Job Description

Comp ID: 037641
Job Title: Chief Technology Officer
School/Department: School of Computer Science
Job Category and Level: Professional, Administrative & Support; Level 1

The Purpose of the Role

The Chief Technology Officer will work closely with Principal Investigators (PIs), clinical and ICT research leaders to define and roll out the underlying technology platform the PrecisionALS Programme. This will include defining, coordinating, and implementing the (technology and research) roadmap required for the programme.

The Chief Technology Officer will understand the requirements of the PrecisionALS Programme, review the existing architectural and technological approach, propose any enhancements or changes and lead on the ongoing acquisition, development, and implementation of those changes in order to meet the Programme’s research goals.

The Chief Technology Officer will bridge Enterprise IT, ICT and Clinical research. The role holder will provide leadership for ‘Work Package 1’ through the development and coordination of the ICT research programme to support a data intensive clinical research programme.

Context

PrecisionALS is a €10 million multidisciplinary and collaborative research programme hosted by the ADAPT Centre in the School of Computer Science and Statistics and FutureNeuro with funding from industry partners from leading global Pharma, Biotech and ICT enterprises and co-funded by Science Foundation Ireland.

The project goal is to enable a data-driven and a precision medicine approach towards new drug development for neurodegenerative disease by combining applied clinical research with cutting edge data science.

The Chief Technology Officer will manage a small team (no. 5+) of IT and software development
professionals and researchers.

As the leader of the key ICT Work Package in the PrecisionALS Programme, the Chief Technology Officer will co-design and co-ordinate the ICT research programme with ADAPT Centre (TCD and TUD) research leaders who are collaborating in the project. The ICT research team will include 6 principal investigators and up to 10 postdoctoral researchers.

The Chief Technology Officer will report to the Director of ADAPT and will be hosted in the School of Computer Science and Statistics in Trinity College Dublin. They will be responsible for the delivery of the PrecisionALS Work Package 1, under the leadership of Professor John Kelleher, which provides the technology solutions and infrastructure for the programme.

Main Responsibilities

There are a number of ICT research challenges under investigation within the research programme. These include how best to gather, handle, collate, analyse, and report on the multi-source, multi-format, multi-modal and longitudinal (clinical) data in an ethical and GDPR compliant manner that is easily accessible, while also being mindful of appropriate data governance and privacy.

In addition, the programme requires ICT analytics research solutions for the selection and execution of appropriate machine learning algorithms and user-friendly approaches to support clinician scientists using the data gathered in this Programme.

The research ICT infrastructure has been commissioned and deployed to ensure the high levels of functionality, performance, capacity, security, usability, assurance, flexibility, or extensibility that are required for this project - however, further research work is required to integrate medical device data, as well as future-proofing the infrastructure and taking advantage of existing Enterprise tools that help achieve this. The current platform uses a mix of technologies including Android, React, Java/Kotlin, MySQL/MariaDB and non-relational (NoSQL) databases (e.g., Mongo, Neo4j). This will be expanded to include tools and technologies related to machine learning which need to be identified, implemented, and maintained in the platform as part of this role.

Additionally, a Patient Data Platform (PDP) has been developed that supports traditional ETL type of data movement as well workflows to assure data quality, data governance, data transformation and techniques for protecting personally identifiable data. This will require ongoing enhancements and changes to meet the needs of the Research Programme.

Finally, there is an intention to migrate the platform from (currently) on-premise to the cloud (most likely Azure) and the successful candidate will be expected to structure and lead this migration.

This is a list of the tasks, duties, and responsibilities for the role.
Strategic & Technical Leadership

- Development, implementation, and ownership of Work Package 1 of the Research Programme. In particular, reviewing and future-proofing the architecture for the PDP, ML, Medical Device and other clinical data based on understanding and articulating the requirements of our clinical research colleagues and driving the technology development or ICT research required to address those needs.
- Lead the development of data architecture and management principles, policies, processes, standards, and controls, in conjunction with the PrecisionALS leadership team for Work Package 1
- Oversee the ongoing identification, analysis, and integration of new data sources into the PDP and development of data analytics capabilities/technologies.
- Assist the PI by providing a technical perspective regarding scope, business analysis, design, development, testing, deployment etc. as it relates to the research programme.
- Provide technical leadership for the wider development team and serve an integral role in operations and business development, ensuring that projects are delivered on time.
- Design and lead the implementation of the strategy and programme plan for technology development while ensuring the implementation and enforcement of technology standards across the programme
- Ensure appropriate programme governance frameworks and risk assessment are in place and monitored throughout the project lifecycle

