

# Next Generation Inspection PIG (KTP Associate)

Department	Electronic and Electrical Engineering ( <a href="http://www.strath.ac.uk/engineering/electroniclectricalengineering/">www.strath.ac.uk/engineering/electroniclectricalengineering/</a> )		
Faculty	Faculty of Engineering ( <a href="http://www.strath.ac.uk/engineering/">www.strath.ac.uk/engineering/</a> )		
Staff Category	Knowledge Transfer Partnership (KTP)	Reference No	568532
Reports To	Professor Gordon Dobie (Academic Supervisor), Nick Bettley (Company Supervisor)	Grade:	RS79
Salary Range:	£32,000 to £40,000 per annum plus £5,000 training and development budget	Contract Type:	Fixed Term (30 months)
FTE	I (40 hours/week)	Closing Date	26/11/2023

## Job Advert

The Department of Electronic and Electrical Engineering in partnership with Cokebusters (<https://cokebusters.com/>) are seeking to appoint a KTP Associate to develop the next generation of their smart pig technology. The post will be predominantly based at Cokebusters site in Chester with visits to the University of Strathclyde campus.

Cokebusters is a high-growth, international company specialising in the mechanical decoking, descaling and associated in-line inspection industrial piping. Cokebusters world-leading inspection tool or “intelligent pig” was developed to overcome difficulties with inspecting small bore tubing with complex geometry, such as furnace tubes. The design has been iterated several times over the years to meet client demand. Cokebusters are now preparing to launch their latest version – Mk VI – this patented technology will them to enter new markets for this quality inspection service. This KTP will develop novel inspection technologies for next generation inspection pigs, keeping Cokebusters at the cutting edge.

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](http://www.ktpws.org.uk)

The position offers the KTP Associate the following benefits:

- a challenging and rewarding job with real responsibility
- a planned programme of training courses, including a £5k personal development budget
- mentoring from experienced industrial and academic supervisors
- the support and resources of the University of Strathclyde
- the possibility of registering for a higher degree with the University
- the potential for good career development with the company at the end of the scheme
- developing and proving expertise in the prospering fields of renewable energy and remanufacturing
- the opportunity to make important and tangible improvements in an ambitious and dynamic company
- the opportunity to create foundations with the organization to develop new business models

The objective of this project is to bring new inspection capability to Cokebuster’s smart pigs allowing the company to expand its services. Opportunities exist to add/enhanced detection algorithms. The associate will work with Cokebusters and Strathclyde to determine the best option from a commercial and technical standpoint. The tool will be tested and matured using the onsite test facilities until it is ready to release into the field.

To be considered for the role you will be expected to have a PhD degree in Electronic Engineering or equivalent. The successful candidate will have experience in ultrasonic instrumentation and inspection. For a full list of role requirements please see the person specification below.

## Job Description

### Brief Outline of Job:

Working with colleagues at Cokebusters and academics at the University of Strathclyde the associate will undertake a 2.5 year program of work that will look to integrate new inspection technologies into Cokebuster’s products. Areas to consider include:

- Improved ultrasonics
- Novel algorithms to enhance signal to noise ratios.
- Use of AI algorithms (white and black box).
- Implementation of algorithms in embedded hardware or desktop software.
- Improve operator experience through an improved graphical user interface.

The associate will prototype concept pigs and test them using Cokebuster’s impressive suite of test facilities.

The Associate will also contribute to the knowledge base through training workshops and reports which will be the basis for journal publications. Consistent reference to literature and use of academic and industry expertise will ensure best practice and successful delivery.

### Main Activities/Responsibilities:

1.	Lead and project manage the KTP
2.	Collate existing information on the work to date, technical requirements and business need
3.	Review and familiarise yourself with the academic literature
4.	Develop novel algorithms for processing large datasets
5.	Validate algorithmic performance
6.	Use a combination of white and black box machine learning to improve system performance
7.	Develop improved user interfaces / workflows to optimise Cokebusters operator experience
8.	Engage in continuous professional development within the University and Company as appropriate
9.	Dissemination of KTP outputs and industry engagement with Academic team (e.g. through publication and presentation of work at conferences, tradeshows and in peer reviewed journals)
10.	Develop training manuals and technical documentation
11.	Completion of all KTP training and the KTP Associate Final Report by the required deadline.
12.	Ensure proper project management and reporting requirements are met throughout.

## 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 PhD/EngD in inspection or equivalent

### Experience

E2 A strong background in ultrasonics and signal processing

E3 Experience with the development of inspection instrumentation

D1 Experience working with industry

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## Job Related Skills and Achievements

- E4 Awareness of commercial drivers
- E5 Proficient in technical writing/presentation
- E6 Proficient in software development
- E7 Proficient in firmware and/or FPGA development
- D2 Proficient in ultrasonic transduction

## Personal Attributes

- E8 Strong project management skills (particularly communication, organisation, and leadership)
  - E9 Self-directed and self-motivated
  - E10 Good interpersonal and collaboration skills
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## Application Procedure

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Applicants are required to complete an application form including the name of three referees who will be contacted 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

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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 Gordon Dobie, Electronic & Electrical Engineering ([gordon.dobie@strath.ac.uk](mailto:gordon.dobie@strath.ac.uk)).

### 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](#).

### Interviews

Formal interviews for this post will be held on a date to be confirmed.

### 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.

