

Post Title:	Post Doctoral Researcher (Precision ALS Research Programme)
Post Status:	Specific Purpose Contract (12 months duration with possibility for renewal)
Employer:	Academic Unit of Neurology, School of Medicine, Trinity College Dublin, the University of Dublin
Location:	ADAPT Centre/School of Computer Sciences Trinity College Dublin (Appointment can involve some remote working/working from home)
Reports to:	Prof. Orla Hardiman (Project PI/Head of Academic Unit of Neurology)
Salary:	Appointment will be made on the IUA Post-Doctoral Researcher salary scale commensurate with experience (€46,305-€59,063).
Hours of Work:	39 hours per week.
Closing Date:	Tuesday 15 th September 2026, 5pm (Irish Standard Time)

The Purpose of the Role

The Postdoctoral Researcher (funded in collaboration with the Research Ireland FutureNeuro Centre for Translational Brain Science) will contribute to the development, integration, management, and analysis of multimodal biomarker data within the PrecisionALS Programme.

The role will support the use of complex clinical, molecular, imaging, wearable, and other longitudinal research datasets to improve understanding of disease heterogeneity and advance biomarker discovery. The successful candidate will work at the intersection of biomedical research, data management, and data science.

The Fellow will also contribute to the design and delivery of secure, research-facing web tools that make biomarker data, metadata, quality information, and approved research outputs easier to discover, ingest, interpret, and reuse.

Context

PrecisionALS is a multidisciplinary research programme focused on developing a data-driven and precision-medicine approach to neurodegenerative disease research.

The programme brings together clinical, scientific, technical, and industry partners. It generates and uses a broad range of multimodal datasets, including biomarker, clinical, molecular, imaging, and other longitudinal research data.

The successful candidate will be based at Trinity College Dublin and will work closely with researchers across the programme, including the teams responsible for data collection, research infrastructure, machine learning, and clinical research.

The role will contribute particularly to the integration of data collected in Work Packages 2 and 3 and to collaboration with the platform development in Work Package 1 and the machine-learning activities in Work Package 7. The role may also involve collaboration with Work Package 6 where relevant to biomarker and data-integration activities.

The web component will provide a practical translation layer between the underlying research-data infrastructure and its users. It will support approved researchers and data managers in finding, ingesting, understanding, validating, and reusing biomarker data, while enabling the PALS programme to share methods, aggregated findings, and plain-language research outputs with wider audiences.

Main Responsibilities

- Support the integration and management of multimodal/biomarker data within the PrecisionALS research infrastructure.

- Contribute to data ingestion, curation, quality assessment, transformation, documentation, and reuse.
- Work with prospective, extant, and external datasets and support their integration into SeRP and related research systems.
- Collaborate with researchers, clinicians, data scientists, software engineers, and other stakeholders to understand data requirements and develop practical solutions.
- Support the development and maintenance of data models, metadata, standards, and documentation for biomarker datasets.
- Contribute to data-quality processes, including validation, harmonisation, provenance, and the identification of missing or inconsistent data.
- Assist with the development of analytical datasets for biomarker research and machine-learning activities.
- Contribute to the responsible management of sensitive research data, including governance, privacy, security, and ethical considerations.
- Support technical documentation, research reports, presentations, publications, grant reporting, and research dissemination.
- Work collaboratively across relevant PrecisionALS Work Packages and research partners.
- Contribute to the requirements, design, testing, and maintenance of a secure web interface for biomarker/data capture.
- Work with researchers and data managers to translate biomarker workflows into usable web-based tools and dashboards.
- Support role-based access, pseudonymisation, auditability, accessibility, and responsible handling of sensitive research information.
- Contribute to APIs, data dictionaries, documentation, and controlled data-export workflows that connect the web interface to SeRP and related systems.
- Support user testing, training, and evaluation with research, clinical, technical, and collaboration partners.
- Undertake other duties appropriate to the level and nature of the post.

Strategic and Technical Responsibilities

- Help define and implement approaches for managing complex multimodal biomarker data.
- Contribute to data-management principles, standards, processes, and controls.
- Support integration of data from different sources, formats, platforms, and research studies.
- Assist with reusable and reproducible data-processing workflows.
- Contribute to the identification and evaluation of database, data-engineering, and analytical technologies.
- Work with the machine-learning team to prepare reliable, well-documented datasets.
- Help ensure that data structures and workflows meet current and future research needs.