Team Leadership

- Develop the research team, be a mentor to team members & empower them to achieve the ambitious project goals
- Lead the team that develops, implements, and owns the PDP and any and all data systems or applications that connect to it. This also includes overseeing the processes required in a technical team such as requirements gathering and robust testing.
- Build relationships across functions and disciplines and drive a collaborative approach to deliver high standards of stakeholder management customer service
**Person Requirements**

The role-holder will require the following knowledge, skills and attributes for successful performance in the role.

**Qualifications**

- Computer science or computer engineering undergraduate or graduate degree
- PhD or equivalent in a relevant discipline (desirable)

**Knowledge**

- In-depth Technical and Data Architecture expertise and experience.
- Understanding of the breadth and complexity of data management challenges.
- Strong technical knowledge of data management technologies.
- Knowledge and understanding of GDPR/Privacy issues as related to personal data for research.
- Good knowledge of industry trends and emerging technologies.
- Vendor and partner management experience gained engaging with a variety of technology vendors.
- Knowledge of DevOps tool chains and processes.
- Knowledge of cloud architecture and implementation features from at least one of the leading cloud service providers; and knowledge of how to evaluate architectural alternatives for private, public and hybrid cloud models.

**Experience**

**Essential**

- Proven experience and skills in at least 2 of the following: technical architecture, application development, middleware, database development/management, systems development, data integration.
- Proven experience and skills in one of the following (senior Data Architecture role, senior Technical Architecture role or senior software development role)
- Proven experience leading teams of developers including mentoring and delivering projects successfully and on time
- Proven executive leadership skills and experience with a demonstrable track record of technology innovation, design, development, and implementation.
- Proven experience across multiple areas of software, hardware, and integration technologies.
- Proven experience and skills in developing and implementing data strategies in a data rich environment.
- Proven Experience of the full data lifecycle.
- Proven experience and skills in Sound IT Security knowledge gained by direct experience or training or by collaborating with specialist IT Security experts.
- Proven experience delivering software projects for non-technical stakeholders (ideally clinical)
Desirable

- Experience in cloud computing and automation (Azure)
- Scientific research experience at postdoctoral level or equivalent
- Experience of DevSecOps and MLOps
- Experience in data intensive or biotechnological or clinical research
- Experience in data analytics in a data driven environment.
- Experience working with clinical data and/or data integration of disparate data sources.
- Experience with Android Development
- Experience developing and delivering software platforms with multiple types of end-users with different needs and requirements

Skills

- An ability to think strategically and the ability to communicate and inspire others to follow
- Proven leadership skills, initiative, and drive;
- Project management skills.
- Ability to assess needs, evaluate options and develop technology solutions
- Problem solving
- Proven ability to develop and mentor a high performing technical team

Personal attributes

- Ability to work as part of a team.
- Confident in your judgment and decision making
- User focused, collaborative, innovative, open
- Can explain complicated technical concepts to a non-technical audience
- Understands the importance of quality service and pro-actively delivers this.
- Pays close attention to quality standards.
- Takes pride in providing excellent customer service providing a helpful and courteous approach to colleagues, students, academic staff and customers.
- Committed to achieving results, putting in additional effort as required.
- Flexible approach to working hours as the demands of the post may require work outside normal office working hours from time to time.
Trinity Competencies

In Trinity there are 6 Core Competencies that are applicable to all roles across a range of professional, administrative and support jobs, unlike specialist or technical skills which may be job specific. They provide a common language for describing performance and the abilities/attributes displayed by individuals. They focus on ‘how’ tasks are achieved, not ‘what’ is achieved.

Below is a summary definition of the 6 Core Competencies.

