



*The original redbrick
university and a member
of the Russell Group*

Faculty of Science and Engineering

LECTURER IN SPACE ENGINEERING GRADE 7/8

Area: Department of Mechanical, Materials and Aerospace
Engineering, School of Engineering

Job Ref: 053626

Location: University Campus

Grade: 7/8

Salary: £34,805 – £52,560 pa

Working Hours: Full time

Tenure: Permanent



*Outstanding development
opportunities through
our Academy*

Online application > Shortlisting > Interview Process > Job Offer



*Campus located in
the heart of the vibrant
city of Liverpool with
excellent facilities*





About the Role



Role overview and University context:

The School of Engineering seeks to appoint a new outward looking, member of Teaching and Research (T&R) staff in Space Engineering. The post is part of substantial new investment in staff and facilities being directed to the Space Engineering Discipline within the School. You are expected to contribute to our current leading research in astrodynamics, Guidance Navigation & Control (GNC), and planetary science. We are leading work in planetary defence asteroid missions and we are seeking to enhance our critical mass and external profile in these areas.

This appointment is a potential opportunity for either 'early career' or more experienced candidates. You will already have an established track record of academic endeavour. This will include papers in internationally leading journals in your field, the potential for, or demonstration of, the ability to attract significant funding from a range of sources. To strengthen our existing portfolio of activities, we are particularly interested in candidates who have an expertise in **Orbit Determination** and **Space Systems**. You will be expected to engage with existing – and develop new – networks of academic, industrial, and government collaborators in Aerospace/Space networks within and beyond the University.

We are looking for a new enthusiastic academic who is passionate about the student experience both at undergraduate and postgraduate levels and will support the growth of our current research linked teaching portfolio in space engineering to complement our current offer. We are particularly interested in candidates who have a proven track record and expertise in **relevant space discipline** (e.g., GNC, orbit determination, attitude control, space systems or other) to expand and strengthen the activity led by Dr [Soldini](#), who holds an UKRI Future Research Leaders Fellowship with the project title: REMORA - REndezvous Mission for Orbital Reconstruction of Asteroids: a fleet of self-driven CubeSats for tracking and characterising asteroids and is a science co-I for the NASA-DART, ESA-Hera and JAXA-Hayabusa2 missions. We especially welcome candidates with strong computational, theoretical and experimental focus on autonomous systems and AI.

Our existing laboratory facilities have recently been upgraded, and continued investment is planned to accommodate the growth of the new space research activity and includes wind tunnels and a dedicated space for robotics technologies, which allows for significant interdisciplinary research, a recognised strength of the School of Engineering, where upgraded laboratory facilities provide an enhanced experience for undergraduate and postgraduate practical teaching, particularly with respect to project work and co-curricular activities, which are highly popular elements of our teaching programmes. Our organisation also benefits from world-leading expertise and facilities in materials chemistry for novel material discovery within the Materials Innovation Factory and in autonomous systems within the Virtual Engineering Centre and the Digital Innovation Facility. We are part of a thriving research community within the newly established North-West Space Cluster in Daresbury (STFC, <https://www.sci-techdaresbury.com/clusters/north-west-space/>). Our



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organisation comprises of an interdisciplinary team of experts across faculties specialising in space engineering, manufacturing, satellite observations for tackling climate change, development of infrared and optical sensor for Earth based observations, use of AI for numerical simulations of space debris collision probability, and the study of the effect of gravity on musculoskeletal ageing.

SCHOOL OF ENGINEERING

The School of Engineering is one of four schools within the Faculty of Science and Engineering, led by the Executive Pro Vice Chancellor (EPVC) Professor Wiebe Van Der Hoek. The School has benefitted from substantial investment in the past decade, leaving it well-placed to build on its current healthy position. Degree programmes have been continuously refreshed to emphasise new 'active learning' approaches to design and engineering education as well as professional development and industrial engagement, reinforced through membership of the international CDIO consortium (<http://www.cdio.org/>).

