Research Associate* in Deep Learning Video Analytics

Department	Electronic and Electrical Engineering (www.strath.ac.uk/eee/)		
Faculty	Faculty of Engineering (www.strath.ac.uk/engineering/)		
Staff Category	Research	Reference No	570887
Reports To	Professor Craig Michie	Grade:	7*
Salary Range:	£36,024 - £44,263	Contract Type:	Fixed Term (12 months)
FTE:	1	Closing Date	Sunday, 7 January 2024

Job Advert

The Department of Electronic and Electrical Engineering, Institute of Signal, Systems and Communication seeks to recruit a Research Associate in Deep Learning for Precision Livestock Farming. The work will be carried out in collaboration with Digital Dairy Value Chain (DDC) consortium partners, such as First Milk and Scotland's Rural College (SRUC).

The Digital Dairy Value Chain (DDC) project aims to establish Southwest Scotland and Cumbria as a leader in advanced, sustainable and high-value dairy processing to catalyse business growth and deliver an uplift in economic prosperity and resilience. Current R&D activity in the milk-processing chain is thin and fragmented and to address this a range of innovative projects are proposed. The DDC objectives are to:

• Increase opportunities for, and investment in, industry-focused R&D and innovation.

• Grow the exploitation of digital technologies and advanced manufacturing processes.

• Facilitate a pipeline of talent coming into advanced dairying and technology development.

A key element of this is provision of data analytic based solutions that are applicable to the dairy sector. Positive animal welfare to ensure that all animals experience a 'life worth living' is at the core of First Milk and their members. One aspect of this will be the use of video analytics to automatically identify traits associated with positive welfare so that members and their customers can be assured that their animals enjoy the highest possible of welfare standards.

You will be part of a prestigious programme financed under the governments Levelling Up agenda which will pursue a wide range of knowledge transfer activities along with research into intelligent video scene analysis that can support the complex analysis of cattle welfare. The Research Associate will engage with academic colleagues, industrial partners, and research students on a daily basis to support the projects. The Associate will undertake personal research activities, pursue research funding, produce technical reports for project partners, publish conference and journal papers, mentor research and undergraduate project students, supervise junior research staff, assist with undergraduate recruitment, and school liaison, and participate in student outreach programmes.

To be considered for the role you will be educated to PhD level* in an engineering, physical sciences, mathematics or computing discipline or you will have a Degree in addition to significant, relevant experience in a similar role. You will have strong experience in one or more of the following fields: machine learning, deep learning, computer vision and real-time video analytics. You will possess a strong background in your core discipline and will have proven self-motivated research experience. The ability to assimilate outcomes from across a broad range of disciplines and to plan your own research is essential, as are strong communication, programming skills and mathematical background.

the place of useful learning
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*Whilst a Post-Doctoral Research Associate is ideally sought for this position; applications from candidates who are close to PhD completion or whose award is pending, are welcome. In such circumstances, the appointment will be made at Research Assistant level (RS06 salary scale £ 31,396 -£ 34,980) and duties will be adjusted to reflect the grade of the post. This will continue until the PhD award is confirmed, at which point the duties and grade will be revised accordingly.

Job Description

Brief Outline of Job:

To engage with academic colleagues, industrial partners and research students on a daily basis to support the projects in the area of Deep Learning, including video analytics and within an agricultural setting. To lead the development of video analytics tools for automating the process of assessing animal welfare. To undertake personal research activities, pursue research funding, produce technical reports for project partners, publish conference and journal papers, mentor research and undergraduate project students, supervise junior research staff, assist with undergraduate recruitment and school liaison, and participate in student outreach programmes.

Main Activities/Responsibilities:

1.	Plan and conduct your own research to meet overall research objectives, delivering against agreed milestones. This will include liaising with academic and industrial colleagues as appropriate.
2.	Write up results of 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.
3.	Attend project/management meetings, produce management reports in respect of Strathclyde's work on the projects, and contribute to annual project reports.
4.	Oversee/contribute to progress reports for programme sponsors and the University.
5.	Develop research proposals and support the attraction of funding to the Institute of Sensor Signals and Communications.
6.	Supervise research students associated with the projects.
7.	Supervise student projects, provide advice to students and contribute to teaching as required by for example, running tutorials and supervising practical work.
8.	Join and actively participate in external professional networks, e.g. IET, IEEE, etc.
9.	Contribute in a developing capacity to departmental administrative and management functions and committees.
10.	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	A good honours degree and PhD (or equivalent professional experience) in engineering, physical sciences, mathematics or computing
D1	Membership of relevant Chartered/professional bodies (including Higher Education Academy).

Experience

E2	Programming experience in Python, C/C++ or similar languages
E3	Understanding and experience of different techniques used in data analysis
E4	Experience in the application of machine learning with real image or video data
E5	Experience with PyTorch, Tensorflow or similar numerical computation frameworks
E6	Technical writing and presentation experience
D2	Experience with the Deep Learning and Image Processing
D3	Familiarity with GPGPU computing
D4	Experience in student mentoring and teaching activities

D5	Experience of knowledge exchange related activities

Job Related Skills and Achievements

E7	Developing ability to conduct individual research projects, to disseminate results as appropriate and to prepare research proposals
E8	Ability to plan and organise workload effectively

Personal Attributes

E9	Ability to work independently and as part of a group
E10	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

Other Relevant Factors

D6	Availability to travel occasionally within UK and abroad (EU)
D7	The ability 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 that 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. 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 Prof Craig Michie, Professor (c.michie@strath.ac.uk/0141 548 2521) or Dr Christos Tachtatzis, Reader (christos.tachtatzis@strath.ac.uk/0141 548 2625).

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.

Interviews

Formal interviews for this post will be held on Monday, 29 January 2024.

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.