the Oval partnership

Loughborough University

School of Architecture, Building and Civil Engineering

The Oval Partnership

Innovate UK | ktn

Job Ref: REQ220759

Advert title: Pedestrian Movement Analyst / Data Scientist (KTP Associate)

Period: 24 months
Salary: £32,000 - £40,000 per annum (Confirmation on offer of appointment) plus £2,000 training budget
Application deadline: 17th July 2022
Key words: data analytics, computer science, architecture, planning, architectural design, urban design, machine learning, deep learning, pedestrian, walking, footfall, transport modelling, mobility, GIS

Project Title: The re:PLACE - REgeneration: PLanning Active CEntres project will develop a predictive pedestrian forecasting tool to enable planning and design services for urban regeneration, master planning and facilitate community planning engagement. (>>>>ANNOUNCEMENT LINK<<)

About the project

The town centre retail model of past decades has been in gradual decline, accelerated by the global COVID-19 pandemic. To survive, high streets and local developments need to build on a sense of place and local distinctiveness. Resilient town centres have diverse uses, with the conversion of vacant spaces encouraging public engagement, and assisting in generating and channelling footfall at different times of the day, week and year, which has been widely recognised as a key ingredient to thriving public spaces.

Never before has sustainable, evidence-based planning and design taken on such significance as now. Not only does the amount of footfall define the success or failure of local economies and healthy communities, but walking is also a key ingredient of urban mobility, so critical to counteract the climate crisis. To accelerate the shift to zero-carbon transport modes and the creation of thriving local community spaces, a new approach to walking is necessary. Through the development of the re:PLACE artificial intelligence analytics and forecasting system, this KTP will provide urban designers, town centre managers, planners and community stakeholders with the tools to support their regeneration efforts.

The partnership project will develop methods and systems for studying local and national footfall data. Through the application of deep learning methods an evidence-based, quantitative tool for measuring, evaluating and forecasting pedestrian footfall will be created.

This project will build on the latest data technologies to create improved tools for understanding and forecasting pedestrian movement and as such will play a key role in the paradigm shift to encourage walking and enhance accessibility for sustainable transport modes. In turn, it will generate a richer and more engaging experience in mixed-use urban-scale projects.

This 24-month project between Loughborough University and The Oval Partnership is jointly funded with UKRI Innovate UK. We are seeking a highly motivated candidate with relevant skills to join the project team.

The Oval Partnership (https://www.ovalpartnership.com/en/)

The Oval Partnership is an award-winning international architecture and design practice whose projects are based on collaboration towards shared, long-term prosperity, and are designed to leave an enduring and positive impact. With offices based in London, Hong Kong and Beijing, their projects serve the UK, European and Asian markets.

The Oval Partnership is especially renowned for its retail planning and master-planning expertise. The practice uses an evidence-based approach to designing the city with Digital Placemaking (DPM), a pioneering toolkit developed together with its subsidiary Wedderburn Transport Planning to understand the movement of people, recognise patterns, assess adaptability, and evaluate designs and built form. This allows them to uncover the hidden value of existing retail centres and rescue them from slow decline but also makes a significant contribution to sustainability goals by minimising the need for demolition and enabling the designs to be fully embedded within the surrounding area.

The diverse team consists of international strategic planners, transport planning specialists, architects and urbanists who conceive and execute outstanding, high-value urban design projects that nurture and sustain the long-term value of a community's social, ecological and economic capital.

Loughborough University

Loughborough University is ranked in the top ten in the most recent Complete University Guide Guardian League Table and the Times Good University Guide. It has been awarded a record of seven Queen's Anniversary Prizes for its research impact on society and UK industry. The 2021 Research Excellence Framework recognised excellence in Loughborough University's outputs, impacts and environmental contributions with over 90% of Loughborough's research classed as world leading or internationally excellent (REF 2021),

With an international reputation for research excellence and track record in high quality training the School of Architecture, Building and Civil Engineering at Loughborough University is one of the largest centres for built environment education in the UK. The School of Architecture, Building and Civil Engineering was ranked second in the UK (May 2022). The School brings together outstanding facilities, superb teaching and commercial industry connections across a wide range of sectors. With experts across a range of disciplines including Architecture, Transport and Urban Planning, Construction Management, and Civil Engineering the School provides training, research and consultancy to shape the world we live in, from the design of buildings resilient to climate change, through to the management of contractors during construction and the planning, operation and maintenance of transport systems.

