

Job Description

Job Title: Research Fellow in Digital Twinning for Crisis and Resilience in Transportation
Job Ref: SCT374
Campus: Hendon
Grade: Grade 7
Starting Salary: £43,811 per annum inclusive of Outer London Weighting rising to £50,136 incrementally each year
Hours: 35.5 hours per week, actual daily hours by arrangement
Period: Fixed Term – 24 Months
Reporting To: Professor Huan X Nguyen

**Reporting to
Job Holder:**

Role Summary

The post-holder will be a key researcher within a multi-disciplinary project focused on developing a Digital Twin framework for resilience and crisis management. The role involves leading and contributing to the design, development, and integration of dynamic models to simulate high-impact, low-probability crisis events in transportation.

Job Purpose

To conduct high-quality research and development of a Digital Twin platform that enables transport operators to predict, adapt to, and recover from disruptions such as extreme weather, infrastructure failures, and cybersecurity threats.

To contribute to applications, conduct of research projects and programmes within the London Digital Twin Research Centre, ensuring they are of the highest standard and deliver the intended results, to the benefit of the Centre, the University and the wider community.

Main Responsibilities

Research & Technical Development

- *Framework design:* Develop the foundational ontology, knowledge graph architecture, and modular platform for a Digital Twin tailored for crisis resilience management.
- *Dynamic modelling:* Lead the development of advanced models to simulate accidents, infrastructure disruptions, and natural disasters (e.g., coastal flooding, extreme weather, cyber-security threats, etc).
- *Impact & recovery:* Create real-time adaptation and recovery models to provide actionable insights for maritime supply chains and port operations.
- *Integration:* Combine scenario, impact, and recovery models into a unified, flexible framework for stakeholder use.
- *Dissemination:* Conduct and disseminate high-quality research outputs of international standard through journals and conferences.

Project Management & Collaboration

- *Partnership liaison:* Collaborate with key project partners and various industry stakeholders.
- *Activity management:* Manage specific research strands and ensure project deliverables (frameworks, platforms, and documentation) are met on time.

Teaching & Support

- *Student Engagement:* Contribute to an agreed level of student supervision and provide guidance to Masters or doctoral students on research methods and data analytics.

Leave: 35 days per annum plus eight Bank Holidays and seven University days taken at Christmas (pro rata for part-time staff) which may need to be taken as time off in lieu.

Fixed Term Contract

This temporary appointment is for the following allowable reason:

- To carry out work on a specific research project which is being funded externally and the funding will expire in 2028

Therefore, this appointment has a defined end date of no later than October 2028. If you are applying as an internal candidate to do the temporary post as a secondment please discuss this with your line manager first and read our [Secondment Guidelines](#). We are also flexible with job share mode and duration of the appointment.

Flexibility: Please note that given the need for flexibility in order to meet the changing requirements of the University, the duties and location of this post and the role of the post-holder may be changed after consultation. The balance of duties may vary over time and will be reviewed as part of the appraisal process.

Person Specification

Post Title: Research Fellow in Digital Twin Modelling for Crisis Resilience in Transportation

Knowledge, skills, and experience (essential)

1. *Academic qualifications:* A doctorate (PhD) or equivalent experience in research (e.g., publications, project experience) in Computer Science, Engineering, Transport Logistics, or a related technical field.
2. *Research output:* Evidence of high-quality research outputs of an international standard, ideally in areas such as dynamic modelling, ontologies and knowledge graph, AI/ML or Digital Twin technology.
3. *Technical expertise:* Strong understanding of research design and methods, specifically regarding data-driven modelling, physics-based modelling, knowledge graphs, real-time analytics, or simulation capabilities.
4. *Project experience:* Proven record of success in undertaking research activities, specifically in managing complex work strands or contributing to major programmes.
5. *Modelling:* Experience in modelling high-impact, low-probability events in crisis and resilience for transportation, such as extreme weather, infrastructure failures, or cybersecurity threats.
6. *Platform development:* Capability to develop modular, scalable Digital Twin platforms for crisis management and resilience in transportation and interlinked sectors

Specific project competencies (desirable)

7. *Stakeholder focus:* Ability to translate complex data into user-friendly formats and actionable insights for decision-makers under stress.
8. *Educational commitment:* Ability to contribute to learning and teaching, including the supervision of projects and providing guidance to students on research methods and equipment.
9. *Collaborative ability:* Ability to develop and maintain networks with project partners and industry stakeholders.

