

Job Description

Research Fellow on Operational Transport Modelling and Simulation

UCL, Bartlett School of Environment, Energy and Resources, Energy Institute

Location: Bloomsbury, London

We are operating hybrid working and you will have the opportunity to work remotely for up to 3 days a week if you wish.

Reports to:

Dr. Manos (Emmanouil) Chaniotakis

The Faculty

The Bartlett, Faculty of the Built Environment is one of the oldest but most radical faculties of its kind. It has been ranked #1 in the world in Architecture and the Built Environment, and remains #1 in the UK for the ninth year running, in the [QS World University Subject Rankings 2023](#).

Individually, our schools and sections lead their fields. In partnership, they develop new responses to pressing world issues. As a whole, they represent a world-leading, multidisciplinary faculty, united by the radical spirit of UCL. Our vision is of a world where everything that's built aims to add to the well-being of people and the environment. With a wealth of resources, partners and history on our doorstep in London, we are able to learn about the built environment in ways that are impossible elsewhere.

The Bartlett is unrivalled in its breadth and depth of disciplines, programmes and departments. It is

Grade: 7 (£39,508 to £46,131)
Start date: ASAP preferably Oct 2023

FTE: 1 (full time)

This post is for 24 months in the first instance, further funding to support the post may become available.

made up 12 Schools, Centres and Institutes, providing teaching and research in a wide range of subject areas to over 4,000 students each year from across the world.

Further information about the Bartlett can be found here: <https://www.ucl.ac.uk/bartlett/>

The School

Set within UCL's Faculty of The Built Environment, The Bartlett School of Environment, Energy and Resources (BSEER) is comprised of four world-class Institutes, providing the expert knowledge collaborative research and teaching of [UCL Energy Institute](#), [UCL Institute for Environmental Design and Engineering](#), [UCL Institute for Sustainable Heritage](#) and [UCL Institute for Sustainable Resources](#). The role of the school is to facilitate the Institutes and help them establish themselves and grow, enabling them to focus on and develop their academic direction and strategies. The Bartlett School of Environment Energy and Resources serves two principal functions. It provides a framework for administrative support to the four Institutes, combining expertise in, amongst other things, management and delivery of research

proposals, multi-disciplinary projects and teaching programmes. The School also provides a collaborative and flexible environment for the four Institutes to share knowledge and resources. Staff have the opportunity to move between disciplines and engage with the School's shared problem domains of Energy, Environment, Resources and Heritage.

We generate approximately £24 million annually and employ 230 staff. Our four institutes successfully run degree programmes for around 180 Doctoral students, 420 Masters students and 180 undergraduate students. Our research project portfolio is approximately £63 million.

Our structure allows staff to participate more easily in multidisciplinary research to solve real-world problems, both at The Bartlett and in the wider UCL community.

Energy Institute

Our aim is to help to build a globally sustainable energy system, by bringing to bear multiple disciplinary perspectives to observe, analyse, model and interpret energy use and energy systems. From data analytics to environmental economics, we equip graduates with the tools needed to succeed in a career in energy industry, academia or policy. Our research combines different approaches to develop tools, models and methods that address global energy challenges. We work in partnership with industry, government and other academic bodies, ensuring that what we do has a real-world impact.

<https://www.ucl.ac.uk/bartlett/energy/>

The **UCL Energy Institute's MaaSLab** (www.maaslab.org) sits within a wider transport and energy group encompassing work on aviation and surface transport. Started in 2016, MaaSLab focuses on urban transport and explores new mobility concepts, such as Mobility as a Service, and new technologies such as automated vehicles, and drones. Its expertise lies on transport and

behavioural models, survey design and innovative data collection techniques, big data handling and visualization, new mobility service design and business models.

MaaSLab hosts a number of funded PhD studentships working closely alongside the research grant and enterprise activities. MaaSLab has several research projects on the aforementioned topics, while also working closely with industry and public authorities to make sure that the innovative solutions and methods are utilised in real-life and have an impact on society.

Main purpose of the job

This Research Fellow position targets the generation of methodological contributions towards modelling demand-supply interactions within transport networks, in a multi-layer approach, suitable for operational multimodal transport management.

A full person specification list with essential and desirable criteria is provided in page 4.

