to the wider research activities of the CEI, where required.

**Skills and Experience**

**Essential:**

* A PhD in Physics, Astronomy, Engineering, or a closely related subject
* Proficiency in coding in one or more of the following: MATLAB, C/C++, Java, Python, or similar development environments
* Good problem solving and analytical skills, demonstrated logical and rigorous approach to work
* A strong record of research and/or knowledge exchange that is commensurate to the position and career stage

**Desirable:**

* A good knowledge and experience in UV/optical astronomy.
* Extraction and/or analysis of in orbit data from an UV/optical astronomy mission.
* Experience with CCD and/or CMOS imaging sensors, X-ray and optical testing, characterisation and/or calibration of imaging sensors.
* Good understanding of, and demonstrable experience in, writing bespoke data acquisition and data analysis code and/or software algorithms with a focus on interfacing with test systems and automation of test measurements.
* Experience in supervising research students commensurate with career stage

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