This interdisciplinary ethos underpins research within the School, with work at the interface of subject boundaries enabling staff to draw upon the wide range of expertise to develop new insights and research for professions across the built environment.

About the KTP Associate

The successful candidate will be a highly-motivated, perceptive and proactive graduate with a relevant Master's degree or post-graduate research degree (PhD). They will have demonstrable experience of high-quality research, ideally in urban studies, transport planning or related disciplines.

Candidates should be able to demonstrate a strong interest in urban planning, mobility, regeneration and/or other relevant policy issues. A high level of observational skills and attention to human behaviour in public spaces are desirable.

The Associate should be proficient in the use of standard database packages and preferably demonstrate advanced GIS capabilities. Experience in programming in Python, R, C# or similar and in software or app development is essential. Advanced statistical analysis skills are necessary, with experience and knowledge of machine learning also desirable.

Prior use of statistical, transport or pedestrian modelling packages is desirable, as is familiarity with evaluation techniques applied in the urban or transport planning or related fields. Exposure to pedestrian movement assessment in transport, retail environments and/or public spaces will be an advantage. The ability to visually communicate ideas and study outcomes will be an asset, along with practice in Adobe graphics software or similar.

The ability to collaborate with a diverse team, as well as to take initiative is essential. The Associate will connect with potential end-users and policy influencers in a commercial environment to build and optimise analytical tools. Excellent communication skills with a high standard of spoken and written English are essential. The ability to develop innovative solutions and question ideas whilst demonstrating accuracy, attention to detail and high-level, quality presentation will be required. The candidate needs to be sensitive to the ethical implications of programming and methods to overcome the issue of potential data bias in algorithm development.

The KTP Associate will be based primarily at the Oval Partnership offices at 81 Curtain Road, London, EC2A 3AG, UK, and will also spend time at Loughborough University with the academic team. They will be managed by Professor Marcus Enoch and supervised by Dr Asya Natapov and Dr Mingzhu Wang, experts in transport planning, urban planning and design, and the application of artificial intelligence (AI) methods and data analysis for construction management. The Associate will form an integral part of the Oval Partnership team and that of its subsidiary Wedderburn Transport Planning, working closely with the company supervisory team and the academic supervisors from Loughborough University.

As KTP Associate the successful applicant will have access to a wide range of commercial, R&D and management training programmes as well as support, and access to resources and facilities at Loughborough. This will include a wide range of high-spec computing facilities including HPC, high-spec deep learning machines and workstations with the most recent high-performance GPUs and servers.

We strive to create a culture that supports equality and celebrates diversity throughout our organisations.

Applications

Applications must be made through the Loughborough University recruitment site. The application process will include:

- A motivation letter stating the applicant's interest in working with the Oval partnership and in particular including: research areas and/or projects of particular interest within the given scope, key relevant competencies of the applicant, dates of availability.
- CV

- Applicants should be ready to provide letters of recommendation or contacts of provided references upon request

Job Description and Person Specification

Job Grade: Other

Job Purpose

The KTP Associate will be responsible for:

- Development of people movement planning tools which will include:
    - Liaising with colleagues and clients to understand their requirements for the further development of movement planning tools;
    - Implementing a workplan of research and other tasks to develop the REgeneration: PLanning Active CEntres artificial intelligence and forecasting system. The workplan will include research into pedestrian network and land use classifications, the use of GIS-based analysis tools, advanced statistical procedures for model calibration, and the development of stand-alone applications to support the above; and
    - Liaising with other staff and external stakeholders to test applications on demonstration studies or pilots.

- Leading the project workplan providing project management, stakeholder engagement and technical input to generate tools for movement analysis and prediction that inform urban planning and development.
- Co-ordination the engagement with clients and stakeholders to optimise the tools developed and to progress the exploitation plan
- Working with suppliers of data, associated software platforms or analytical tools to ensure coordination and quality.
- Writing technical notes and contributing to study reports and papers.
- Presenting data and the results of spatial analysis in a clear and comprehensible fashion.
- Monitoring and reporting of project progress

Job Duties

- Carry out the KTP project tasks and deliver the outcomes as outlined in the project workplan
- Manage the project and disseminate the findings to the project team
- Produce and deliver reports to the senior management team and employees at different organisational levels, using business performance metrics appropriate to the unit
- Undertake KTP management training, as well as other courses as deemed necessary
- Write R&D reports, and present these at the Local Management Committee (LMC) meetings, as well as at national conferences and symposia with other members of the project team
- Prepare research papers for publication in highly acclaimed learned journals, in line with the expected scholarly activities of the University Research Staff, but in accordance to the commercial sensitivity of collaborating companies
- Travel to Company clientele and to various other locations within the UK, and possibly overseas, as required
- To undertake such other duties as may be reasonably requested and that are commensurate with the nature and grade of the post

Points to Note

The purpose of this job description is to indicate the general level of duties and responsibility of the post. The detailed duties may vary from time to time without changing the general character or level of responsibility entailed.