The School currently has over 70 academic staff, around 1250 undergraduate students, 200 PGT students and 200 PGR students and is led by Professor Eann Patterson FEng, Dean of School. The School is organised into two Departments and four Divisions:

- Department of Civil Engineering and Industrial Design
(comprising the Division of Civil Engineering and the Division of Industrial Design)
- Department of Mechanical, Materials and Aerospace Engineering
(comprising the Division of Mechanical and Materials Engineering and the Division of Aerospace Engineering)

From August 2023, the School will be restructured into three departments: Department of Civil & Environmental Engineering, Department of Materials, Design & Manufacturing Engineering, and Department of Mechanical and Aerospace Engineering. This post will be assigned to the new Department of Mechanical and Aerospace Engineering.

The University of Liverpool is a member of the Athena SWAN Charter to promote women in Science, Engineering and Technology and holds a University Silver Athena SWAN award. The School of Engineering holds its own Silver Athena SWAN award. It is committed to providing organisational and cultural practices that promote gender equality in science, engineering and technology and create a better working environment for both men and women. Job applications are particularly welcome from women candidates, who are under-represented in academic posts in the School.

The School of Engineering recognises that many staff have important family responsibilities outside work, such as caring for children and elderly relatives. We offer a flexible and supportive work environment, and the many family-friendly policies and initiatives available to you are detailed in our fact sheet at: <https://www.liverpool.ac.uk/engineering/equality-diversity-inclusivity/family-friendly-guide/>



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The School of Engineering has equality, diversity and inclusion committees supporting our work and practices on inclusion matters for all under-represented groups.

Further information on the School of Engineering can be found at: <https://www.liverpool.ac.uk/engineering/>

THE DEPARTMENT OF MECHANICAL, MATERIALS AND AEROSPACE ENGINEERING

The Department of Mechanical, Materials and Aerospace Engineering has 42 academic staff responsible for the teaching and supervision of about 700 undergraduate, and 150+ postgraduate taught and research students. The Department offers undergraduate (at both BEng and MEng level) and postgraduate degree programmes in both Aerospace Engineering and Mechanical Engineering. In addition, it also offers a number of specialist MSc programmes including in Biomedical Engineering and Advanced Manufacturing Systems and Technology.

The research in the Department spans many engineering disciplines and specialises in fields such as; aerodynamics and aeroelasticity, flight dynamics and simulation, experimental and computational fluid dynamics including complex fluids (rheology) and turbulence, experimental mechanics, structural and functional materials, laser and additive manufacturing, biomaterials and biomechanics, risk and uncertainty, structural dynamics, robotics and nuclear engineering. The School was ranked as 6th in the UK for impact in the most recent REF and maintains a high level of internationally excellent outputs. The Department works closely with the Materials Innovation Factory, the Liverpool Institute for Risk and Uncertainty, the Cockcroft Institute, and various departments within the Faculty including the Department of Chemistry and the Department of Electrical Engineering & Electronics. The school is expanding activity in the field of space engineering in particular in astrodynamics, autonomous navigation, planetary science, and planetary defense. The post holder will expect to work closely with Dr Stefania Soldini, who holds an UKRI Future Research Leaders Fellowship with the project title: REMORA - *REndezvous Mission for Orbital Reconstruction of Asteroids: a fleet of self-driven CubeSats for tracking and characterising asteroids*. Dr Soldini is leading work with space agencies in the area of planetary defense as part of the NASA-DART, ESA-Hera and JAXA-Hayabusa2 missions.

The Department maintains strong industrial links through a well-established Industrial Liaison Committee, comprising regional and national industrial partners. This provides valuable industrial input into teaching, research and the mentoring of our undergraduate MEng students.

Responsibilities:

- You will be expected to lead and conduct original research in your area of expertise and to collaborate within colleagues both internally and externally to the department and wider university.
- You will be expected to write high quality grants and apply for research funding.



