Appendix A

POSITION DESCRIPTION

Position Description Classification Approved	Date
Human Resources Branch	24/07/2023

POSITION DETAILS	
Position Title:	**APPF Software Engineer**
Position Number:	25571
Classification:	HEO8
Faculty/Division:	Faculty of Sciences, Engineering and Technology
School/Branch:	AFW / Australian Plant Phenomics Facility (APPF)
Reports to (position title):	APPF Senior Software Engineer
Delegations:	none
Special Conditions:	• Reasonable workplace adjustments will be made for people with a disability
Significant Working Relationships:	• APPF Data Management Director • APPF Data Architect • APPF Senior Software Engineers • APPF Software Engineers • APPF Data Librarians • APPF Partner Nodes • Field and laboratory technicians (mechatronics, sensors, imagery, etc.) • Specialist computer scientists (computer vision, machine learning, etc.)

POSITION SUMMARY

The Australian Plant Phenomics Facility (APPF) was established in 2009 under the Australian Government's National Collaborative Research Infrastructure Strategy (NCRIS) to develop a globally collaborative plant phenomics capability that provides leadership in infrastructure, skills and service for agricultural research and industry to maximise the productivity in Australia's unique and variable environment.

The Government's recently released Research Infrastructure Roadmap announced a five-year funding commitment to support the development and implementation of a new collaborative strategy to further strengthen APPF capabilities, stakeholder engagement and alignment with research and industry priorities.

We are entering an exciting new era that will see APPF expand into a national endeavour with partner nodes in Western Australia, South Australia, Victoria, the ACT, New South Wales and Queensland to provide access to cutting-edge research infrastructure and expertise in plant phenomics in controlled environments and in the field. The collaborative nature of the facility helps accelerate knowledge transfer, increases cross-disciplinary collaboration and promotes data sharing to ensure Australia continues to be a serious international contender and attractive collaborative partner in the rapidly developing field of plant phenomics.

To meet the aspirations of the APPF, the APPF Software Engineer will develop Python software libraries for collection, packaging, processing and access of plant phenotyping data and metadata collected by all APPF partner nodes. These data and metadata include study design documents, vocabularies, imagery (RGB, NIR, multispectral, hyperspectral, x-ray and other), point-cloud and 3D model data, environmental and other sensor readings, field and laboratory notes, derived plant trait data, and provenance/transformation metadata for all steps in data handling.

The immediate task for this role will be to develop core Python packages for packaging and describing all data elements and their relationships as a standard data resource that can be exported to a data repository and subsequently interpreted using only elements included with the data resource. The APPF Software Engineer will work with APPF staff and partners to develop tools that simplify and automate data collection from sensors and cameras and data description using appropriate metadata standards and vocabularies.

The APPF Software Engineer will be part of a core team initially of seven data and informatics staff facilitating APPF's mission to support plant science, agricultural improvement and sustainability. This team is expected to expand in coming years and will also be responsible for developing a federated catalogue and discovery portal for all APPF data resources, including tools for visualisation and interpretation (GIS, dashboards, data cubes, API).

KEY RESPONSIBILITIES	
Software development	• Collect and document requirements for data collection and packaging tools. • Design and implement modular Python packages to support APPF federated data management, including control of sensors and cameras, data transfer and packaging, execution of analytic components, data cataloguing and portal/API access. • Develop tools that simplify and automate the collection and curation of metadata describing plant science experiments and processing of digital assets. • Evaluate Python modules and other components for use in building APPF software. • Communicate effectively to coordinate tasks and schedules with other APPF software engineers.. • Follow best-practice approaches for software development, including coding standards, documentation, version control, issue management, test and deployment
Data processing	• Support researchers and technical staff to document all data assets with structured metadata to support reuse. • Perform integrity checks on data streams and report issues. • Capture local terms and definitions as structured vocabularies for use in documentation and to structure metadata.
Teamwork	• Support and work efficiently alongside other APPF software and data staff. • Develop and nurture positive, respectful relationships with APPF staff, partners, users and collaborators. • Follow university cybersecurity policies and contribute to a culture of data security.
Other reasonable duties commensurate with classification level.	

PEOPLE MANAGEMENT RESPONSIBILITIES
• Ensures a compliant, safe and fair work environment for staff, customers and visitors in alignment with legislation, University policies and procedures, and relevant professional standards.

CAPABILITIES AND BEHAVIOURS
Use the Capability Dictionary to identify the capabilities associated with the classification of this position. Staff are required to read and understand the capabilities and associated behaviours that align with the classification of this position.

UNIVERSITY EXPECTATIONS
Staff are required to read, understand and comply with all University policies, procedures and reasonable direction, whilst demonstrating professional workplace behaviours in accordance with the University's Code of Conduct

STAFF VALUES AND BEHAVIOUR FRAMEWORK
Our culture is one that welcomes all and embraces diversity consistent with our Staff Values and Behaviour Framework and our Values of integrity, respect, collegiality, excellence and discovery. We firmly believe that our people are our most valuable asset, so we work to grow and diversify the skills, knowledge and capability of all our staff.

SELECTION CRITERIA

Knowledge and Experience:

Essential:

1. Demonstrated expert knowledge of the Python language and best-practice Python software development.
2. Demonstrated experience using and applying data standards, metadata standards and controlled vocabularies to facilitate data re-use.
3. Demonstrated experience developing software to process and transform data, including understanding of ETL processes.
4. Demonstrated experience in team software development, including coding and documentation standards, Git-based version control, defect and issue management, code review and test.
5. Experience capturing software requirements and translating these into documented designs and implementation plans.
6. Good interpersonal, oral and written communication skills.
7. Capacity to work independently as well as in a team environment.
8. Demonstrated ability to promote the organisational values of integrity, respect, collegiality, excellence and discovery, and a commitment to positively comply with the associated behaviour expectations.

Desirable:

9. Understanding of research data management principles, practices, and associated methodologies, encompassing the research data lifecycle, including the FAIR data principles, use of vocabularies and ontologies, globally unique identifiers, metadata standards and handling of CSV/tab-delimited data.
10. Experience developing modular software solutions using Application Programming Interfaces (APIs).
11. Experience building and deploying containerized solutions (Docker, Kubernetes, etc.).

Qualification/s:

12. Tertiary qualification in either Computer Science or Software Engineering with at least 2 years relevant work experience, or an equivalent combination of education and/or training, including broad experience in a scientific/research and/or industry environment(s).