

Research Associate in Computational Intelligence

Department	Mechanical and Aerospace Engineering (www.strath.ac.uk/engineering/mechanicalaerospaceengineering/)		
Faculty	Faculty of Engineering (www.strath.ac.uk/engineering/)		
Staff Category	Research	Reference No	484169
Reports To	Prof Massimiliano Vasile	Grade:	7
Salary Range:	£35,308	Contract Type:	Fixed Term (24 months)
FTE:	1	Closing Date	Wednesday, 26 July 2023

Job Advert

The Faculty of Engineering at the University of Strathclyde is one of the largest and most successful engineering faculties in the UK, and the largest in Scotland. As a leading international technological university, Strathclyde is recognised for its world class research, knowledge exchange and educational programs. At the heart of this is the Faculty of Engineering which boasts a growing research portfolio of over £85 million.

The Department of Mechanical & Aerospace Engineering is the birthplace of modern engineering education, informing the technology leaders of today and tomorrow since 1800. Our mission is to advance knowledge and commerce in mechanical and aerospace engineering, and apply fresh thinking to the challenges faced by industry and society.

The Aerospace Centre of Excellence in the Department of Mechanical & Aerospace Engineering seeks to appoint a Post-doctoral Research Associate in Computational Intelligence to work on a challenging high-risk high-gain research project, called GENEPEY, supported by the UKRI New Horizons scheme. The successful candidate will work on generative deep learning with application to complex dynamical systems under uncertainty. The goal is to develop Physics-Informed deep Learning architectures that can automatically generate equilibrium, periodic, and resonant solutions with the ultimate goal to study and control stable and metastable dynamical structures of high-dimensional complex dynamical systems affected by uncertainty.

To be considered for the role, you will be educated to a minimum of Master degree level in a discipline related to Engineering, Physics, Mathematics or Computer Science and have obtained or about to obtain a PhD in the same area with application to deep learning. You will have experience in one or more of the following areas: machine learning, generative deep learning, dynamical system theory, uncertainty quantification. You will have the ability to develop and deliver research activities, and work on collaborative projects involving both industry and academia. You will be ambitious and enthusiastic about cross-disciplinary working and be able to work independently and as part of a team, supporting others when required. You will have good interpersonal and communication skills, including an ability to listen, engage and persuade, and to present complex information in an accessible way to a range of audiences. You will have the ability to work well under pressure and be driven to deliver results. The appointment will be made at Research Associate level.

Job Description

Brief Outline of Job:

Applicants are required to complete an application form including the name of three referees who will be contacted without further permission, unless you indicate you would prefer otherwise. Applicants should also submit a Curriculum Vitae and a

covering letter detailing the knowledge, skills and experience you think make you the right candidate for the job as well as a Research Plan outlining your research strategy for the next 5 years. Applicants should also complete the Equal Opportunities Monitoring Form.

Main Activities/Responsibilities:

1.	As part of a wider research group or programme, develop research objectives and proposals for own or joint research and play a lead role in relation to a specific project/s or part of a broader project, with guidance from senior colleagues as required.
2.	Develop the required activities within the GENEPY New Horizons research project in order to achieve the project objectives.
3.	Plan and manage own workload, with guidance from colleagues as required.
4.	Plan and manage own research activities as agreed with PI of project GENEPY and Head of the Aerospace Centre of Excellence.
5.	Conduct individual and/or collaborative research, including determining appropriate research methods and contributing to the development of new research methods.
6.	Identify sources of funding and contribute to the securing of funds for research, including drafting grant proposals and planning for future proposals.
7.	Write up research work for publication, individually or in collaboration with colleagues, and disseminate results as appropriate to the discipline by, for example, peer reviewed journal publications and presentation at conferences.
8.	Join external networks to share information and ideas, inform the development of research objectives and to identify potential sources of funding.
9.	Collaborate with colleagues to ensure that research advances inform departmental teaching effort.
10.	Collaborate with colleagues on the development of knowledge exchange activities by, for example, participating in initiatives which establish research links with industry and influence public policy and the professions.
11.	Supervise student projects, provide advice to students and contribute to teaching as required by, for example, running tutorials and supervising practical work.
12.	Contribute in a developing capacity to Department/School, Faculty and/or University administrative and management functions and committees.
13.	Engage in continuous professional development.

Person Specification

Educational and/or Professional Qualifications

(E=Essential, i.e. a candidate must meet all essential criteria to be considered for selection, D=Desirable)

E1 Good honours degree and PhD (or equivalent professional experience) in an appropriate discipline i.e. computer science, physics, mathematics, engineering

Experience

E2 Sufficient breadth or depth of knowledge in the relevant discipline/s to contribute to research programmes and to the development of research activities.

E3 Research experience in one or more of the following areas: machine learning, generative deep learning, dynamical system theory, uncertainty quantification.

D1 Experience of relevant student supervision and teaching activities.

Job Related Skills and Achievements

E4 Developing ability to conduct individual research work, to disseminate results and to prepare research proposals.

E5 Ability to plan and organise own workload effectively.

E6 Ability to work within a team environment.

E7 General knowledge of generative deep learning and machine learning

D2 General knowledge of uncertainty treatment

D3 General knowledge of dynamical systems

Personal Attributes

E8 Excellent interpersonal and communication skills, with the ability to listen, engage and persuade, and to present complex information in an accessible way to a range of audiences.

E9 Interest in generative deep learning and dynamical systems

E10 Organised and able to manage postgraduate students and their curriculum within the framework of the course regulations.

E11 Self-motivated

Application Procedure

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Other Information

Further information on the application process and working at Strathclyde can be found on our website (<http://www.strath.ac.uk/hr/workforus>).

Informal enquiries about the post can be directed to Professor Massimiliano Vasile, massimiliano.vasile@strath.ac.uk.

Conditions of Employment

Conditions of employment relating to the Research staff category can be found at: [Conditions of Employment](#).

Rewards and Benefits

Our staff have access to a wide range of outstanding benefits that include financial rewards, family friendly and wellbeing benefits and career development opportunities, details of which can be found [here](#).

Probation

Where applicable, the successful applicant will be required to serve a 9 month probationary period.

Pension

The successful applicant will be eligible to join the Universities' Superannuation Scheme. Further information regarding this scheme is available from [Payroll and Pensions](#).

Relocation

Where applicable, the University offers a relocation package to support new employees who meet the eligibility criteria. The relocation package is offered as a contribution towards costs incurred, and is designed to be flexible, allowing staff to use the financial support available in the way that will be most helpful to them. Further details are outlined in the Relocation Policy.

Equality and Diversity

The University of Strathclyde is a socially progressive institution that strives to ensure equality of opportunity and celebrates the diversity of its student and staff community. Strathclyde is people-oriented and collaborative, offering a supportive and flexible working culture with a deep commitment to our equality, diversity and inclusion charters, initiatives, groups and networks.

We strongly encourage applications from Black, Asian and minority ethnicity, women, LGBT+, and disabled candidates and candidates from lower socio-economic groups and care-experienced backgrounds.

University Values

The University's Values capture what we're all about: who we are, what we believe in and what we stand for. [Our Values](#) have been derived from how we act and how we expect to be treated as part of Strathclyde.

