Position Description

Title: Biobank Systems Developer
HEW Level: HEW 7
Faculty/Office: Faculty of Medicine and Health Sciences
Position Number: NEW
Department/Team: Department of Biomedical Sciences
Date: January 2019

Position Purpose: To expand the functionality of the content management system for the Neurodegenerative disease biobank and implement database upgrades for use across a number of research projects.

ORGANISATIONAL CONTEXT

Macquarie University is developing the nation’s first fully integrated academic health sciences centre under a university’s leadership. With a focus on patients and an ultimate goal of improving lives, the Macquarie University Health Sciences Centre will see true convergence of the learning and research endeavours of Macquarie’s Faculty of Medicine and Health Sciences with the clinical care provided at Macquarie University Hospital and Clinics. It brings together the excellent work of medical and allied health researchers across the University and around the country, with unparalleled access to the world-leading clinical resources and research facilities found only on our campus.

The Faculty of Medicine and Health Sciences has active research programs in biomedical, translational and health services domains, with current areas of strength including neurosciences (especially motor neuron disease, neurological rehabilitation, and the clinical neuroscience of pain), cancer medicine, and vascular science, amongst others. The Faculty hosts the Australian Institute of Health Innovation, an internationally acclaimed powerhouse researching health systems, e-health, and patient safety. In learning and teaching, the Faculty offers a unique suite of capability-based medical educational programs aimed at post-graduation subspecialty medical education and training, and a unique three-year extended masters-level, professional-entry Doctor of Physiotherapy degree.

This position will be based within the Faculty’s Centre for Motor Neuron Disease (MND) Research which is one of Australia’s largest MND programs, comprised of a multidisciplinary team of experts. The Neurodegenerative disease biobank is the centrepiece of this program, with an extensive collection of biological samples and associated clinical, demographic and lifestyle data obtained from neurodegenerative disease patients and controls.

ORGANISATION CHART
### KEY ACCOUNTABILITIES

- In consultation with the ND Biobank Manager, design and implement additional nodes to the biobank database for use across a number of research projects.
- Work closely with researchers, external stakeholders and clinicians to understand user requirements and functional specifications for the development of software solutions and the user interface to support research projects and document the technical design in alignment with these requirements.
- Work with the research and laboratory teams to develop solutions that efficiently catalogue, track and report on a repository of various biological sample types for efficient search and retrieval by researchers.
- Develop, test and maintain software solutions and user access and ensure that it is compliant with privacy, security and research ethics policies and protocols.
- Conduct regular performance testing and maintenance on the database and resolve any identified bugs or issues that arise during the development and implementation phases to ensure optimum performance at all times.
- Write and maintain supporting software documentation including, testing and user documentation and technical instruction manuals, ensuring alignment with software engineering standards.
- Work with University IT to schedule and provide database backups and ensure system administration tasks are carried out.
- Monitor data integrity, data collection and management of the database and make amendments to accommodate data quality issues.
- Provide technical support and direction to database users.
- Comply with relevant EEO and WHS regulations.
- Perform any other duties as required and appropriate for this classification.

### POSITION CONTEXT

<table>
<thead>
<tr>
<th>Reports to:</th>
<th>Biobank Manager</th>
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<tbody>
<tr>
<td>Positions Reporting to:</td>
<td>Direct: nil&lt;br&gt;Indirect: nil</td>
</tr>
<tr>
<td>Key Direct Clients:</td>
<td>Professor, Neurology and Principal Researchers using the database&lt;br&gt;Immediate Biobank Team members&lt;br&gt;Relevant staff in Macquarie University Hospital and Clinics&lt;br&gt;Staff at the Centre for MND Research</td>
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<td>Other Key Relationships:</td>
<td>Relevant Systems Developers at the University of Queensland (institute collaborator)&lt;br&gt;University IT&lt;br&gt;Staff in the Department of Biomedical Sciences&lt;br&gt;Immediate team members&lt;br&gt;MND Biobank Executive Committee&lt;br&gt;Other staff members in own office or department</td>
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<td>Budget Accountability:</td>
<td>Nil</td>
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<td>Role-specific Conditions:</td>
<td>Nil</td>
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<tr>
<td>Scope and autonomy</td>
<td>Develops and modifies processes, procedures, systems and/or techniques for the work area and/or contributes to the development of University-wide systems, processes and procedures.</td>
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<tr>
<td>Problem solving</td>
<td>Analyses, designs and develops a range of alternatives and then uses expertise to decide on or recommend the best course of action.</td>
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## CAPABILITY FRAMEWORK

Capability Frameworks describe the behaviours, skills, attributes and experience required to successfully perform a position or group of similar positions.

