



Research Centre

ADAPT Centre for Digital Content Technology at DCU (Affiliate Project)

Post title

Research Fellow in Industrial Applications of Knowledge Engineering

Level on Framework

Level 3

Post duration

Fixed Term Contract up to 24 months

Research Career Framework

As part of this role, the researchers will be required to participate in the DCU Research Career Framework <http://dcu.ie/hr/ResearchersFramework/index.shtml> This framework is designed to provide significant professional development opportunities to Researchers and offer the best opportunities in terms of a wider career path.

Background & Role

The ARK commercialisation fund project, sponsored by Enterprise Ireland and the ADAPT Centre at Dublin City University, is seeking a research fellow in industrial applications of knowledge engineering for a two-year fixed-term contract to support the development of the ARK knowledge management platform for aviation risk governance and related industrial projects such as an ontology-assisted intelligent information retrieval system for legal search.

The ARK project is conducted jointly with researchers from the Centre for Innovative Human Systems (CIHS) in the School of Psychology in Trinity College Dublin and Aer Lingus. The ARK platform will deliver evidence-based risk management capabilities to operational, project and strategic levels within organisations. This commercialisation project aims to create a minimum viable product to kick-start a new spin-out company

that will deliver the novel ARK risk governance platform and an associated knowledge-based services model. The knowledge management and extraction challenges include dealing with a diversity of structured and unstructured data from pilot reports, risk assessments, human factors and aviation fleet data analytics. New models of data representation and processing are required to support and automate manually focused socio-technical analysis techniques developed at CIHS over the last 20 years.

The role will also include taking a leadership role in ADAPT joint industrial research projects with key partners who are leveraging knowledge engineering of Linked Data in tandem with AI and machine learning to build next generation legal information systems that include reasoning, natural language processing and information retrieval techniques.

Principal Duties and Responsibilities

The successful candidate will work with a multinational, multidisciplinary team of Researchers on the ARK Project and ADAPT industrial projects. The work of this Postdoctoral Fellow will focus on semantic modelling, uplift and platform design.

Reporting to the Principal Investigator, the Postdoctoral Fellow will be responsible for:

- Carrying out research on semantic representations of aviation safety information that support socio-technical analysis, knowledge distillation and federation. This shall include creating new knowledge models, methods and rules to support socio-technical analysis of organisations, projects and operations in a way that is reusable across multiple domains such as aviation and healthcare and supports a variety of workflows for operational and strategic risk governance.
- Designing new methods and tools for an efficient data processing pipeline for the ARK platform that can collect, integrate, verify and export aviation risk information from many heterogeneous sources. This shall include the application of natural language processing techniques to data uplift and ingestion of human-oriented loosely structured data such as aviation risk reports.
- Working with industrial partners to define and analyse knowledge-based application requirements in real-world settings.
- Taking a leadership role in joint industrial research projects carried out by ADAPT and its industrial partners, especially in the areas of knowledge

representation, the application of semantics to AI and search, and knowledge capture and governance in legal information systems.

- Providing support and advice to PhD students, research engineers and research assistants on similar topics within ADAPT.
- Identifying, developing and writing future research and funding proposals.
- Liaising with both internal and external stakeholders including industry and academic partners/collaborators.
- Produce top-quality journal and conference publications, in collaboration with other project members.
- Participate in project activities, such as meetings, reviews, demonstrations and other events.
- Provide support and advice to collaborators and partners working on the same project.
- Engage in appropriate training and development opportunities as required by the Project, the School or Research Centre, or the University.
- Carry out administrative work associated with the programme of research as necessary.

Funding Information

This project is funded under the Enterprise Ireland ARK project, the ADAPT Centre and our industrial partners.

Minimum Criteria

It is essential Applicants should have a PhD in in Computer Science or a related discipline with a focus on knowledge engineering. Applicants should preferably have a minimum of 4 years relevant postdoctoral/industry-related research experience or equivalent at Level 2 of the Research Career Framework.

In addition, it is desirable that a candidate has skills in:

- Demonstrated practical experience in developing and deploying Semantic Web and Linked Data platforms and tools
- Conducting joint academic-industrial research
- Transformation and uplift of semi-structured text to ontologies

- Legal search systems such as the Wolters Kluwer Jurion product
- Working with legal ontologies
- Excellent knowledge engineering skills
- Excellent programming skills
 - Python and Java
- Excellent research skills with experience, ideally in one or more of:
 - Linked Data RDF, OWL and other Semantic Web Technologies
 - Combining AI, NLP and Ontologies for information retrieval
 - Working with multi-lingual Linked Data

Language skills in German would also be useful.

Salary: *€53,776 – 58,597

*Appointment will be commensurate with qualifications and experience and will be made on the appropriate point of the salary scales, in line with current Government pay policy.

Closing date: 28th February 2019

Candidates will be assessed on the following competencies:

Discipline knowledge and Research skills – Demonstrates knowledge of a research discipline and the ability to conduct a specific programme of research within that discipline and in collaboration with industry partners.

Understanding the Research Environment – Demonstrates an awareness of the research environment (for example funding bodies and key industry players) and the ability to contribute to grant applications

Communicating Research – Demonstrates the ability to communicate their research with their peers, with industry partners, and with the wider research community (for example presenting at conferences and publishing research in relevant journals) and the potential to teach and tutor students

Managing & Leadership skills - Demonstrates the potential to manage a research project including the supervision of undergraduate students and to meet industry partner expectations regarding project turn-around times.

Application Procedure

Informal Queries to: Cliodhna Horan cliodhna.horan@adaptcentre.ie.

Please include the ADAPT Position Title in all email communications.

Application forms are available from the DCU Current Vacancies (open Competitions) website at <http://dcu.ie/hr/vacancies/current.shtml> and from the Human Resources Department, Dublin City University, Dublin 9. Tel: +353 (0) 1 7005149.

Please clearly state the role that you are applying for in your application and email subject line: Job Ref #1132 Post-Doctoral Fellow in Industrial Applications of Knowledge Engineering

Applications should be submitted by email to hr.applications@dcu.ie or by Fax: +353 (0)1 7005500 or by post to the Human Resources Department, Dublin City University, Dublin 9. Human Resources Department, Dublin City University, Dublin 9. Tel: +353 1 700 5149; Fax: +353 1 700 5500 Email: Insert hr.applications@dcu.ie

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