Position Description

Position Title: Gravitational Wave Data Science Support Leader
Position Number:
Classification: HEW 9
Faculty: FSET
Department: Centre for Astrophysics and Supercomputing

Position Purpose

The appointee will assume a leadership role to assist in the delivery of astronomy-focussed high-performance computing (HPC) and data science programs at Swinburne funded through the National Collaborative Research Infrastructure Scheme (NCRIS). These programs include the provision of Astronomy Data and Computing Services (ADACS) and the operation of the OzSTAR supercomputer as a national facility for the astronomy community. ADACS is a national initiative supported by Astronomy Australia Limited (AAL) to empower astronomers to maximize the scientific return from their data and eResearch infrastructure through training, application of professional software services and enhanced access to resources. In particular the appointee will lead efforts to ensure that the data processing and management needs of gravitational wave astronomers are met as a Gravitational Wave Data Centre is established at Swinburne as an extension of the ADACS program.

The appointee will ensure the timely delivery of key software and infrastructure development projects, taking a hands-on approach where necessary and demanding high-quality outcomes. The appointee will focus on the relationship between ADACS and the data and computing operations of the Laser Interferometer Gravitational wave Observatory (LIGO), ensuring the necessary steps are taken to bring OzSTAR to official LIGO data centre status. In doing so the appointee will develop strategies that best enable the gravitational wave astronomy community to meet future HPC and/or data management challenges, while also taking a leading role in engaging with relevant industry partners. The role includes project management as well as aspects of software engineering and testing, research and development activities and participating in training programs as required. The role includes working closely with the OzGrav Centre of Excellence for Gravitational Wave Discovery for which Swinburne is the lead institution. The position requires the ability to work both independently and directly with other

members of the support programs as well as with members of the astronomy community. The position will be based at Swinburne University of Technology which maintains a leading profile in supercomputing and related astronomical research through the activities of the Centre for Astrophysics and Supercomputing.

Key Responsibility Areas

Project Management	• Oversee the effective delivery of Swinburne requirements relating to gravitational wave data science activities within the Astronomy Data and Computing Services (ADACS) program, ensuring that project milestones and reporting deadlines are met. • Lead the relationship between ADACS and the relevant LIGO data and computing committees in consultation with the leadership of the Swinburne ADACS node and associated oversight bodies. • Management of project resource requirements for astronomy HPC and data science projects. • Ensure that suitable documentation is maintained for all projects. • Manage relationships with industry and eResearch partners and identify related opportunities. • Partner with key stakeholders within the astronomy community to understand their business needs.
Research and Support	• Provide support to the national astronomy community in general and gravitational wave researchers in particular to encourage efficient use of the software and hardware resources available. • Provide high-level support for Swinburne HPC systems and associated services, contributing to development activities as required. • Use trouble-shooting skills as well as current policy and precedent to provide support to solve complex problems and document the effective solution for future reference. • Liase with third parties to clarify and resolve technology-related issues. • Investigate current and future technologies relevant to the astronomy usage of national high-performance computing facilities.
Team Work	• Work effectively with the support team at Swinburne and at other national facilities to deal with issues relating to the services provided. • Meet regularly with associated staff, students and stakeholders. • Participate in development strategies to coordinate and implement projects, including organization of workshops. • Participate in writing and maintaining end user documentation, regular progress reports, system usage reports and other related documentation.
Swinburne Behaviours	· Commitment to the Swinburne Behaviours of:

	· Communicate – Say it – have the conversation, respect each others' differences, give meaningful feedback and share honestly and openly · Listen and Learn – Hear it, learn from it – learn from one another, actively listen to each other, resolve conflict and be innovative · Collaborate – Share it – work constructively together with a common purpose to achieve the university's goals · Trust – Trust it – be open to and with others, act with fairness and respect, inspire positive expectations and communicate effectively · Act – Do it – have a strong sense of immediacy, take practical action and see it through
Other	· Undertake Division-wide and/or university-wide responsibilities as required.

Key Selection Criteria

Candidates are required to respond to each of the selection criteria.		Essential / preferable
Qualifications	· A degree in computer science, software engineering or information technology with relevant experience or an equivalent combination of relevant experience and/or education/training.	Essential
	· Relevant industry certification/experience in project management (Agile preferred).	Preferable
	· Masters and/or PhD in astronomy or a closely related field, or relevant experience in scientific computing.	Preferable
Experience/ Knowledge/Attributes	· Extensive experience in software development including advanced or expert-level software programming skills in C/C++, Python, shell scripting and/or Fortran..	Essential
	· Experience and knowledge of working in a Linux-based high-performance computing environment.	Essential
	· Demonstrated ability to deliver software development (or closely related) projects on time and on budget with successful end-user outcomes.	Essential
	· Demonstrated high standard of interpersonal and communication skills including the ability to work both independently and collaboratively in a multi-disciplinary environment.	Essential

	· Prior experience working on gravitational wave astronomy projects and familiarity with LIGO data and computing operations.	Preferable
	· Knowledge of CUDA, Perl, PHP, Javascript, Django, MySQL, MPI and OpenMP.	Preferable
	· Experience in solutions architecture and design.	Preferable
	· Excellent time management skills and ability to work under pressure and to tight deadlines.	Preferable
Other	· A valid working with children's check card or ability obtain one upon successful appointment	Essential