

## Position Details

### Research Projects – CSOF6

THE FOLLOWING INFORMATION IS FOR APPLICANTS	
Advertised Job Title	Data Processing Manager - SKA-Low Telescope
Job Reference	95831
Tenure	Indefinite Full-Time, Part-Time or Job-Share
Salary Range	AU\$126,313 to AU\$148,014 per annum, plus up to 15.4% superannuation
Location(s)	Kensington, Western Australia
Relocation Assistance	Will be provided to the successful candidate if required
Applications are open to	All Candidates
Client Focus – Internal	0%
Client Focus – External	100%
Position reports to the	This position will report into the SKA-Low Head of Computing and Software
Number of Direct Reports	8
Enquire about this job	To enquire about this role, please reach out to the SKA-Low Head of Computing and Software, Juan Carlos Guzman, on <a href="mailto:jc.guzman@skao.int">jc.guzman@skao.int</a>
How to apply	Apply online at <a href="https://jobs.csiro.au/">https://jobs.csiro.au/</a> Internal applicants please apply via <b>Jobs Central</b> If you experience difficulties when applying, please email <a href="mailto:careers.online@csiro.au">careers.online@csiro.au</a> or call 1300 984 220.

### Acknowledgement of Country

CSIRO acknowledges the Traditional Owners of the land, sea and waters, of the areas that we live and work on across Australia. We acknowledge their continuing connection to their culture and pay our respects to their Elders past and present. View our [vision towards reconciliation](#).

### The CSIRO Experience

As an employee of CSIRO, you will be eligible for the many benefits of working at Australia's National Science Agency. You can read more here:

1. [Life at CSIRO](#)
2. [Personal Development & Learning](#)
3. [Generous Leave & Conditions](#)
4. [Work / Life Balance](#)

## Background

The SKA Observatory (SKAO) is a next-generation radio astronomy facility that will revolutionise our understanding of the Universe and the laws of fundamental physics. Enabled by cutting-edge technology, it promises to have a major impact on society, in science and beyond. As an intergovernmental organisation, the SKAO brings together sixteen countries around the world.

The Observatory has an international footprint and consists of the SKAO Global Headquarters in the UK, the SKAO's two telescopes at radio-quiet sites in South Africa and Australia, and associated facilities to support the operations of the telescopes.

Constructing and operating these telescopes will position the SKAO as the leading research infrastructure for radio astronomy globally, providing science capabilities to the international astronomical community for decades to come.

Australia will host the SKAO's low frequency telescope (SKA-Low) in remote Western Australia on Wajarri Yamaji Country.

The Traditional Owners and native title holders, the Wajarri Yamaji, have gifted CSIRO with the traditional name Inyarrimanha Ilgari Bundara for the CSIRO Murchison Radio-astronomy Observatory, home to the SKA-Low telescope. The traditional name means 'sharing sky and stars' in the Wajarri language.

In Australia, SKAO is collaborating with CSIRO to operate and support the construction of the SKA-Low Telescope. SKA-Low teams will operate out of:

- Inyarrimanha Ilgari Bundara, the CSIRO Murchison Radio-astronomy Observatory on Wajarri Yamaji Country.
- Our Engineering Operations Centre on Nhanhangardi, Naaguja, Wilynyu and Amangu Country in Geraldton.
- Our Science Operations Centre on Whadjuk Noongar Country in Perth.

Further Reading: [Explore SKAO](#)

## Role Overview

The Computing and Software team delivers novel computing and technology solutions to meet the requirements of the SKA Project. The SKA Observatory is driven by software and the systems which include:

- An integrated control system that controls and monitors over 2 million process variables.
- Data processing systems that process the vast quantities of data produced by the SKA Low, which will require a high-performance supercomputer capable of more than 100 petaflops and will result in hundreds of Petabytes of data archived per year.
- Science management systems to manage the interaction with scientists from around the world and ensure the huge amounts of data are made available to the appropriate people in a timely manner.
- Networks that move the data at rates exceeding Tbits/second across hundreds of km within the telescope and then shipping it to the scientific community using a world-wide 100 Gbps network.

The SKA-Low Data Processing (DP) Manager is responsible for building and leading the Data Processing Software team for the SKA-Low telescope in Australia. This team will actively contribute to the deployment, integration, testing, enhancements, and support of the Data Processing Software, with strong focus on the SKA-Low during Construction and later in Operations. The Data Processing Software comprises state-of-the-art radio astronomy calibration and imaging running

on dedicated High-Performance Computing (HPC) platforms, and is responsible for processing vast amounts of data in near real-time and delivering science-ready data products to the SKA astronomy community. It is expected that this role will work closely with peers in the SKAO HQ and SKA-Mid, ensuring high-level alignment with common software development principles and frameworks, while retaining autonomy.

The construction of the SKA software and computing systems adheres to large scale agile principles, using an SKA tailored version of the Scaled Agile Framework (SAFe); this role will be a key stakeholder within this framework as the telescope evolves from construction to operations.

This is a leadership role with both technical and people leadership responsibilities. As such, this role participates in short and long-term system and capability planning, teams and organisational planning. This position reports directly to the SKA-Low Head of Computing and Software.

Due to the locations involved in the SKA Project, in particular South Africa and the United Kingdom, this role may require some work outside of normal hours. It will also require some domestic and occasional international travel. We will work hard to accommodate your personal arrangements.

CSIRO and the SKA Observatory value and respect differences, and we are committed to building an inclusive culture by creating an environment where you can balance a successful career with your commitments and interests outside of work. We believe that you will do your best at work if you have a work / life balance. This position is based in Perth, Australia and we are open to discussing flexible working opportunities with this role being offered on a full-time, part-time or job share basis. Please raise your preference in your application.