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<thead>
<tr>
<th>COMPETENCIES</th>
<th>ATTRIBUTES</th>
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<tbody>
<tr>
<td><strong>Planning and Execution</strong>: Managing time and resources to complete tasks and achieve objectives.</td>
<td><strong>Perseverance</strong>: Persevering despite obstacles to ensure tasks are completed.</td>
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<td><strong>Implementing Systems</strong>: Adopting a systematic and organised approach, and developing and utilising guidelines and procedures.</td>
<td><strong>Flexibility</strong>: Responding effectively to unexpected or changing circumstances.</td>
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<tr>
<td><strong>Quality Focus</strong>: Ensuring accuracy and quality when completing tasks.</td>
<td><strong>Reliability</strong>: Meeting commitments and responsibilities.</td>
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<tr>
<td><strong>Analysis and Judgement</strong>: Evaluating information and data to solve problems and make decisions.</td>
<td><strong>Integrity</strong>: Maintaining confidentiality, discretion and professionalism.</td>
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<tr>
<td><strong>Communication</strong>: Effectively grasping and conveying ideas and concepts to others.</td>
<td><strong>Interpersonal impact</strong>: Making a positive impression on others.</td>
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<tr>
<td><strong>Teamwork</strong>: Working in collaboration with others to achieve shared goals.</td>
<td><strong>Initiative</strong>: Taking action, on own accord, to address problems and prevent them from reoccurring.</td>
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<tr>
<td><strong>Improvement Focus</strong>: Finding better ways of completing tasks or solving problems.</td>
<td><strong>Integrity</strong>: Maintaining confidentiality, discretion and professionalism.</td>
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<tr>
<td><strong>Relationship Management</strong>: Establishing effective working relationships with others.</td>
<td><strong>Resilience</strong>: Dealing effectively with and recovering quickly from setbacks or pressure.</td>
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### REQUIRED KNOWLEDGE
Qualifications, technical and/or professional skills and information needed from day one for successful performance.

- Bachelor’s Degree in Computer Science, Software Engineering or related field.
- Knowledge of medical or clinical terminology and understanding of how clinical data is collected.
- Knowledge of relational and object-orientated database design, implementation and management including ER modelling.
- Knowledge of the software development cycle (SDLC) processes.
- Knowledge of SQL and mySQL and large database query techniques.
- Knowledge of web development in one or more languages including PHP with exposure to both front-end and back-end development and integration into CMSs.
- Knowledge of Drupal 7 API and module development (*desirable*)
- Knowledge of programming in R (*desirable*)
- Knowledge of information security management standards.

### ACQUIRED KNOWLEDGE
Organisational and/or professional skills and information to be developed within the first 3 to 6 months in the role for successful performance.

- Knowledge of the biobank database.
- Ability to work with large and complex datasets and health datasets.
- Understanding of Australian Privacy Principles as it applies to human research.
- Understanding of Privacy and Ethics requirements when working with medical records under the NHMRC National statement for Ethical Conduct.
- Understanding of the Guidelines for Human Biobanks and Genetic Research databases.
- Knowledge of the Faculty of Medicine and Health Science’s functions and structure.
- Knowledge of the Faculty of Medicine and Health Science’s policies, systems, processes and procedures.

### KEY EXPERIENCES
Practical experiences and exposure to specific environments or activities related to successful performance.

- Demonstrated experience gathering stakeholder requirements and translating them into robust, scalable and operable solutions that work well within an overall database infrastructure.
- Experience in back-end and front-end development of a clinical database.
- Experience writing code and testing documentation.
- Working with imperfect datasets to interpret and map data to create usable queries.
- Experience producing user manuals and providing technical support at varying levels.
- Experience applying software engineering best practice including design patterns, revision control, testing and tracking.