JOB DESCRIPTION

Group Leader Research Software Engineering

ROLE TITLE	Group Leader Research Software Engineering
SECTION/DIVISION:	eResearch Support, Digital Division
REPORTS TO:	Head of eResearch Support
DIRECT REPORTS (FTE):	3 FTE
INDIRECT REPORTS (FTE):	3 FTE
PRIMARY PURPOSE OF THE ROLE:	Provides strategic and technical leadership to a team of specialists delivering advanced research software solutions. This role drives the design, development, and optimisation of complex scientific and research-focused applications, ensuring they meet the evolving needs of the research community and organisational objectives. Drawing on technical expertise in software engineering, scientific modelling, data science, and numerical analysis, the Group Leader ensures the delivery of robust, scalable, and innovative solutions. The role is responsible for maintaining high standards in software design and programming practices, supporting the adoption of modern methods and tools, and embedding security and quality at all stages of development. Work closely with researchers, technical experts, and institutional stakeholders to translate research requirements into functional software outcomes, while also promoting best practices and providing authoritative specialist advice across the university's digital research ecosystem.
ACCOUNTABILITIES:	**Software design, SWDN: Level 4** Designs complex software applications, components and modules. Uses appropriate modelling techniques following agreed software design standards, guidelines, patterns and methodology. Creates and communicates multiple design views to balance stakeholders' concerns and to satisfy functional and non-functional requirements. Identifies, evaluates and recommends alternative design options and trade-offs. Models, simulates or prototypes the behaviour of proposed software to enable approval by stakeholders, and effective construction of the software. Verifies software design by constructing and applying appropriate methods. Reviews, verifies and improves own designs against specifications. Leads reviews of others' designs. **Programming/software development, PROG: Level 5** Takes technical responsibility across all stages and iterations of software development. Plans and drives software construction activities. Adopts and adapts appropriate software development methods, tools and techniques. Measures and monitors applications of project/team standards for software construction, including software security. Contributes to the development of organisational policies, standards, and guidelines for software development.

Problem management, PBMG: Level 5
Ensures that appropriate action is taken to anticipate, investigate and resolve problems in systems and services.

Ensures that such problems are fully documented within the relevant reporting systems.

Enables development of problem solutions. Coordinates the implementation of agreed remedies and preventative measures.

Analyses patterns and trends and improves problem management processes.

Methods and tools, METL: Level 5
Provides advice, guidance and expertise to promote adoption of methods and tools and adherence to policies and standards.

Evaluates and selects appropriate methods and tools in line with agreed policies and standards. Contributes to organisational policies, standards, and guidelines for methods and tools.

Implements methods and tools at programme, project and team levels including selection and tailoring in line with agreed standards.

Manages reviews of the benefits and value of methods and tools. Identifies and recommends improvements.

Specialist advice, TECH: Level 5
Provides definitive and expert advice in their specialist area.

Actively maintains recognised expert level knowledge in one or more identifiable specialisms.

Oversees the provision of specialist advice by others. Consolidates expertise from multiple sources, including third-party experts, to provide coherent advice to further organisational objectives.

Supports and promotes the development and sharing of specialist knowledge within the organisation.

Data science, DATS: Level 4
Investigates the described problem and dataset to assess the usefulness of data science and analytics solutions.

Applies a range of data science techniques and uses specialised programming languages. Understands and applies rules and guidelines specific to the industry, and anticipates risks and other implications of modelling.

Selects, acquires and integrates data for analysis. Develops data hypotheses and methods and evaluates analytics models. Advises on the effectiveness of specific techniques based on project findings and comprehensive research.

Contributes to the development, evaluation, monitoring and deployment of data science solutions.

Numerical analysis, NUAN: Level 4
Creates moderately complex algorithms using a range of mathematical techniques and with sensitivity to the limitations of the techniques.

Uses sophisticated scientific computing and visualisation environments.

Assesses the stability, accuracy and efficiency of algorithms and makes or recommends improvements to them.

Iterates and improves models using feedback from experts as appropriate.

Scientific modelling, SCMO: Level 5
Investigates real-world problems to assess whether existing scientific models provide effective solutions.

Creates new mathematical representations of the underlying science that can be implemented in a computational model. Applies advanced programming techniques to implement scientific models and apply these for problem-solving.

Analyses the functioning of existing computational models to improve accuracy and performance.

Communicates limitations such as uncertainty and systematic errors. Ensures appropriate usage of computational models.

Performance management, PEMT: Level 5
Forms, maintains and leads workgroups and individuals to achieve organisational objectives.

Determines and delegates objectives and task responsibilities to individuals or teams - including people management responsibilities as appropriate. Sets the quality, performance and capability targets in line with organisational goals. Monitors performance and working relationships and provides effective feedback to address individual issues.

Encourages individual development of skills and capabilities in line with team and personal goals. Facilitates the development of individuals by adjusting workload, targets, and team capacity.

Plays an active role in formal organisational processes such recruitment, reward, promotion and disciplinary procedures.

Stakeholder relationship management, RLMT: Level 5
Identifies the communications and relationship needs of stakeholder groups. Translates communications/stakeholder engagement strategies into specific activities and deliverables.

