**Role Description**

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| **Faculty/Service:** | **Faculty of Engineering and Environment** |
| **Department:** | **Computer and Information Sciences** |
| **Role Title:** | **Geodata Analysis Software Developer (KTP Associate)** |
| **Category:** | **Research** |
| **Role Purpose:**  | **To lead a Knowledge Transfer Partnership (KTP) between Northumbria University and Cathie. The project aims to develop a new service to automate data analysis for seabed engineering developments in offshore and near-shore industries, including wind energy driven by AI-enabled predictions from geotechnical data.**  |
| **Reports to:** | **Bo Wei** |
| **DBS Required:** | **Disclosure and Barring Service Check Not Required** |

**General Duties and Responsibilities:**

As a KTP Associate, you will be responsible for developing technical solutions which combine artificial intelligence and machine learning skills to provide a reliable geoscience solution for Cathie. This will require application of computer science and geoscience knowledge in an industrial and commercial environment.

In line with the University’s mission and corporate strategy, and Cathie’s business and culture attributes, you will:

* Develop a full understanding of the strategic aims and function of the collaborative project between Cathie and Northumbria University
* Undertake research, design, development, implementation, and project management and take the ownership of the KTP project
* Feedback to the project team and deliver the project in accordance with the project plan and KTP management requirements
* Document progress in the project through the writing of technical reports and completion of KTP records
* Present research outputs to a varied audience including Cathie management, clients, University academics and KTP leadership

**Specific Duties and Responsibilities:**

The Associate will need to lead and manage the KTP project and be an effective 'translator' between the academic team and company stakeholder group, ensuring all partners benefit from the KTP. As such, you will need to possess the following attributes:

**Academic Qualifications:**

* A BSc/BEng/MSc or PhD degree in Computer Science or similar discipline.

**Expertise and experience:**

* Previous experience in programming, such as web development and mobile application development, database design and implementation, and using Artificial intelligence and machine learning tools.
* The ability to write high quality reports and papers for publication and dissemination and to develop marketing materials.
* The capacity to develop skills in the following areas: (1) software development and graphical user interface for cloud application, (2) machine learning for data analysis and visualisation, (3) requirements capture and user testing, and (4) a passion for problem solving and the adaptability of accommodating evolving requirements of the project.

**Key personal attributes:**

The Associate should have an appreciation of the benefits KTP offers and have a strong willingness to get involved in all aspects of the programme. Furthermore, the Associate should actively engage in the professional training and personal development opportunities during the project. Specifically, the Associate must have the following key personal attributes:

* Self-management, including managing and meeting deadlines during independent learning, project implementation and teamworking
* An interest and ability to use and learn state-of-the-art techniques
* An enthusiasm in working in a science-based business with an understanding of commercial considerations and priorities
* Ability to articulate and solve problems with a highly analytical approach
* Ability to represent Cathie to external stakeholders and to build and manage relationships among Cathie, its clients and management

**Location:** The position is based at Cathie’s premises in Newcastle upon Tyne and will involve visits to Northumbria University (also in Newcastle upon Tyne), as well as travel (Regional, UK and possibly international) in connection with the KTP project and training.

**Attendance Requirements:** The post-holder should be available for work during Cathie’s working hours 09:00 – 17:30, Monday to Friday.

This Role Description is not intended to be an exhaustive list of duties and will be subject to periodic review by the University Executive and/or relevant within the Faculty/Service in discussion with the role-holder.

**Person Specification**

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| **Specific Knowledge** |
| **Criteria** | **Weight** | **A** | **I** |
| Software development | Essential |[x] [x]
| Data processing and analysis | Essential |[x] [x]
| Artificial Intelligence/ machine learning  | Desirable |[x] [x]
| Human-centred software design | Desirable |[x] [x]
| Geodata processing and analysis | Desirable |[x] [x]

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| **Skills, Abilities & Behaviours** |
| **Criteria** | **Weight** | **A** | **I** |
| Self-management, including the ability to meet deadlines | Essential |[x] [x]
| Effective independent learning and teamworking | Essential |[x] [x]
| Enthusiasm for the project, subject and technology | Essential |[ ] [x]
| Interest in working with a science-based business | Essential  |[ ] [x]
| Highly analytical approach | Essential |[x] [x]
| Ability to learn new concepts and tools quickly | Essential |[x] [x]
| Ability to articulate and solve problems | Essential |[ ] [x]
| Understanding of commercial considerations and business priorities | Essential |[x] [x]
| Ability to build/manage relationships among Cathie, their customers and management | Essential |[x] [x]
| Ability to represent Cathie at tradeshows and develop marketing materials | Essential |[ ] [x]
| Writing of high-quality reports and papers for publication and dissemination | Essential |[x] [x]

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| **Experience** |
| **Criteria** | **Weight** | **A** | **I** |
| Experience of coding for digital systems and data analysis | Essential |[x] [x]
| Use of machine learning tools, such as TensorFlow, Theano, PyTorch | Desirable |[x] [x]
| Experience of Web and/or mobile Apps development | Desirable |[x] [x]
| Experience of database design, construction, and development (particularly in Big Data Environment) | Desirable |[x] [x]
| Development of Graphical User Interface (GUI) applications | Desirable |[x] [x]
| Industry scale software engineering project development | Desirable |[x] [x]
| Development of commercialisation plans | Desirable |[x] [x]
| Experience of publishing an academic paper | Desirable |[x] [x]

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| **Education & Training** |
| **Criteria** | **Weight** | **A** | **I** |
| Minimum of a Bachelor’s degree or above (i.e. BSc, MSc, MEng) in Computer Science, Software Engineering, or a closely related discipline. Having a PhD in a relevant field is an advantage | Essential |[x] [x]

**Legend:** A = Application I = Interview