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THE SUNDAY TIMES GOOD UNIVERSITY GUIDE 2020 SCOTTISH UNIVERSITY OF THE YEAR
University of Strathclyde Glasgow

AI/Machine Learning Developer (KTP Associate)

Department	Strathclyde Institute of Pharmacy and Biomedical Sciences (www.strath.ac.uk/science/strathclydeinstituteofpharmacybiomedicalsciences/)		
Faculty	Faculty of Science (www.strath.ac.uk/science/)		
Staff Category	KTP	Reference No	332720
Reports To	Dr Blair Johnston (Academic Supervisor), Dr Ewan Mercer (Company Supervisor)	Grade:	RS79
Salary Range:	£29,000-£33,000	Contract Type:	Fixed Term (24 months)
FTE	1	Closing Date	18/04/2021

Job Advert

The EPSRC Future Manufacturing Research Hub in Continuous Manufacturing and Advanced Crystallisation (www.cmac.ac.uk) in partnership with Perceptive Engineering Limited (www.perceptiveapc.com) are seeking to appoint a Knowledge Transfer Partnership (KTP) Associate in the area of Machine Learning/AI, with a focus on developing and commercialising software products and functionality for use in process control and process condition monitoring applications.

The post will be positioned within the Continuous Manufacturing and Advanced Crystallisation (CMAC) Hub, located within the Technology & Innovation Centre, Glasgow. CMAC is a world-class centre of excellence for advanced pharmaceutical manufacturing research and training. As an EPSRC Future Manufacturing Research Hub, led by the University of Strathclyde we work in close collaboration with a number of spokes at leading UK academic institutions (Bath, Cambridge, Imperial College, Leeds, Loughborough, Sheffield) and linking with international centres in the US, Europe and Far East.

Perceptive Engineering was formed in 2003 with a clear mission: improve the efficiency of complex manufacturing processes, using robust and powerful statistical tools, combined with leading-edge academic thinking. Perceptive Engineering are a team of experienced engineers, chemometricians and statisticians, entrusted by companies around the world to meet the manufacturing challenges of the future. We do this using the problem-solving skills we have honed over the years, and our award-winning Advanced Process Control software platform.

The project is part of the Knowledge Transfer Partnership (KTP) programme that aims to help businesses to improve their competitiveness and productivity through the better use of knowledge, technology and skills that reside within the UK knowledge base. Successful Knowledge Transfer Partnership projects are funded by UK Research and Innovation through Innovate UK and are part of the government's Industrial Strategy. To find out how KTP works and the vital role you will play if you successfully secure a KTP Associate position please visit: www.ktpws.org.uk. There are over 200 vacancies currently available at www.ktp-uk.org/graduates or search 'KTP jobs'.

To be considered for the role you will be educated to a minimum of a PhD in a relevant subject (Chemical Engineering, Electrical and Electronic Engineering, Data Science, Computer Science, or related discipline) with appropriate experience in applying machine learning techniques to manufacturing or time series data. In addition to the KTP core development training, you will have a dedicated training budget of £4,000 to further support your career development. Location of this role is split between Perceptive Engineering in Daresbury, Cheshire and CMAC in Glasgow, respectively and the successful candidate will be required to work on site and will have to travel frequently between sites.

Job Description

Brief Outline of Job:

Supported by the academic team at the University of Strathclyde and the Software and Engineering teams at Perceptive Engineering, the KTP Associate will deliver a suite of Machine Learning/AI tools and associated workflows for the PerceptiveAPC software suite.

These tools will deliver deeper process understanding to the user, simplifying the identification and implementation of models for use in condition monitoring, preventative maintenance and control applications.

These deliverables will require a deep understanding of Machine Learning/Data Science techniques and knowledge of the data features and challenges present when pre-processing and modelling pharmaceutical manufacturing data.