The postholder responsibilities will include:

- Developing of transport simulation modules for new mobility services.
- Contributing to advancing the field of transport modelling, simulation, and calibration techniques through innovative research.
- Developing processes and methodologies for effectively calibrating and validating transport models, ensuring accuracy and reliability.
- Preparing various project deliverables, such as reports, papers, and documentation, to disseminate research findings.
- Assisting in administrative tasks related to project management, ensuring smooth operations and coordination.
- Contributing to expanding the research portfolio of the lab by exploring new research opportunities and collaborations.

- Providing guidance and support to students pursuing their PhD and MSc degrees, including supervision and teaching responsibilities.
- Engaging in discussions and presentations with stakeholders, sharing research outcomes and insights.
- Adhering to UCL's research protocols, including ethics, data protection, and training requirements.
- Participating in networking events and engage in activities to disseminate research findings within the academic community and beyond.
- Supporting various enabling activities for the lab under the guidance of the line manager, contributing to the lab's overall objectives.

In addition, the post holder will be expected:

- To actively follow UCL policies including Equal Opportunities policies and be expected to give consideration within their role as to how they can actively advance equality of opportunity and good relations between people who share a relevant protected characteristic and people who do not share it.
- The post holder has a responsibility to carry out their duties in a resource efficient way and actively support UCL's Sustainability Strategy, policies and objectives within the remit of their role.

- To maintain an awareness and observation of fire and health and safety regulations.
- The above list is not exclusive or exhaustive and the post holder will be required to undertake such duties as may reasonably be expected within the scope and grading of the post.

The successful candidate will need to meet UCL's expectations of core behaviours as outlined in <https://www.ucl.ac.uk/human-resources/policies-advice/core-behaviours-framework>

As duties and responsibilities change the job description will be reviewed and amended in consultation with the post holder.

Equality, Diversity and Inclusion at The Bartlett

The Bartlett is committed to increasing the racial diversity of our staff. As part of this effort, we are trialling a scheme to automatically grant interviews to applicants from ethnic minority backgrounds who meet all the essential criteria for this post. If you are such an applicant and wish to be considered for the automatic interview scheme, please indicate this on your application within the section where we ask why you have applied for this role. Remember to also detail how you meet the essential criteria in your application.

Person specification

| Criteria | Essential or Desirable | Assessment method (Application/Interview) |
|--|------------------------|---|
| Qualifications, experience and knowledge | | |
| Postgraduate degree in engineering, mathematics, and computer science or a related discipline. which a focus on transport modelling | Essential | Application |
| Experience in transportation modelling (e.g. AIMSUN, SUMO, PTV VISUM, PTV VISSIM, MATSIM, CUBE, SATURN, etc.) | Essential | Application & Interview |
| Familiarity with statistical analysis, discrete choice models, and machine learning techniques applied to transportation data. | Essential | Application, Interview |
| Experience in conducting research projects | Desirable | Application & Interview |
| Knowledge of traffic flow theory, traffic control systems, and traffic management strategies | Desirable | Application & Interview |
| Skills and abilities | | |
| Strong coding skills in at least one of the following programming languages: Python, Matlab, Java, C#, C++ , with a preference towards python. | Essential | Application, Interview & Test |
| Strong analytical and problem-solving skills. | Essential | Application & Interview |
| Ability to work with complex datasets and conduct data analysis using appropriate statistical methods. | Essential | Application & Interview |
| Excellent written and verbal communication skills. | Essential | Application & Interview |
| Strong project and time management skills. | Essential | Application & Interview |
| Proficiency in deep learning frameworks for traffic prediction. | Desirable | Application & Interview |
| Experience in developing simulation interfaces and APIs. | Desirable | Application & Interview |
| Personal attributes | | |
| Attention to detail and commitment to producing high-quality research. | Essential | Interview |
| Ability to work independently and take initiative in problem-solving. | Essential | Interview |
| Strong intellectual curiosity and a passion for advancing transport research. | Essential | Interview |
| Proactive attitude towards learning and staying updated. | Essential | Interview |
| Strong interpersonal skills for collaboration and knowledge sharing | Essential | Interview |
| Commitment to UCL's policy for equal opportunity | Essential | Interview |



Apply

To apply for this position visit:

ucl.ac.uk/jobs

If you have any queries regarding the application process, please contact:

bseer-recruitment@ucl.ac.uk

If you have any queries regarding the vacancy please contact:

Manos Chaniotakis

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