### **Duties and Key Result Areas**

- Build, lead and manage the SKA-Low Data Processing Software team responsible for integrating, testing, deploying, supporting and contributing to the development of the Data Processing software systems for the SKA Telescopes, with strong focus on key components of the SKA-Low Telescope.
- Act as a Stakeholder of the Data Processing (DP) and LOW Integration Agile Release Train (ART) Program Management Teams as required by the SKA Project SAFe implementation and its evolution through construction and operations.
- Work with peers at SKAO HQ and SKA-Mid to develop and support the common software for future implementation of a “follow-the-sun” model. Support the transition from construction to operations, developing change management, incident management and continuous quality control.
- Develop and nurture working relationships with other SKAO subsystems development teams that interact with the Data Processing system, especially the SKA-Low Science Operations and Commissioning Teams in order to enable an integrated, operational SKA-Low telescope as part of the global SKA Observatory.
- Provide coaching and mentoring of the SKA-Low Data Processing team to achieve high levels of performance, meet the SKAO operational objectives and promote a culture of ongoing capability development.
- Provide line management of the Data Analysts/Telescope Operator staff who are part of the SKA-Low Science Operations Group. Work closely with the Head of the SKA-Low Science Operations to manage the staff performance and capability development.
- Assist with budget, hiring, workforce and capability planning alongside the SKAO Data Processing Managers in the UK and South Africa.

- Communicate openly, effectively, and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of SKAO and CSIRO's reputation.
- Adhere to the spirit and practice of both SKAO and CSIRO's Values as well as the Code of Conduct, Health, Safety and Environment procedures and policy, Diversity initiatives and Zero Harm goals.
- Other duties as directed.

### Selection Criteria

CSIRO is an Equal Opportunity employer working hard to recruit world-class talent that represents the diversity across our society. As part of our commitment to equitable employment outcomes for under-represented groups, preference will be given to Aboriginal and Torres Strait Islander people, and/or women and/or people with a disability who meet the role criteria.

### Essential

*Under CSIRO policy only those who are able to demonstrate how they can meet the essential criteria may be appointed.*

- Bachelor's Degree in computer science or a similar relevant subject, or equivalent experience.
- Expertise in building and/or leading diverse teams of software engineers, software research engineers or software developers in the areas of High-Performance Computing (HPC), Scientific Computing, or Data Intensive Research.
- Expertise in management and/or development of medium to large-scale software projects or products, especially in the fields of Scientific Computing, HPC or Distributed/Cloud Computing.
- Excellent communication and influencing skills with distributed, highly specialised project teams and stakeholders, across international and diverse cultural backgrounds.
- Experience with at least one of:
  - Distributed data-intensive processing and algorithm development using high-level execution frameworks such as Dask, Ray, PySpark, MPI or equivalent.
 Or / and,
  - Benchmarking, profiling and optimisation techniques for applications running in HPC platforms, including utilisation of accelerators such as GPUs or FPGAs.

### Desirable

- Certification and experience in Agile Methodologies such as SAFe, Scrum or Kanban.
- Interest in astronomy and understanding of the challenges of data processing for telescopes similar to SKA.

### Required Competencies

- **Teamwork and Collaboration:** Cooperates with others to achieve organisational objectives and may share team resources in order to do this. Collaborates with other teams as well as industry colleagues.
- **Influence and Communication:** Identifies critical stakeholders and influences them via an influential third party, for example through an established network, to gain support for sometimes contentious, proposals / ideas.
- **Resource Management/Leadership:** Sets up and maintains effective and efficient work teams and manages performance and resources, to achieve objectives. Chooses

appropriate management strategies and communication styles to maintain high levels of motivation and productivity. Gives feedback for development purposes and provides support and direction for improvement.

- **Judgement and Problem Solving:** Anticipates and manages problems in ambiguous situations. Develops and selects an appropriate course of action and provides for contingencies. Evaluates, interprets and integrates complex bodies of information and draws logical conclusions, synthesises proposals and defends options with reasoned arguments.
- **Independence:** Assesses the risk and opportunity of identified strategies, options and actions. Overcomes problems and setbacks in achieving goals. Invariably includes consideration of value-added future impact on bottom line when determining the optimal and efficient use of resources.
- **Adaptability:** Demonstrates flexibility in thinking and adapts to and manages the increasing rate of organisational change by adjusting strategies, goals and priorities.

### Special Requirements

- The successful candidate will be required to gain a National Police Clearance or equivalent. This will be conducted by CSIRO, Talent Services, through our provider HireRight. Please note that individuals with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.
- If the successful candidate is not an Australian Citizen or Permanent Resident, they may be required to undergo additional security clearances, which may include medical examinations and an international standardised test of English language proficiency (i.e. IELTS test- <https://ielts.com.au/>).

### Child Safety

CSIRO is committed to the safety and wellbeing of all children and young people involved in our activities and programs. View our [Child Safe Policy](#).

### CSIRO and SKAO Values

Visit [CSIRO Online](#) and [Space and Astronomy](#) and [SKAO online](#) and [SKAO Location](#) for more information. In your application and at interview you will need to demonstrate behaviours aligned to our values of:

CSIRO	SKA Observatory
<ul style="list-style-type: none"> <li>● People First</li> <li>● Further Together</li> <li>● Making it Real</li> <li>● Trusted</li> </ul>	<ul style="list-style-type: none"> <li>● Diversity and Inclusion</li> <li>● Excellence</li> <li>● Collaboration</li> <li>● Creativity and Innovation</li> <li>● Sustainability and Safety</li> </ul>