Parking at Hendon campus

There are currently *Regular Parking Permits* and *Pre-Paid Parking options* available to new joiners. *Further details are available on the Travel and transport page on the staff intranet. Please note if the number of applications becomes oversubscribed these parking options could be withdrawn at any point.*

Information for Disabled Staff

Staff and visitors with their own current blue badge have access to free parking on campus. All blue badge holders should present a copy of their blue badge to the security office in the Quad. Holders will be given car park access up to the date of expiry of their blue badge.

Public Transport

Our Hendon Campus is well served by public transport with buses, London underground and British Rail services all within a short walk of the campus. You can get detailed journey information from TfL (www.tfl.gov.uk) and have a look at our directions and location to help plan your travel: <http://www.mdx.ac.uk/aboutus/Location/hendon/directions/index.aspx>

We offer an interest-free season ticket loan, interest-free motorbike loan, and bicycle and motorbike parking and changing facilities.

We value diversity and strive to create a fairer, more equitable work environment for our staff and students.

We offer a range of family friendly, inclusive employment policies, flexible working arrangements, staff diversity networks, campus facilities and services to support staff from different backgrounds.

The postholder should actively follow Middlesex University policies and procedures and maintain an awareness and observation of Fire and Health & Safety Regulations.

What Happens Next ?

If you wish to discuss the job in further detail please contact Professor Huan X. Nguyen via H.Nguyen@mdx.ac.uk

POST GRADUATE CERTIFICATE IN HIGHER EDUCATION

Staff who do not hold a teaching qualification in Higher Education may be required to undertake a PGCHE on appointment.

Set out below are the conditions which apply to newly appointed academic or related staff in relation to the PG Cert Higher Education programme:

- all staff with a contract of more than two years duration and not less than 0.5 FTE are expected to complete the programme unless exempted at the time of appointment;
- other fractional staff and part-time hourly-paid staff may enroll on the programme subject to the normal University conditions concerning payment of tuition fees;
- exemption shall be granted to suitably qualified and experienced staff: *i.e.* 3 years full-time or equivalent or PG Cert HE or equivalent;
- normally staff should be expected to complete the PG Cert HE programme successfully within 24 months of enrolling;
- normally there will be an upper limit of four years to complete the programme successfully. If problems are identified at 30 months every effort will be made to resolve them at a staff development level;
- failure to complete the programme within four years may result in delayed grade progression within the University from Lecturer to Senior Lecturer and is likely to be considered negatively when candidates in such a position apply for promotion;
- staff must be given adequate time to complete the programme within an agreed time framework (*i.e.* normally within 24 months);
- staff will normally be given a time allocation of 0.1 FTE in order to participate in the programme;

- staff who do not complete the programme successfully within 48 months of enrolment without good cause shall not receive a further increment until they do successfully complete the programme;
- where exceptional circumstances apply staff should have the right to appeal to the Deputy Vice-Chancellor against a decision to withhold increments pending successful completion of the programme within four years.

The following qualifications will be considered for exemption of new teaching staff from undertaking the PGCHE:

Either

- Qualified teacher status: e.g. Registered teaching qualification recognised by SEDA, Bed, PG Cert E or further education qualification;
- DFEE registered teaching number (school based number);
- Recognised ENB (NURSING) teaching qualification.

Or

- Three years full time teaching experience (subject to review following guidelines from ITLHE).

Not Accepted

General Adult Education cert. not accepted at present as it does not consider theories of learning, knowledge, needs, skills, and principles of learning.

NB Regardless of exemption, all new lecturers to the University **MUST** go through academic induction.