Applicants will have completed their last qualification (degree, masters, PhD) no more than five years before closing date.

Special Conditions

All staff have a statutory responsibility to take reasonable care of themselves, others and the environment and to prevent harm by their acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Policy & Procedures.

All staff should hold a duty and commitment to always observing the University's Equality & Diversity policy and procedures. Duties must be carried out in accordance with relevant Equality & Diversity legislation and University policies/procedures.

Successful completion of probation will be dependent on attendance at the University's mandatory courses which include Respecting Diversity and, where appropriate, Recruitment and Selection.

Person Specification

Your application will be reviewed against the essential and desirable criteria listed below. Applicants are strongly advised to explicitly state and evidence how they meet each of the essential (and desirable) criteria in their application. Stages of assessment are as follows:

1 – Application
2 – Presentation
3 – Interview

Essential Criteria

Area	Criteria	Stage
Expertise	Expertise in advanced statistical analysis is essential	1,2,3
	Knowledge and expertise in programming (Python, R, C# or similar), software or app development is essential.	1,2,3
	Able to demonstrate a strong interest in urban planning, mobility, regeneration and/or other relevant policy issues.	1,2,3
Skills and abilities	Excellent numeracy and spatial analytics skills.	1,2,3
	Proficient in the use of standard database packages and preferably demonstrate advanced GIS capabilities	1,2,3
	Proficient use of MS Word, Excel, PowerPoint and Access.	1,2
	Ability to take initiative and to work as part of a team	1,2,3
	Able to think independently, challenge ideas and develop innovative solutions.	1,2,3
	Demonstrates accuracy, attention to detail and high levels of presentation quality.	1,2,3
Experience	Demonstrable experience of independent and high-quality analytical research, ideally in the field of urban or transport planning or related disciplines.	1,2,3
	Excellent communication skills with a high standard of spoken and written English.	1,2,3
	Experience in the use of standard statistical packages, transport or pedestrian modelling packages.	1,2,3
	Excellent technical writing skills	1,2,3
Training	Motivated to undertake KTP training modules and bespoke training as appropriate for personal and professional development	3
Qualifications	Graduate in a relevant Master's degree essential or post-graduate research (PhD desirable).	1
Other	To always observe the University Equal Opportunities policies	3

Desirable Criteria

Area	Criteria	Stage
Knowledge and Expertise	Knowledge of the tender, work-winning and project delivery model of contracting organisations	1,2,3
Experience	Experience of analytical techniques applied in the urban or transport planning or related fields is desirable.	1,2,3

	Experience of assessing pedestrian movement in transport, retail environments and/or public spaces is desirable	1,2,3
	Experience and knowledge of machine learning	1,2,3
Skills and abilities	Proven track-record of engaging diverse stakeholders in a change programme	1,2,3
	Ability to visually communicate ideas and study outcomes will be an asset, along with practice in Adobe graphics software or similar	1,2,3
Qualifications	Graduate in post-graduate research (PhD).	1,3

Conditions of Service

The position is FULL TIME and FIXED TERM for 24 months. Salary will be between **£32,000 and £40,000** per annum at a starting salary to be confirmed on offer of appointment. The successful applicant will also receive a £2,000 per annum training budget.

The appointment will be subject to the University's normal Terms and Conditions of Employment for Academic and Related staff/Operational and Administrative staff, details of which can be found here.

We strive to create a culture that supports equality and celebrates diversity throughout the campus. The University holds a Bronze Athena SWAN award which recognises the importance of support for women at all stages of their academic career. For further information on Athena SWAN see http://www.lboro.ac.uk/services/hr/athena-swan/.

Applications

The closing date for receipt of applications is Sunday 17th July 2022.

Interviews will be held in the week commencing 3rd August 2022