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THE TIMES THE SUNDAY TIMES GOOD UNIVERSITY GUIDE 2020 SCOTTISH UNIVERSITY OF THE YEAR

University of Strathclyde Glasgow

Marie Sklodowska-Curie Early Stage Researcher

Department	Electronic and Electrical Engineering (www.strath.ac.uk/engineering/electronicelectricalengineering/)
Faculty	Faculty of Engineering (www.strath.ac.uk/engineering/)

Staff Category	Research	Reference No	340666
Reports To	The Head of School/Department, through V. Stankovic	Grade:	NA – MC Fellowship
Salary Range:	Circa £37,546 - £39,318 per annum including allowances*	Contract Type:	Fixed Term (36 months)
FTE:	1 (35 hours/week)	Closing Date	Friday, 16 April 2021

Job Advert

GECKO: Building greener and more sustainable societies by filling the knowledge gap in social science and engineering with responsible artificial intelligence co-creation.

The Department of Electronic and Electrical Engineering (EEE) within the Faculty of Engineering is looking to fill three 36-month full-time early stage researcher posts at graduate level. The successful candidates will be fully integrated within the European Commission MSCA GECKO International Training Network (ITN) and must be willing to be enrolled within the EEE PhD programme at the University of Strathclyde. Besides a highly competitive salary, mobility and family allowance (restrictions apply), the recruitment package includes excellent research and training support as per MSCA ITN guidelines.

GECKO (https://gecko-project.eu) is recruiting 15 talented early stage researchers (ESRs) to work within an interdisciplinary consortium of nine European academic and industrial institutions, with support from 6 European industrial partners and Stanford University. GECKO will target interpretable and explainable Artificial Intelligence (AI) and explore alternative methods to build machine learning (ML) models drawing on the latest developments in information and social sciences. EU GDPR's Article 12 in current regulations allows individuals to enquire about AI system decisions. Thus, providers must be in a position to explain outcomes of their technology. AI design should be robust, from both technical and social perspectives, since even with good intentions, AI systems can cause unintentional harm. With this in mind, GECKO will focus on sustainability in relation to end users, where the decisions made by AI can significantly and directly affect people. GECKO ESRs will be trained in an international, inter-disciplinary academic and industrial environment through state-of-the-art research, GECKO training schools, and secondments to academic and industrial institutions.

The University of Strathclyde is a top research-oriented university in Scotland, founded in 1796 and located in the centre of Glasgow. With over 20,000 students and over 3,200 staff members, Strathclyde is Scotland's third largest university. Strathclyde is one of the top performing research universities in the United Kingdom, and the only university that has twice been awarded Times Higher Education University of the Year. Some other recent awards include Times Higher Education 2019 Widening participation Initiative of the Year, The Queen's Anniversary prize for Higher and Further Education award (which is presented to a small selection of UK institutions every two years and is the highest national honour awarded to the sector), The Sunday Times 2020 Scottish University of the Year, The Herald Higher Education Institution of the Year (2018) with QS-5star rating. Strathclyde is also involved in 17 ITNs, and thus has an excellent portfolio of training courses for training of all ESRs and PhD students at Strathclyde.

Strathclyde is home to Scotland's largest Faculty of Engineering, with over 5000 students and 8 departments. EEE Department is considered among top 5 UK departments in Electrical and Electronic Engineering and 1st in Scotland (according to Times 2020

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ranking). It is also one of the largest in the UK with 500 research staff, including over 60 academic staff members, 110 researchers and 250 PhD students.

EEE is a host to several unique research facilities and Centres of Excellence located in the newly-built Technology Innovation Centre where up to 1200 researchers, engineers and project managers from academia and industry work side-by-side. The department hosts two EPSRC Centres for Doctoral Training (CDT), has one of the most successful portfolios of EPSRC-funded research, and strong strategic links with industry.

Your research at EEE, Strathclyde will focus on developing novel interpretable machine learning models to provide algorithmic transparency, decision-making accountability, and bias-free algorithmic outcomes. In particular, the projects will exploit model visualisation tools and response to dynamics of collected data to understand the reasoning behind machine learning outcomes; information extraction methods to meet privacy and trust requirements; and novel graphical inference and signal and information processing techniques for smart home technologies. A range of signal processing methods will be developed to acquire understanding how deep learning networks transform input data into outcome recommendations. Specific attention will be given to identifying causes of potential biased outcomes and embedding causality in machine learning models.

You will interact closely with social science teams to integrate human/social elements in the machine learning models, including biases, inclusion, accountability, and provide computational methods to understand social phenomena, studying causal inference in social systems. As part of the GECKO network, you will be conducting various experiments within living labs, including collecting and processing user data to understand how users interact with AI technology and identifying drivers for responsible AI. Your responsibilities will comprise delivering research activities as part of the GECKO network and supporting teaching and learning (e.g., undergraduate project student supervision), and knowledge exchange activities under the general supervision of senior colleagues at Strathclyde. Together with other 14 GECKO ESRs, you will attend project schools and workshops and present your findings in the form of oral presentations and posters GECKO schools will provide a range of courses for developing research specific skills and transferable skills. You will also contribute to the schools via research-specific teaching material and contribute to the administrative management of the project.