Facilitates open communication and discussion between stakeholders.

Acts as a single point of contact by developing, maintaining and working to stakeholder engagement strategies and plans. Provides informed feedback to assess and promote understanding.

Facilitates business decision-making processes. Captures and disseminates technical and business information.

KEY RELATIONSHIPS:

Internal
Academic and research staff
Digital Division teams
Project managers and business analysts

External
Research collaborators at other universities and institutions
National eResearch and HPC providers (e.g. NeSI)
Government research agencies and funding bodies
Open-source and research software communities
External software developers, consultants, and technology vendors
Professional associations and standards bodies

QUALIFICATIONS & EXPERIENCE:	Essential Master's degree in relevant discipline with a significant computational component Considerable experience in software development, preferably within research, academic, or scientific environments Demonstrated experience applying scientific computing, numerical methods, or modelling techniques to solve complex problems Proven leadership experience managing technical teams, including performance and professional development Strong stakeholder engagement skills, particularly with researchers, academic staff, and technical professionals Skilled in applying modern software development tools, methodologies, and version control systems Experience leading technical design reviews and providing specialist advice Proven ability to manage problem-solving and drive service improvements in complex environments Preferred PhD in a relevant discipline with a significant computational component in a relevant field Experience with high-performance or large-scale data processing environments Understanding of research data management, including FAIR and CARE principles and reproducible research practices Experience working with secure research software environments Understanding of IT governance, software sustainability, and secure software development Involvement in research software or open-source communities Experience supporting grant-funded or cross-disciplinary research projects Experience integrating with large-scale data sources or instruments
TECHNICAL SKILLS AND KNOWLEDGE:	Essential Proven proficiency with programming languages commonly used in research software (e.g., Python, R, C/C++, Fortran, Julia) Strong grasp of software design principles, modelling techniques, and design patterns Ability to develop, debug, and optimise scientific models and simulations Sound knowledge of numerical algorithms and performance optimisation Proficient in version control systems (e.g. Git) and collaborative development workflows Understanding of software testing, documentation, and validation in research contexts Sound knowledge of data science workflows, including data integration, statistical analysis, and visualisation Ability to select and apply appropriate development methodologies, tools, and frameworks Preferred Familiarity with parallel or distributed computing frameworks Familiarity with GPU development frameworks – CUDA, OpenCL, ROCm Knowledge of containerisation tools and their application in research computing environments Understanding of research computing infrastructure, open science principles, and FAIR/CARE data standards Proficiency in CI/CD tools and automated deployment pipelines Exposure to research infrastructure tools (e.g. Slurm, Galaxy, JupyterHub, GitLab CI) Understanding of open-source licensing and reproducible research software practices Knowledge of Agile development and CI/CD practices
SPECIAL REQUIREMENTS:	At the University, we are required to be compliant with the Public Records Act 2005 and Privacy Act 2020. Staff are expected to participate in available training to understand these requirements and effectively manage information accordingly.

DIRECT BUDGET ACCOUNTABILITY:	Nil
MĀORI STRATEGIC FRAMEWORK:	Act in a manner consistent with the principles and implications, as well as the University's commitment to the Treaty as articulated in the Māori Strategic Framework.
PACIFIC STRATEGIC FRAMEWORK:	Act in a manner consistent with the strategies and goals contained in the University's Pacific Strategic Framework, role-modelling and promoting Pacific values, equity and diversity principles and cultural safety practices.
HEALTH AND SAFETY:	Act and work in a manner compliant with current health and safety at work legislation and University procedures, frameworks and guidelines. Role model safe behaviour and practices, share the responsibility to prevent harm and contribute to a safe campus and work environment, including raising workplace health and safety concerns for self, students, visitors and other staff.
SUSTAINABILITY:	Act in a manner consistent with the University's sustainability commitments; role-modelling sustainable practices, with a particular emphasis on minimising the environmental impact of day-to-day activities.

SKILLS FRAMEWORK FOR THE INFORMATION AGE (SFIA)

Group Leader Research Software Engineering

Role Type: Group Leader

SFIA Levels of responsibility

Autonomy	5	Influence	5	Complexity	5	Business Skills	6	Knowledge	5

SFIA Skills Profile

Category	Subcategory	Skill	Code	L1	L2	L3	L4	L5	L6	L7
Development and implementation	Systems development	Software design	SWDN				■			
Development and implementation	Systems development	Programming/software development	PROG					■		
Delivery and operation	Service management	Problem management	PBMG					■		
Strategy and architecture	Advice and guidance	Methods and tools	METL					■		
Strategy and architecture	Advice and guidance	Specialist advice	TECH					■		
Development and implementation	Data and analytics	Data science	DATS				■			
Development and implementation	Computational science	Numerical analysis	NUAN				■			
Development and implementation	Computational science	Scientific modelling	SCMO					■		
People and skills	People management	Performance management	PEMT					■		
Relationships and engagement	Stakeholder management	Stakeholder relationship management	RLMT					■		

https://help.sfia.nz/hc/en-nz/sections/4407230514201-Levels-of-responsibility

https://sfia-online.org/en/sfia-8/sfia-views/full-framework-view?path=/glance