Main Activities/Responsibilities:

1.	Create and maintain a library of suitable algorithms and associated process/simulation data for assessment of selected techniques.
2.	Create user workflows for the identification and application of ML/AI based control, conditional monitoring, and preventative maintenance applications.
3.	Develop Functional Design Specifications to allow items 1 and 2 above to be integrated into the PerceptiveAPC software suite.
4.	Application of prototype tools on demonstrator systems.
5.	Document and share all data, reports and KTP outputs with the company through white papers, "show and tell sessions" and reports.
6.	Liaise with industry through webinars and workshops, conference & trade show demonstrations, social media including YouTube videos, and other marketing routes.
7.	Regularly report findings to Perceptive Engineering sales & marketing staff to ensure that project outputs inform both the business case and the marketing/launch of the associated tools.
8.	Deliver a range of training to the Perceptive Engineering Software and Engineering Teams.
9.	Regularly interact with Perceptive Engineering Software and Engineering teams to ensure the proposed workflows fit with existing PerceptiveAPC functionality and workflows and any proposed interfaces fit in with the current software design structure.
10.	Completion of KTP Associate Final Report by the required deadline.
11.	Lead the preparation of scientific manuscripts detailing findings where appropriate.
12.	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 1st Degree in a relevant subject (Chemical Engineering, Electrical and Electronic Engineering, Data Science, Computer Science, or related discipline).
E2 PhD or equivalent industrial experience in a relevant subject area (Chemical Engineering, Electrical and Electronic Engineering, Data Science, Computer Science, or related discipline).
D1 Membership of relevant Chartered/professional body.
Experience
E3 One or more of the following general programming platforms: MATLAB, python, R, C, Java.
E4 Developing, implementing, and applying Machine Learning and/or AI models and algorithms to manufacturing or other industry relevant data.
D2 Knowledge and experience of pharmaceutical development and manufacturing processes.
D3 Knowledge of Multi-Variate Analysis, time-series modelling and Model Predictive Control algorithms.

Job Related Skills and Achievements
E5 Awareness of the broader Commercial Drivers for the adoption of machine learning in the process industries and its implications with respect to Industry 4.0.
E6 Ability to demonstrate customer focussed working style.
E7 Excellent organisation skills.
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 Highly focussed on core objectives and target driven with the ability to work to tight deadlines and demonstrate prioritisation of workload.
E10 Proactive and able to use initiative.
E11 Ability to work within a multi-disciplinary team.
Other Relevant Factors
D4 Postdoctoral experience would be beneficial for the role.

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 Dr Blair Johnston, Reader (blair.johnston@strath.ac.uk).

It is anticipated interviews will be held on 27th April 2021

Conditions of Employment

Conditions of employment relating to the KTP 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 6 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.

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 women's careers in science, technology, engineering, maths and medicine (STEMM) employment in academia.

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.


Athena
SWAN
Bronze Award

disability
confident
EMPLOYER

CARER POSITIVE
Employer in Scotland
EXEMPLARY

happy to
talk flexible
working

Healthy
Working
Lives
Gold Award

ARMED FORCES
COVENANT
PROUDLY
SUPPORTING
THOSE WHO
SERVE.

Conditions of Employment

KTP Associates

1. GENERAL CONDITIONS

Members of staff are subject to the Charter and Statutes and the Ordinances and Regulations of the University, published in the Calendar, and to any amendments or additions thereto approved by the University Court and, in the case of the Charter and Statutes, Privy Council.

The University Court recognises the Strathclyde University and Colleges Union (SUCU) as the sole body with which it will negotiate and consult on all collective issues concerned with the terms and conditions of employment of Research staff. Such terms and conditions may be varied by the University Court after negotiation and consultation with SUCU.

The University operates probationary periods for new staff, the duration of which will be specified in individual letters of appointment. The normal probation period for posts in this staff category is 6 months. Further guidance on probationary procedures is published at http://www.strath.ac.uk/staff/policies/hr/.

Further information on the terms and conditions specified in this document and other staffing policies and procedures can also be found at www.strath.ac.uk/hr.