You will conduct literature reviews, collect and collate data, develop novel and innovative algorithmic solutions, develop software, and undertake and record the outcomes of experiments. You will manage and prioritise your own workload and ensure that all activities are completed to deadlines and you will write up the results of your own research and contribute to the production of research reports, project deliverables and academic publications. You will also be enrolled in our PhD programme at Strathclyde, with expectation to graduate with a PhD degree at end of the 36-month period.

After 3 months of your employment, you will develop a personal career development (PCD) strategy that identifies your individual needs and learning outcomes, in terms of research and innovation training and career development, sets an initial learning pathway, selects and records appropriate activities (when, where, why), and means for monitoring the progress (deliverables). PCD plan will be updated every 6 months and will include: (i) research plan; (ii) training workshops; (iii) formal courses to attend; (iv) secondments; (v) networking opportunities, events/conferences to attend; (vi) public engagement sessions to participate in; (vii) targeted journal publications; (viii) milestones/deliverables that correspond to PCD plan.

You should be ready to undertake several international inter-sectorial and inter-disciplinary internships to GECKO's academic and/or industrial partners in Denmark, Germany, Greece, US, Norway and /or Sweden. During these internships you will be integrated in the host institution's GECKO team, working side-by-side with host researchers.

To be considered for the role, you will be educated to a minimum of Degree level (BEng or BSc) in Computer Science, Computer Engineering, Electrical and Electronic Engineering, Mathematical sciences or equivalent. You will have sufficient breadth and depth of knowledge in machine learning or signal processing with good programming experience (Python). You will have knowledge of appropriate research methods, have an ability to plan and prioritise your own workload, with general supervision, and you will have an ability to work within a team environment. You will have excellent interpersonal and communication skills, with the ability to engage and persuade, and to present complex information in an accessible way to a range of audiences. Whilst not essential for the role, applications are welcomed from candidates with: a higher Degree in a relevant discipline (MEng, MSc) and some relevant work experience (including internships, student project and student placements).

To supplement your application, please provide an up-to-date CV and include a one-page research statement describing how you would tackle the research challenges relevant to the post.

Applicants will be required to meet GECKO eligibility criteria. In particular, at the time of appointment they should be within the first four years of their research career and have not been awarded a doctoral degree, (the four years start to count from the date when a researcher obtained the latest relevant degree which would formally entitle them to embark on a doctorate) and should not have resided in the host country (UK) for more than 12 months in the last three years immediately before the appointment. Researchers are normally required to undertake trans-national mobility (i.e. move from one country to another) when taking up the appointment.

*The successful candidate will receive a financial package consisting of a living allowance, a family allowance (where applicable) and a mobility allowance, according to the rules for MSCA ITN Early Stage Researchers (ESRs). The minimum annual salary will be approximately £37,546 per annum.

The candidates will be asked to provide evidence of their eligibility during the selection process.

Job Description

Brief Outline of Job:

To assist in the delivery of research activities as part of a team, working on an established research programme/s under the general supervision of senior colleagues; to contribute towards project administrative activities; to assist where required with relevant teaching and knowledge exchange activities.

Main Activities/Responsibilities:

1.	Assist the delivery of the GECKO project by conducting literature reviews, developing new algorithmic methods and software tools, collecting and collating data and undertaking and recording the outcomes of experiments.
2.	Manage and prioritise own workload within agreed objectives to ensure that all activities are completed to deadlines.
3.	Write up results of own research and contribute to the production of project deliverables, research reports and academic publications.
4.	Contribute to the planning of research programmes.
5.	Assist with professional and knowledge exchange activities as required.
6.	Assist with the supervision of student projects and the delivery of introductory classes as required.
7.	Input as a team member to Department/School, Faculty and/or University administrative activities.
8.	Attend GECKO training schools and engage in continuous professional development.
9.	Perform internships to academia and industry when required.
10.	Disseminate GECKO findings at national and international levels and communicate the results to a broad audience

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 in an appropriate discipline i.e. Computer Science, Computer Engineering, Electrical and Electronic Engineering, or Mathematics
D1	Higher degree (MEng/MSc) or equivalent professional experience) in an appropriate discipline.

Experience

E2	Sufficient breadth or depth of knowledge in the relevant discipline/s to effectively contribute to the research programme/s.
D2	Some relevant work experience, including student internships and placements

Job Related Skills and Achievements

E3	Knowledge of machine learning methods, and experience with developing deep learning models; or signal processing approaches, or graph inference methods.
E4	Ability to plan and organise own workload effectively with general supervision from senior colleagues.
E5	Ability to work within a team environment.
E6	Strong programming skills, ideally in Python with some experience in developing deep learning models
D3	Experience of knowledge exchange related activities.

Personal Attributes
E7 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.

Application Procedure

Applicants are required to complete an application form including the name of three referees who will be contacted before interview 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. Applicants should also complete the Equal Opportunities Monitoring Form.

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 Vladimir Stankovic, Reader (vladimir.stankovic@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.

PVG Check

This position involves regulated work, making it a legislative requirement that the successful candidate becomes a member of the Protection of Vulnerable Groups Scheme. If appointed, employment with the University will not be confirmed, until membership of the Scheme has been received. The successful applicant will be precluded from working with protected groups until that time.

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

We value diversity and welcome applications from all sections of the community.
The University currently holds a Bronze Athena SWAN award, recognising our commitment to advancing gender equality in academia across all academic disciplines and professional and support functions.

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.