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- You will be expected to contribute to the School REF output with high ranked quality peer reviewed publications and potential impact cases.
- You will be expected to be active in engaging with University of Liverpool Knowledge Exchange and Civic Engagement initiatives.
- You will be expected to deliver high quality teaching by inspiring and educating students through modern education methods and alignment to the hallmarks of University of Liverpool teaching.
- You will be expected to supervise undergraduate and post graduate students and undertake assessment and examination duties as required.
- As part of your role, you will be expected to disseminate your research by presenting for example at international conferences and engage with the wider research community, establishing yourself as a leader in the field.

Duties:

- You will be expected to support the department activities and undertake administrative/leadership duties as required.
- You will be expected to undertake teaching responsibilities.
- You will be expected to produce high quality research.
- Undertake other duties commensurate with the grade as required.

In addition to the above, all University of Liverpool staff are required to:

- Adhere to all University policies and procedures, completing all obligatory training and induction modules, including Equality & Diversity and Health & Safety.
- Respect confidentiality: all confidential information should be kept in confidence and not released to unauthorised persons.
- Participate in the University's Professional Development Review scheme and take a proactive approach to own professional development.
- Demonstrate customer service excellence in dealing with all stakeholders.
- Embody and uphold the University's Vision and Values.

Please note: Candidate presentations and interviews are scheduled for Thursday 13th April and Friday 14th April 2023



About You



Essential Criteria		Desirable Criteria
Experience		
1.1	Substantial experience of at least one of the following: astrodynamics and numerical methods for trajectory design, optimisation, GNC or Orbit Determination	Experience with one of the following areas: Attitude control, Space systems, Space robotics or other relevant space disciplines
1.2	Good experimental skills for example in space robotics, assembly, satellite hardware or other	Experience in hardware-in-the-loop testing
1.3	Research involving writing and publication of research papers: For appointment at Lecturer (Grade 7) Evidence of publications must be available For appointment at Lecturer (Grade 8) There must be a significant publication record	Experience with manufacturing of space systems
1.4	Track record in or potential for winning funding to sustain an independent research programme: For appointment at Lecturer (Grade 7) You will need to demonstrate the potential to win research funding For appointment at Lecturer (Grade 8) You will need to demonstrate a sustained record of winning research funding	Practical experience in the space industry and/or space agencies e.g., space mission operations or other relevant experiences
1.5	Experimental, theoretical, or numerical research in any aspect of space engineering	Teaching experience in space engineering and/or space-specific design
1.6	Research involving writing and publication of research papers: For appointment at Lecturer (Grade 7) Evidence of publications must be available For appointment at Lecturer (Grade 8) There must be a significant publication record	



About You



Education, Qualifications and Training		
2.1	PhD in Aerospace Engineering or a relevant physical or mathematical science discipline (Already achieved for Grade 8 or about to obtain for Grade 7)	Degree 2:1 or above in aerospace engineering or related discipline
2.2		Teaching Qualification accredited in the Higher Education sector
2.3		Holding or seeking chartered status or a relevant professional institution
Skills, General and Special Knowledge		
3.1	Good experimental, mathematical, and numerical research skills	Experience with Orbit determinations software (e.g. MONTE, ODTK or other)
3.2	Proficiency in programming (MATLAB, Python, C++ or other)	Basic Linux command and experience with running codes on High Performing Computing facility
3.3	Excellent interpersonal and communication skills	Familiar with NASA Spice Toolkit
3.4	Fluency in English	
Personal Attributes and Circumstances		
4.1	Enthusiastic, dedicated, conscientious, open-minded, approachable	Versatile, adept at team-working and multi-tasking
4.2	Potential to lead space-specific activities at UG and PGT level	Able to work independently

Probationary members of staff will:

Research

- Demonstrate that they have fulfilled the agreed plans and priorities of their research to an internationally excellent standard, or which demonstrates that their research is progressing towards an internationally excellent standard