Further information on the terms and conditions specified in this document is contained in the Staff Handbook, which also includes further details of such conditions as provision for sick/injury leave and pay, leave of absence, holidays and holiday pay, individual grievance procedures, review and disciplinary procedures and collective agreements. Should you not receive a copy of the handbook on appointment a reference copy is accessible by visiting Human Resources.

2. CONTINUOUS SERVICE

In the case of new appointments, unless otherwise stated in the letter of appointment, the date of continuous employment for the purposes of statutory employment rights will be taken to be the date of appointment contained therein. In the case of promotions, regradings or transfers, previous service is continuous.

3. ALLOCATION OF POST

The post to which each member of staff is appointed is allocated to both the University Department and/or other area(s), and the Company Partner named in the member's letter of appointment and any accompanying papers. Should the University Court and/or the Company Partner deem it necessary, in the furtherance of the objectives of the University (specified in its Charter) and/ or the objectives of the Company Partner, they shall, having consulted with the parties concerned and having received the advice of the Senate, re-allocate the post and/or the duties pertaining partially or wholly to it to another University department or area and/or to another Company Partner Department or to an associated Company. Any such re-allocation will be without prejudice to the other conditions of employment of the holder.

If the need arises during the course of employment for members of staff to work outside the U.K. for a period (or periods) of more than one month then such arrangements will be subject to mutual agreement. Members of staff would then be provided with a statement in advance setting out the terms covering such periods of employment.

4. RESPONSIBILITY AND SERVICE

The University is committed to ensuring that its business is conducted in an open and transparent manner and will take all appropriate steps to address risks of bribery or corruption. Members of staff are required at all times to act honestly and with integrity and to safeguard the resources for which they are responsible. The University has in place a robust Public Interest Disclosure (Whistleblowing) Policy to enable concerns to be brought to its attention. This is available at http://www.strath.ac.uk/publicinterestdisclosure/. Other relevant policies, e.g. Fraud Prevention and Conflicts of Interests can also be found on the University's website.

Each member of staff is responsible for the proper performance of allocated duties to the person or persons specified in the member's letter and any accompanying papers. Unless otherwise indicated.

5. WORKING TIME

Working time is that required to fulfil the duties of the post and members of staff are expected to comply with the general working pattern of the KTP Company Partner. Further details in relation to working hours will be provided within the offer of employment and/or by the Company Partner on commencement of employment.

6. HOLIDAYS

Entitlement to accrue paid annual holiday will apply from the date of commencement and the accrual rate will be as per the provisions of the KTP Company Partner, Public Holidays will only apply where they are observed by Company Partner and it may be that these have to be taken from the annual leave entitlement where the Company does not apply a separate entitlement in this regard. Where Public Holidays are not observed by the Company Partner, these days may still be taken from the annual holiday entitlement, subject to authorisation. In cases where the Company Partner operates a period of annual closedown, these days may count against the accrued annual holiday entitlement, subject to the normal practices of the Company Partner. Further details and arrangements for requesting leave will be confirmed within the Offer of Employment and/or by the Company Partner on commencement of employment.

7. SICK LEAVE

During any period of absence through illness or injury provided the appropriate medical certificates are received the University will pay a member of staff (having taken account of the aggregate of all periods of absence due to illness during the twelve months immediately preceding the first day of the current absence) as follows:

Period of Continuous Employment at start of absence from work	**Full Pay**	**Half Pay**
Less than 1 year	1 month	1 month
1 year but less than 2 years	2 months	2 months
2 years but less than 3 years	4 months	4 months
3 years but less than 5 years	5 months	5 months
5 years or more	6 months	6 months

In order to manage the University's sick pay scheme the University requires to maintain sickness absence records on individual members of staff. When making payments after the expiry of statutory sick pay the University will deduct an amount equivalent to any benefit normally payable by the Department of Health and Social Security. For this and other details see staff handbook.

8. SALARY AND SUPERANNUATION

Salaries are payable monthly by means of a credit transfer to a specified bank account.