- Communicate complex data and technical issues clearly to researchers and non-specialist stakeholders.
- defining the web platform's user needs and functional requirements;
- contributing to data models, APIs, metadata standards, and provenance structures;
- designing interfaces for dataset discovery, QC review, and controlled export;
- supporting accessibility, security, privacy, and audit requirements;
- evaluating the platform through researcher and stakeholder feedback;
- preparing documentation, onboarding materials, and a sustainability plan.

Person Specification

Qualifications

- A PhD in data science, biomedical science, bioinformatics, computational biology, neuroscience, statistics, computer science, or a related discipline.
- A relevant undergraduate or postgraduate degree.
- Postdoctoral research experience is desirable.

Knowledge

- Knowledge of multimodal biomedical or clinical research data.
- Understanding of data management, data integration, and data-quality principles.
- Strong understanding of relational data concepts and SQL, including querying, joins, aggregation, data transformation, validation, and performance-aware analysis across complex datasets. Familiarity with distributed SQL query engines such as Trino, or equivalent data-integration and analytics platforms, is desirable.
- Awareness of research-data governance, privacy, ethics, and reproducibility.
- Familiarity with biomarker research and/or PrecisionALS data is desirable.
- Understanding of machine-learning data requirements is desirable.

Experience

Essential:

- Experience working with complex, heterogeneous, or multimodal datasets.
- Experience managing, integrating, analysing, or preparing research data.
- Experience developing or maintaining data-processing workflows, databases, or analytical pipelines.
- Experience working collaboratively across disciplines.
- Experience documenting data, methods, processes, or research outputs.
- Experience managing complex projects or coordinating multiple research activities.
- Experience developing reproducible data-processing or data-quality workflows using Python, Bash, or comparable scripting tools.

- Demonstrable experience writing SQL to query, join, transform, validate, and analyse research or other complex datasets.

Desirable:

- Experience with clinical, molecular, imaging, wearable, or other biomarker datasets.
- Experience with PrecisionALS or related neurodegenerative-disease research.
- Experience working with machine-learning researchers or analytical teams.
- Clinical or translational research experience.
- Experience contributing to publications, grant applications, or technical reports.
- Experience developing or contributing to research-facing web applications, dashboards, APIs, or data portals.
- Experience with user-centred design, accessibility, usability testing, or technical product development.
- Experience translating scientific or clinical workflows into software requirements.
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Skills

- Strong data-management and analytical skills.
- Strong practical SQL skills, including the ability to work with complex schemas and heterogeneous data sources.
- Competence in at least one scripting language, e.g. Python, for data processing, validation, automation, or analysis.
- Familiarity with Bash or other command-line tools for working with data, pipelines, and research-computing environments.
- Familiarity with version control, testing, debugging, and documenting code used in research workflows.
- Ability to work with complex and imperfect real-world data.
- Ability to translate data requirements into practical technical solutions.
- Ability to communicate clearly with technical, clinical, and scientific audiences.
- Strong organisational and project-management skills.
- Ability to work independently and contribute effectively to a multidisciplinary team.
- Strong attention to detail and commitment to data quality.
- Ability to prepare clear technical documentation and research outputs.

Personal Attributes

- Collaborative, constructive, and willing to work across disciplinary boundaries.
- Curious and comfortable learning new technologies and research domains.
- Practical, organised, and delivery-focused.
- Committed to high standards of research quality, integrity, and reproducibility.
- Able to explain complex concepts clearly.
- Confident in identifying issues and proposing solutions.
- Flexible and responsive to the changing needs of a large research programme.

Trinity Competencies

The role-holder will be expected to demonstrate Trinity's core competencies:

1. Agile Leader
2. Unlocks Potential
3. Service Ethos
4. Builds Trusted Relationships
5. Decision-making
6. Achieves Results

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, integration, management, and analysis of multimodal biomarker data, 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.

Applications should be submitted to ResearchMND@tcd.ie

Please quote the following in the subject heading of the emailed application; **Post-Doctoral Researcher (Precision ALS)**

Further Information

Informal enquiries about this post should be made to ronan.mcdonnell@adaptcentre.ie