Knowledge Transfer Partnership
University of Bath & Viper Innovations Ltd

Research Engineer - KTP Associate

The Company – Viper: https://www.viperinnovations.com

The role is full-time and for the duration of the project will be based at Viper premises in Portishead. Due to the funding requirement the successful applicant must be able to start the role no later than 1st July 2024.

Viper Innovations Ltd provide electrical monitoring and asset integrity solutions for global industries including subsea and rail. They provide award winning products and services offering practical solutions for their clients real world problems.

Viper specialises in the design and manufacture of asset integrity monitoring devices, primarily for the oil and gas and railway industries. The company is a leading technology provider in the electrical cable monitoring sector and has made significant investments in research and development.

Viper's expertise lies in IR (Insulation Resistance) monitoring and recovery technologies. The company has developed cutting-edge line insulation monitoring technologies like V-LIM, SSTDR, CableGuardian and a unique proprietary cable rejuvenation technology called V-LIFE. These solutions have been adopted by 30 operators across more than 150 applications globally.

What is a KTP?

Knowledge Transfer Partnership (KTP), a government funded scheme brings together universities and businesses to work jointly on a development project that is strategically important to the future of an organisation. Throughout the project the KTP Associate will play a key role in managing and implementing strategic development in the business and transferring knowledge between the University and the business.

Partnership objectives

To develop an innovative subsea cable integrity monitoring product that will extend the lifetime and performance of critical underwater cables. This KTP seeks to optimise corrosion prevention and enhance control algorithms to reduce the environmental burden of installing new cables and allow Viper Innovations to diversify into the renewables sector.

Partnership management

The KTP Associate you will deliver this KTP Project which is managed through the Local Management Committee (LMC). This is chaired by the senior company executive and comprises the Company and Academic leaders/supervisors and a KTP Adviser (Innovate UK KTN representative).

The LMC meets quarterly and is responsible for programme direction, ensuring that all parties gain maximum benefit and for authorising expenditure. KTP Associates are expected to prepare an executive summary, to report on progress. They are also expected to make a formal presentation on some aspects of their work at this meeting.

The academic knowledge and support will be provided by Frank Marken, a Professor in the Department of Chemistry and active member of both the Institute for Sustainability and Water Innovation and Research Centre. Prof. Marken has expertise in electrochemistry and energy/corrosion applications of electrochemistry. This will link directly to project tasks on investigation/suppression of corrosion and on chemical processes in deep sea cables. Prof. Marken has worked with industry delivering (i) insights into corrosion chemistry and into the effects of input signals on corrosion/passivation phenomena, (ii) coating formation based on electrochemical processes, (iii) battery systems and energy conversion, (iv) hydrogen production and renewable energies, (v) desalination and innovative membrane water purification processes, and (vi) electrochemical sensor development.

Prof. Marken is experienced in the supervision of students (26 completed PhD projects; 8 postdoctoral early career researchers) and has been able to work on industry sponsored PhD projects including work on corrosion of deep sea cables. He has previously been the academic supervisor for a successful associate on a KTP programme which delivered new electrochemical hydroxy apatite coatings for medical implants based on 3D-printed metal alloy specimen. Prof. Marken has expertise and facilities to support this project on investigating marine cable corrosion and exploiting new approaches to maintain marine infrastructure.

Further academic support will be provided by Dr Benjamin Metcalfe, who is Head of the Department of Electronic and Electrical Engineering where he leads a research team of 15 PhD students and research associates working on enabling technology for a range of applications including healthcare technologies and water monitoring. His research interests and expertise that are relevant to this KTP include (I) characterisation and monitoring of electrode-solution interfaces, (II) signal processing and machine learning, and (III) modelling and equivalent circuit development for complex systems.

A monthly progress meeting is held with the Company and Academic Supervisors. As KTP Associate you are expected to arrange and document these meetings. The Associate is also required to maintain a log of benefits of the project and to provide internal seminars for other members of University and Company staff, based on knowledge acquired through attendance at courses and conferences.

The ideal candidate will:

- Have a Master’s degree in electrical/mechanical engineering, physics, chemistry or a related field.

- Have strong problem-solving skills.
- Have a strong understanding of electrical signals and digital signal processing.
- The Associate is expected to play a major role in coordinating the stakeholders involved in this project, so must have good communication and organisation skills.

KTP Associate – The benefits

- Valuable experience and highly transferable skills.
- £5,000 personal budget and time allocated for continuous professional development.
- Responsibility for a high-profile project.
- Mentoring from the company and academic team.
- Developing research and business experience with the potential to advance your career with the company.

It is essential that you understand how KTP works with business and the University, and the vital role you will play if you successfully secure a KTP Associate position. Further information about KTPs and the advantages of being a KTP Associate can be found at https://www.ktp-uk.org/

Associate's expectation

The Associate may have the opportunity to pursue another part time higher degree as a member of staff of the University at the same time as working on the project. The Associate will be encouraged to gain membership of a relevant professional body to enable them to work towards Chartered status. They may undertake several selected course activities as well as general courses at the University as a member of staff.

Within the limits of commercial confidentiality, the Associate may have the opportunity to deliver papers at conferences and will be expected to co-author articles.

On successful completion of the project, it is likely that the Associate will be offered a permanent position with the Company. However, if due to unforeseen circumstances this is not possible, the Associate will still have acquired invaluable commercial experience through close involvement with the senior management of the Company. Experience of project management will be gained, as well as knowledge of the daily running of a successful business.

Salary and conditions of employment

The salary is £35,000 to £45,000 p/a depending on qualifications and experience and the reward package includes a pension contribution and separate £5,000 personal training and development budget.

The Associate will be appointed by the University as a member of staff with the Department of Chemistry, responsible to the appointed academic

supervisor. The contract of employment is for 30 months. There is a probationary period of six months, during which time the contract may be terminated by either side with one month's notice. Thereafter, the required notice period to be given by either side is three months. The University requires a mid-probationary report after three months and a full probationary report at six months.

In other respects, the Associate will be treated as a Company employee and works full-time at the Company's premises in Portishead.
The project may require some periods of time to be spent at the University and could involve overseas travel. The conditions of work, including work hours and holiday entitlement, will be those applying to Company employees
An annual appraisal is carried out with the Academic and Company Supervisors. This is used to identify the Associate's training requirements in relation to programme tasks and their personal development plan.

Whilst there is no commitment on the Company to retain the Associate at the end of the programme, it is expected that the Associate will be made aware of future prospects at their annual appraisal. KTP appointments cannot normally be extended beyond the end of the project.

It should be noted that this KTP Associate post entails the development and application of knowledge for commercial outcome and that the KTP Associate will be embedded in the company for the KTP duration.

This post is technology transfer focussed and not suitable for candidates primarily seeking academic research or teaching career within the University.