If you are under age 75 at the date your appointment commences you will automatically become a member of the pension scheme operated by the University – the Universities Superannuation Scheme (USS). You will be admitted to the career revalued benefits scheme called the USS

Retirement Income Builder, the contribution rate that currently applies is 9.6% of pensionable salary. A threshold applies to the maximum salary that counts towards the USS Retirement Income Builder. From 1 April 2021, the threshold is £59,883.65 per year. Contributions based on salary above the monthly equivalent rate of the threshold are paid to the defined contribution section of the scheme called the USS Investment Builder. Information regarding USS can be found in the scheme booklet located on the website: https://www.uss.co.uk/-/media/Project/USSMainSite/Files/For members/Guides/Your guide to Universities Superannuation Scheme.pdf. The scheme booklet is called 'Your Guide to the Universities Superannuation Scheme'.

The exception to automatic membership of the pension scheme applies if your post is located out with the UK in an EU member state. If this is the case membership of USS is not available to you.

The University operates a salary exchange arrangement, Pensions Plus, for members of the USS. Pensions Plus enables pension contributions to be made in a manner so that both employees and the University can benefit from available National Insurance Contribution savings. You will be automatically included in Pensions Plus, provided it does not adversely affect your take-home pay or your ability to claim certain state benefits. If your earnings fall below the Pension Plus pay protection limit you will be opted out of Pension Plus. This will not affect your membership of the USS.

New members of staff may opt out of USS within three months of taking up appointment and will then be treated as if they had never been a member of the scheme. After three months members of staff who wish to withdraw from USS during their employment will be required to give a minimum of 28 days' notice in writing to the University. Any member of staff who wishes to opt out should contact the Pensions Section, Finance, in the first instance (pensions@strath.ac.uk). Please note that if you are a member of Pensions Plus and withdraw from USS with less than two years of membership, or cease employment with the University and have less than two years of USS membership, the option of a refund of pension contributions will not be available to you. Instead, USS must provide you with a pension benefit that is payable from your Normal Pension Age. Regardless of whether you participate in Pensions Plus, if you are a member of the pension scheme for two years or more you are not entitled to a refund of pension contributions on leaving the scheme, you will be entitled to a pension benefit.

The University reserves the right to alter or withdraw Pensions Plus as it sees fit or as required to comply with legislative changes. Withdrawal or amendment of Pensions Plus will not affect your membership of USS. If you do not wish to participate in Pensions Plus but wish to remain in the pension scheme please contact the Pensions Team who will provide you with a non-participation form.

Information regarding pension scheme membership can be found on the Pensions pages of the University's website. Full information regarding USS can be found on the USS website – www.uss.co.uk

9. PLACE OF RESIDENCE

The University does not normally place specific restrictions upon the place of residence of members of staff. They are, however, expected to reside in a location which is compatible with the satisfactory fulfilment of all the duties associated with their appointment and with membership of the academic community.

10. PERIOD OF EMPLOYMENT

Members of staff are employed on the conditions indicated in individual letters of appointment and any accompanying papers. The University is not obliged to give notice of termination or continue any employment beyond the end of the fixed term period. Where the period of the contract of employment is for one year or less it may be terminated short of the fixed term period by 1 month's notice on either side. Where the period of the contract of employment is for more than one year, or where there have been a further contract or series of contracts immediately consecutive, the employment may be terminated short of the fixed term period by 3 months' notice on either side, except during the probationary period when the notice period is one month.

11. NOTICE AND TERMINATION

The employment of a member of staff is terminable by at least three months' notice in writing, on either side; except during probationary period when the notice period is one month. If notice is being given by a member of staff earlier release may be granted if this can be arranged without detriment to the work of the department or area. If the appointment is for a fixed term it will expire at the end of the period without the necessity for notice. Fixed term contracts may be terminated by either party short of the expiry date by the serving of one months' notice in writing. The University is not obliged to continue a fixed term appointment beyond the employment period.

Revised April 2021