Knowledge Exchange

- Demonstrate that they have an awareness of potential knowledge exchange audiences and that they have engaged with the internal and external knowledge exchange environment

Learning and Teaching



About You



- Demonstrate that they have fulfilled the agreed teaching expectations assigned to them to a standard expected in their subject area
- Demonstrate how they have contributed to the student experience at undergraduate and/or postgraduate level, including evidence of PGR supervision where appropriate
- Demonstrate that they have completed, or be near to completing within a defined deadline, the Certificate of Professional Studies

Contribution and Engagement

- Demonstrate their awareness of the University's plans and priorities and that they are engaged with these
- Demonstrate that they have fulfilled agreed leadership and managerial activities assigned to them
- Demonstrate their awareness of departmental/school/institutional plans and priorities and how they contribute to and engage with these
- Demonstrate that they have an on-going longer-term career plan
- Demonstrate that they have an awareness of the University values

Development

- Demonstrate that they have fulfilled any required development and that they have an ongoing plan for the development of their career

Clinical Engagement (if appropriate)

- Demonstrate that they have fulfilled agreed clinical duties assigned to them and all of the associated professional requirements of their clinical status and registration



About Us



Established in 1881, we are an internationally renowned Russell Group university recognised for our high-quality teaching and research. We are consistently ranked as one of the best Universities both nationally and globally, and the majority of our research is rated world leading or internationally excellent. Find out more [here](#).

Our Areas

When you work at the University of Liverpool you are more than just your job role. You are a crucial part of our mission to improve lives on a local, national and international scale. Click on the relevant links below for more information on area you will be working in.

[Faculty](#) [School/Institute and Department](#) [Research](#)

Why Work Here

We recognise, appreciate and celebrate the incredible work our staff do every day. As well as generous terms and conditions, we offer a range of enviable benefits and provide support for colleague's wellbeing and development. Discover more [here](#).

Moving from abroad

As a global institute, we welcome applicants from all nationalities, moving from a different country can be challenging and we would like to help as much as we can, we have put together some information on eligibility to work documentation, accommodation, schools, healthcare, life in Liverpool and the UK as well as other practical information. Discover more [here](#)

Our Staff

Whether it be their friendly colleagues, supportive managers or our outstanding facilities, our staff can explain better than anyone what it is like to work for us and why they enjoy their role. See what they have to say [here](#).



How to Apply



The University of Liverpool is committed to being an inclusive employer. We welcome applications from everyone regardless of age, gender, ethnicity, sexual orientation, faith or disability.

Contacting us

Shortlisting and interview arrangements are the responsibility of the recruiting department. For further information please email: stefania.soldini@liverpool.ac.uk

Application process

Our e-recruitment system enables you to register for an online account, where you can view, copy and edit your applications. Set up your account [here](#).

Once you submit your application you will receive an automatic email acknowledgment. You can view your application any time by clicking into the application history section of your account.

Job Description

After the closing date this job description will be removed from our website. Should you wish to refer to this information at a later date please ensure you save a copy of this document.

Right to work

We have a legal responsibility to ensure that you have the right to work in the UK before you can start working with us. If you do not have the right to work in the UK already, any offer of employment we make to you will be conditional upon you gaining it. The UKVI have an interactive tool allowing you to immediately see if vacancies are eligible for a Skilled Worker visa. You will need to know the SOC code for the role, our most used SOC codes can be found [here](#), if none of these apply to this role, there are more codes on the eligibility checker. The skilled worker eligibility checker can be found on [GOV.UK](https://www.gov.uk).



How to Apply



Disabilities and alternative formats

If you have any other requirements which will help you access the application or interview process or employment opportunities at the University, or if you require copies of documentation in alternative formats, please email: jobs@liverpool.ac.uk or telephone 0151 794 6771.

Outcome of your application

The recruiting department will endeavour to respond to each application. However, if you have not heard within six weeks of the closing date, please take it that your application has not been successful on this occasion.

