

JOB DESCRIPTION

Job Title:	Professor of Evacuation and Pedestrian Dynamics	Grade:	AC5
Department:	CMS	Date of Job Evaluation:	May 2024
Role reports to:	Associate Dean RKE in FES	SOC Code:	2311
Direct Reports:	n/a		
Indirect Reports:	n/a		
Other key contacts:	CMS Head FES PVC Centre Lead for CSRPS M ³ 4Impact leads Colleagues in M ³ 4Impact, CSRPS and FES Colleagues in GRI Funding agencies Research Partners		

This role profile is non-contractual and provided for guidance. It will be updated and amended from time to time in accordance with the changing needs of the University and the requirements of the job.

PURPOSE OF ROLE:

Our vision is to expand our world-leading Multi-Disciplinary and Multi-Scale Modelling expertise in both reach and ability, to tackle major societal challenges affecting the environment, quality of life, safety, security, and the economy. This will be achieved through the amalgamation and expansion of two existing award-winning teams: the Centre for Safety, Resilience and Protective Security (CSRPS) and the Computational Science and Engineering Group (CSEG), creating the Multi-scale, Multi-disciplinary Modelling for Impact (M³4Impact) platform.

Both teams excel at developing and applying mathematical models, computational simulations and bespoke software to create digital worlds that predict physically accurate outcomes addressing a wide range of societal challenges. M³4Impact links three cross-cutting research and enterprise themes: **Safety and Security**, covering disaster resilience, fire and evacuation, dynamically coupling urban-scale and building scale evacuation modelling, and protective security incorporating real-time interactivity through Virtual/Mixed Reality, from CSRPS; **Materials Science and Engineering**, focusing on the design and manufacture of lighter, stronger materials for transport and aerospace (targeting recyclability, low waste and energy efficiency), from CSEG; and **Digital Cities**, where interdisciplinary research will develop the evidence-base to protect UK cities/populations from pollution, pathogen dispersal, natural/anthropogenic disasters and to support policy decisions using a multi-scale approach from cityscape to street level, jointly from CSRPS and CSEG.

This role is within the remit of CSRPS's involvement within M³4Impact and the successful applicant will be a key member of both the M³4Impact team and

CSRPS. The role is intended to strengthen CSRPS's capacity to conduct high quality research in the areas of human behaviour associated with urban-scale evacuation and evacuation from the built environment, and the associated modelling of evacuation. The role involves taking a lead in research and enterprise (RE) activities enabling the further development and enhancement of the EXODUS suite of evacuation software, in particular, but not restricted to, urbanEXODUS, buildingEXODUS and matEXODUS.

The role includes;

- developing theoretical frameworks describing human decision making and behaviour in evacuation situations to support general evacuation model development,
- contributing to the development of new and enhanced algorithms describing a range of human behaviour that can be incorporated within the EXODUS suite of tools,
- enhancing the usability of the EXODUS suite of evacuation models, and
- the design and implementation of human factors and behaviour experiments to provide an evidence base for model development, calibration and validation.

The role also involves leading enterprise and knowledge exchange (KE) activities in evacuation and pedestrian dynamics, that make use of the EXODUS suite of tools and other methodologies as appropriate. An interest in exploring how AI techniques, VR/MR and high-performance computing can be used to enhance evacuation modelling capabilities is desirable.

The ideal candidate will have a PhD in evacuation modelling or a related field and have extensive experience from conducting research examining human behaviour in emergency evacuation situations, evacuation model development, and applications of evacuation modelling within the urban e.g., wildfire, floods, etc., and built e.g., high-rise, stadia, etc., environments. A strong track record of publication in peer reviewed, international journals will be expected.

The candidate is expected to be a lead figure in the national or international academic or professional community. The successful candidate will provide strategic leadership at Centre level in achieving a range of outcomes in RE and KE activities. The proven ability to generate significant research income is critical as an enabler, as well as the ability to add value to both CSRPS and M³4Impact.

The focus of this position is on research and enterprise, but there would be a contribution to teaching and student supervision of up to 20%.

The post holder is expected to have, and maintain strong stakeholder relationships at regional, national and international level, across their research disciplines and will be expected to provide strong leadership and to set standards of excellence.

Post holders are expected at this level to build on those at previous levels, to demonstrate significant leadership in a subject area and local, national and international reputation and impact

KEY ACCOUNTABILITIES

Team Specific:

- Lead subject or professional research resulting in the publication and/or dissemination of original work of international excellence quality.
- Lead and win significant research/enterprise bids for funding in support of the five-year strategy for M³4Impact.
- Support and expand the income base derived from licensing of CSRPS's EXODUS range of software tools to national and international customers.
- Seeking funding opportunities proactively to generate new research/enterprise/knowledge exchange income for CSRPS and M³4Impact.
- Lead interdisciplinary research collaboration and team-building, within CSRPS, M³4Impact, the Faculty and beyond.
- Develop and lead research or innovation consortia with external partners including non-academic stakeholders.
- Develop and lead strategic alliances which build on existing collaborations and/or establish new partnerships to support new CSRPS research/enterprise activities in the UK, Europe and internationally.
- Raising CSRPS's profile and establishing strong relationships with targeted clients and partners resulting in increased business.
- Protect and enhance CSRPS's reputation, promoting its software tools, skills and expertise to position it as partner of choice.
- Acquire and maintain a portfolio of research and enterprise projects and/or contribute to teaching/knowledge exchange to achieve full personal commissioning at Full Economic Cost according to the five-year M³4Impact strategy.
- Lead the supervision of research students at doctoral level.
- Make significant contributions to the development of novel MSc programmes and CPD courses, integrating CSRPS research, enterprise and innovation, in support of teaching and knowledge exchange programmes developed as part of M³4Impact.
- Contribute to the development of the academic discipline.
- Serve on the M³4Impact Project Management Committee.