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<tr>
<th>Competency</th>
<th>Summary Definition</th>
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<tbody>
<tr>
<td>1 Agile Leader</td>
<td>Sees the big picture and harnesses opportunities to achieve the University’s goals. Creates clear direction for the future and how to get there.</td>
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<tr>
<td>2 Unlocks Potential</td>
<td>Energised, capable and confident to take ownership and responsibility for their development and goals. Motivates, supports and develops people to perform to the best of their ability.</td>
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<td>3 Service Ethos</td>
<td>Finds ways to increase stakeholder and customer satisfaction. Builds relationships, is proactive and delivery focused in order to anticipate, meet &amp; exceed expectations.</td>
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<td>4 Builds Trusted</td>
<td>Communicates in a clear and respectful manner building trust and commitment for mutually beneficial outcomes.</td>
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<tr>
<td>Relationships</td>
<td></td>
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<tr>
<td>5 Decision-making</td>
<td>Confidently makes timely decisions based on knowledge, evidence and sound judgement.</td>
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<tr>
<td>6 Achieves Results</td>
<td>Delivers results by setting direction, planning, executing and evaluating impact.</td>
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Application Information

In order to assist the selection process, applicants should submit a Curriculum Vitae and a Cover Letter (Max 2 x A4 page) that specifically address the following points in their application.

- Applicants must have the essential experience set out in this role specification and applicants should clearly address this experience and how they obtained their knowledge in their application.
- Applicants should demonstrate their ability to drive the development, implementation and ownership of the PDP technical architecture and strategy, providing examples of previous relevant experience.
Illustrate, through past examples, their ability to collaborate with researchers and with other stakeholders in research and/or technology development projects.

Successfully shortlisted applicants can expect to be interviewed on 27th August.

Further Information Informal enquiries about this post should be made to declan.mckibben@adaptcentre.ie

ATHENA SWAN

Trinity College holds a silver institutional Athena Swan Award for advancing Trinity College Gender Equality

STEM School of Natural Sciences Athena Swan Silver Award

STEM School of Chemistry Athena Swan Silver Award

STEM School of Biochemistry and Immunology Athena Swan Bronze Award

STEM School of Engineering Athena Swan Bronze Award

STEM School of Genetics and Microbiology Athena Swan Bronze Award

STEM School of Physics Athena Swan Bronze Award

Snapshot of the Faculty

The Faculty of Science, Technology, Engineering and Mathematics is located at the east end of the Trinity campus. It brings together eight schools that deliver discipline-specific research and training (Biochemistry & Immunology, Chemistry, Computer Science and Statistics, Engineering, Genetics & Microbiology, Mathematics, Natural Sciences, Physics). Each School produces graduates that are leaders, innovators and doers in STEM education and research, in Ireland and beyond.

As well as these eight schools, the Faculty is made up of three Trinity College Research Institutes, five National Research Centres and three Units. Together these represent approximately 30% of the staff in the College.
Researchers in the Faculty address challenges that are complex and multi-faceted. They do this by continuously asking the fundamental questions of how? and why? They seek out answers to current and future challenges in climate change, food and water security, sustainable urbanisation, personal privacy, healthy ageing and eradicating infectious diseases. They lead innovations at the frontiers of science and technology often in high-level multi-disciplinary teams based within the Schools, Research Institutes and Centres.

The three Trinity Research Institutes are:

- **CRANN** - The Centre for Research on Adaptive Nanostructures and Nanodevices
- **TBSI** - Trinity Biomedical Sciences Institute
- **TCIN** - Trinity College Institute of Neuroscience

The four National Research Centres are:

- **ADAPT** - The SFI Centre for digital content and media innovation
- **AMBER** - The SFI Centre for Advanced Materials and BioEngineering Research
- **CONNECT** - The SFI Centre for digital content and media innovation
- **ENABLE** - Connecting communities with smart urban environments through the Internet of Things

The three units that support our teaching and learning mission are:

- **Biology Teaching Centre** - responsible for the coordination of all Biology teaching to Junior and Senior Freshman students in Science, as well as providing service teaching to other groups within the College.
- **Comparative Medicine Unit** - aims to advance knowledge and improve the health and well-being of humans and animals by servicing, and providing, world-class facilities and infrastructures, to the Trinity research community.
- **Science Course Office** - responsible for facilitating the Junior and Senior Fresh undergraduate Science Programmes.