Post Title: Senior Research Engineer

Beyond 2022 Project at The ADAPT Centre

Post duration: fixed term until 30 September 2022.

Salary Scale: €37,800 - €43,700

Position Summary

Based at the ADAPT Centre for digital content platform technology, the Beyond 2022: Ireland's Virtual Record Treasury Research Project seeks to appoint a Senior Research Engineer on a fixed term contract basis. The successful candidate will play a pivotal role in developing a new infrastructure for this exciting and challenging digital re-imagining of Irish history across the past 7 centuries.

Beyond 2022 is a ground-breaking all-island and international collaboration funded by the Government of Ireland, through the Department of Culture, Heritage and the Gaeltacht, under the Project Ireland 2040 framework. Based in Trinity College Dublin and the ADAPT Centre, Beyond 2022 seeks to re-imagine and re-create through virtual reality the Public Record Office of Ireland building and its archival collections, which were destroyed in the opening engagement of the Irish Civil War. The principal resource created by the Project will be an open-access virtual archive, which will become a national legacy from Ireland’s Decade of Centenaries.

Duties & Responsibilities

Reporting to the Beyond 2022 Director, Dr Peter Crooks, and embedded within the ADAPT Centre, the senior research engineer will have the following duties and responsibilities:
● Be a conscientious software engineer who takes pride in writing clean code
● Be proficient in the use of well-established design patterns and software engineering practices
● Implement and develop unit tests of individual software components to ensure functionality and robustness of software applications
● Document all work to ensure code is easily understood by peers
● Actively use their knowledge and, or experience in the following domains to contribute to the design, implementation, enhancement of the software application that will underpin the Beyond 2022 project.
  ○ Database Management Systems (MariaDB) and Triplestores
  ○ Linked Data and Semantic Web technologies
  ○ Appropriate methodologies back-up and preservation of data (git, rclone, cron)
  ○ Metadata and openness standards such as IIIF, TEI-XML, RDF, CIDOC-CRM
  ○ Maintaining web servers (Debian Linux, Apache2, Tomcat 9)
  ○ Knowledge of Geographic Information Systems (GIS)
  ○ Previous experience working with Digital Collections Management Systems (DCMS) or as part of digital preservation team a distinct advantage.
● Work closely with UI and UX designers in the development of web-based applications.
● Work within an Agile environment and work with Agile methodologies.
● Understand, interpret and communicate software requirements expressed by colleagues, including Historians and Archivists, and deliver solutions which meet expectations. This software will typically involve:
  ○ Scripts to map between various datasets obtained by the project
  ○ Scripts to scrape data from websites, or harvest data available over REST and integrate this data with other harvested datasets
  ○ Web development to provide UIs for team to explore and manipulate project data
● Work with project partners to define requirements, troubleshoot issues and conduct demonstrations

● Have the ability to adapt quickly to new technologies as the project continues

Qualifications

Applicants must have a primary degree in Computer Science or a related discipline plus four years relevant experience.

Desirable

A postgraduate qualification (which ideally includes specialisation in one or more of Semantic Web, Information Retrieval).

Experience in the design and/or delivery of digital humanities projects would also be a distinct advantage.

Knowledge & Experience

The successful candidate has a broad experience in every aspect of the web development lifecycle. We are looking for someone who codes in multiple languages fluently and takes pride in the quality of their work. Someone who ensures their work - and that of their teammates - adheres to good standard practices and proven design patterns. The Research Engineer understands all aspects of industrial standard software development. This includes data repositories of different types. The Research Engineer has extensive experience with database design, implementation and management; data capture and appropriate DR methodologies. SQL, NoSQL and Linked data repositories and optimal data retrieval are part of the successful candidate’s workload.