GENERIC

The post holder will:

- Maintain and develop their reputation as an authority and leading figure within the international academic or professional community in their specific subject.
- Have accountability for the acquisition and management of external funding.
- Maintain high professional standing in their discipline and develop their own scholarly profile, including a program of high-quality scholarship, disseminated primarily in professional refereed journals.
- Implement approved policies, guidelines, and standard operating procedures efficiently in relation to their own academic duties.

- Maintain an overview of the welfare, progression, examination, and assessment of allocated students.
- Keep abreast of development within the disciplines in their work area and seek continuous improvement of their own professional practice.

Managing self:

- Keep abreast of developments within the field and seek continuous improvement of own professional practice.
- Actively participate in established professional development framework activities.
- Behave in a manner that reflects the University values and creates a positive environment for work and study.

Core Requirements

- Commitment to key strategic priorities of the Faculty and University
- Adhere to and promote the University's policies on Equality and Diversity and Information Security. Ensure compliance with Health and Safety regulations and Data Protection legislation.
- Support and promote the University's Sustainability policies, including the Carbon Management Plan, and carry out duties in a resource efficient way, recognising the shared responsibility of minimising the university's negative environmental impacts wherever possible.
- Adhere to current legal requirements and best practice relating to digital content and accessibility, including Web Content Accessibility Guidelines when creating digital content.

Additional Requirements:

Undertake any other duties as requested by the line manager or appropriate senior manager, commensurate with the grade.

This is a professional, demanding role as part of a project, M³4Impact, that has a specific and ambitious strategic plan and agenda. The role holder will be expected to show flexibility in working arrangements, including working hours, to ensure that M³4Impact delivers against this plan.

KEY PERFORMANCE INDICATORS:

Performance Indicators will be established in consultation with the Safety and Security lead, the line manager and the other M³4Impact leads, as part of the post holder's annual Appraisal and Professional Development Review and with due regard to the University's KPIs.

KEY RELATIONSHIPS (Internal & External):

- Faculty Management Team,
- CSRPS Management Team,
- M³4Impact Management Team,
- M³4Impact Staff,
- GRI,
- External funders and External Partners.

PERSON SPECIFICATION
Essential
Experience

- Demonstratable international credibility and recognition within the fields of evacuation modelling and human behaviour in emergency situations research.
- Significant experience of conducting research in evacuation modelling in the urban (e.g., wildfire) and built (e.g., high-rise) environments, including algorithm development.
- Significant experience of conducting research in human behaviour in emergency situations, including the design, implementation and analysis of evacuation trials.
- Proven sustained track record of generating substantial research or enterprise income from a range of sources such as funding councils, commercial and government/public sector sources.
- Proven track record of publishing a sustained body of outputs with international impact at the highest levels of international excellence including world leading work.
- Experience of using and developing algorithms for advanced evacuation modelling tool such as EXODUS, Pathfinder, WUI-NITY, etc for research and practical applications.
- Leadership of significant research and enterprise projects with a range of stakeholders, including commercial, government and public sector.
- Proven track record of leading research or

Desirable
Experience

- Knowledge and experience of fire safety engineering.
- Experience of fire modelling.
- Understanding of HE in the UK and in a business enterprise role.
- Working knowledge of academic standards.
- Working knowledge of quality assurance and academic standards.

professional teams.

- Proven track record of delivering a significant and sustained body of impacts or outcomes with demonstrable benefits to businesses, the public sector, or society in general, at the highest levels of international excellence in terms of reach and significance.
- Evidence of strong stakeholder relationships at regional, national, and international level, across enterprise and professional disciplines.
- Proven track record in effective financial management.
- Proven, sustained track record of successful supervision of research activities of students at various levels, including PhD.
- Experience of managing, defining and specifying appropriate ethics standards associated with human factors research.
- Experience of teaching in HE, at a range of levels including, undergraduate, masters and summer schools.
- Experience of computer programming in a structured language such as C++.

Skills

- Outstanding knowledge of the mechanisms for funding research and enterprise including preparation of grant proposals.
- Excellent organisational and management skills.
- Outstanding interpersonal skills and ability to motivate others.
- Excellent written and oral communication skills.
- Commitment to the promotion of high standards and excellence.
- Ability to think strategically and conceptually.
- Capacity to listen and consult, good negotiation skills.

Skills

- N/A

- Capacity to make informed decisions.
- Ability to work effectively and deliver under pressure.
- Able to use IT effectively.
- Well-developed project management skills.

Qualifications

- PhD degree in evacuation modelling or related field.
- Membership of appropriate professional bodies such as, IFE, SFPE, IMA.
- Chartered status with an appropriate body e.g., IMA, IFE.
- Minimum of Associate Fellow of HEA or significant HE teaching experience.

Personal attributes

- We are looking for people who can help us deliver the [values](#) of the University of Greenwich: Inclusive, Collaborative and Impactful

Qualifications

- Postgraduate teaching qualification

Personal attributes

- N/A