Below are some pointers for the type of experience we require:

● Excellent database management skills: NoSQL, Graphing Databases, SQL
• Excellent knowledge of one or more of: Java, PHP, node.js
• Excellent knowledge of scripting languages: Python, Bash, Perl, JavaScript, d3.js
• Experience with web crawling, data wrangling, data analysis would be a distinct advantage
• Excellent Understanding of Unit and Regression Testing Frameworks
• Knowledge of web application development and security

Skills

• Excellent written and oral proficiency in English (essential), good communication and interpersonal skills both written and verbal
• Proven aptitude for Programming, System Analysis and Design
• Proven ability to prioritise workload and work to exacting deadlines
• Flexible and adaptable in responding to stakeholder needs
• Experience in releasing code to live production environments
• Strong team player who is able to take responsibility to contribute to the overall success of the team
• Enthusiastic and structured approach to research and development
• Excellent problem-solving abilities
• Desire to learn about new products, technologies and keep abreast of new product, technical and research developments

Background to Beyond 2022 Project

June 30th, 2022, marks the centenary of the terrible explosion and fire at the Four Courts, Dublin, which destroyed the Public Record Office of Ireland (PROI) and, with it, seven
centuries of Ireland’s collective memories. While incomparable with the loss of human life, the destruction of the Record Treasury at the PROI was one of the great tragedies of the Civil War.

Beyond 2022: Ireland’s Virtual Record Treasury is an exciting all-island and international research programme to recreate digitally this lost national treasure. Through its innovative and experimental combination of historical research, archival discovery and technical innovation, Beyond 2022 offers a lasting and meaningful legacy from the Decade of Centenaries, democratising access to invaluable records and illuminating seven centuries of Irish history.

The aim of Beyond 2022 is to create and launch on 30 June 2022 a Virtual Record Treasury for Irish history—an open-access, virtual reconstruction of the Record Treasury destroyed at the PROI in 1922. Significantly, the Virtual Record Treasury will also provide an innovative enabling framework for connecting archival collections worldwide and rediscovering our collective national memories.

About the ADAPT Centre Spokes programme

Working at the boundary of research and industry, the ADAPT Centre Spokes programme is an industry-focused programme where teams of researchers and research engineers collaborate with industry partners to work on solutions to industry needs. Successful industry participation is key to the ability of the Centre to deliver economic and commercial impact, and to its future sustainability. ADAPT is Ireland’s global centre of excellence for digital content technology. Led by TCD, it combines the expertise of researchers at four universities (Trinity College Dublin, Dublin City University, University College Dublin, and Technological University, Dublin) with that of its industry partners to produce groundbreaking digital content innovations. ADAPT brings together more than 120 researchers who collectively have won more than €100m in funding and have a strong track record of transferring world-leading research and innovations to more than 140 companies. With €50M in new research funding
from Science Foundation Ireland and industry, ADAPT is seeking talented individuals to join its growing research team. Our research and technologies will continue to help businesses in all sectors and drive back the frontiers of future Web engagement.

You will be working with the best and brightest talent in language technologies, content analytics, data analytics, adaptivity, personalisation, interoperability, translation, localisation and information retrieval. The successful candidate will have exposure to all aspects of project lifecycle from requirements analysis to design, code, test and face-to-face demonstrations with project stakeholders.

This is an excellent opportunity for an early career software engineer who wants to fast track their progression through to specialist AI and Machine learning practices area (or domains). The team consists of 9 engineers and designers, 4 project managers and 3 system administrators. DLAB team members are empowered to work across all stages of the product development lifecycle and can be expected to propose architectural approaches, to engage actively in design workshops with industry partners and post-doctoral researchers and to demonstrate their work at professional and public events in addition to designing, writing and testing code.

Being a university based research centre we also strongly support continuous professional development and education.

While embedded in DLAB you will develop as an engineer, technically and scientifically. In addition, your confidence, leadership skills and communication abilities will be greatly enhanced.

### Application Information

In order to assist the selection process, applicants should submit a full Curriculum Vitae and a Cover Letter (1 x A4 page) that specifically addresses how the candidate’s skills and experience align with the criteria set out above.
Please Note:

- Applicants who do not address the application requirements above in their cover letter will not be considered at the short list stage.
- Applicants should note that the interview process for this appointment may include the delivery of a presentation and may include a test of practical skills.

Informal enquiries about this post should be made to by e-mail to: Ms Monica Lechea, Office Manager (monica.lechea@adaptcentre.ie). Closing date for applications is 5.30pm on Monday 27th January 2020.

Applicants should submit a full Curriculum Vitae to include the names and contact details of two referees (including email addresses), together with a cover letter (1x A4 page).

Applications will only be accepted by email to Littlet@tcd.ie