# Position Details

## Research Scientist/Engineer- CSOF7

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| The following information is for applicants |
| Advertised Job Title | AIV Systems Scientist |
| Job Reference | 79545 |
| Tenure | Specified term of 5 years *(suggest – Specified term ending 30 June 2027 – check with HM as requisition states this firm end date – was this intentional??)*Full-time or part-time (min 0.8FTE) *PD states 0.8FTE total – should this be a part-time role or was that an error? Remember to update the screening question if this changes to part-time only, currently reflects full or part-time* |
| Salary Range | AU141k - AU$157k pa (pro-rata for part-time) plus up to 15.4% superannuation |
| Location(s) | Perth or Geraldton, Western Australia |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All Candidates |
| Position reports to the | CSIRO AIV Team Leader |
| Client Focus – Internal | 20% |
| Client Focus – External | 80% |
| Number of Direct Reports | 0 |
| Enquire about this job | Allison Weidenbaum - Allison.Weidenbaum@csiro.au  |
| How to apply | Apply online at <https://jobs.csiro.au/> Internal applicants please apply via **Jobs Central**If you experience difficulties when applying, please email careers.online@csiro.au or call 1300 984 220. |

### Background

The Square Kilometre Array Observatory (SKAO) is a next-generation global radio-astronomy facility that will revolutionise our understanding of the Universe and the laws of fundamental physics. It is one observatory with two telescopes – SKA-Low in Western Australia and SKA-Mid in South Africa. Australia is a co-host member of the SKAO, an intergovernmental organisation headquartered at Jodrell Bank (near Manchester in the United Kingdom) responsible for SKAO construction and operation globally.

The first phase of the SKA will consist of two telescopes:

* Australia will host the SKA’s low-frequency telescope (SKA1-Low). SKA-Low will comprise up to 131,072 antennas in clusters along spiral arms spanning 65 km at CSIRO’s Murchison Radio-astronomy Observatory (MRO) in Western Australia.
* South Africa will host the mid-frequency telescope (SKA-Mid). SKA-Mid will comprise up to 197 dishes spread along spiral arms spanning 150 km.

CSIRO is involved in several facets of the SKA-Low in Australia:

* Operating partner: SKAO will partner with CSIRO to operate the SKA-Low Telescope and support construction.
* Construction: CSIRO has been allocated work in digital processing, infrastructure, and antenna station management and deployment, integration and verification, and software.

CSIRO also operates the MRO which hosts multiple national and international radio astronomy telescopes and is where the SKA-Low Telescope will be located. CSIRO is responsible for land management, subleases, maintaining radio quiet protections, provision of services to the telescopes, and managing the Indigenous Land Use Agreement.

### Role Overview

***James –*** *this highlighted paragraph is more suitable in the advert so it can be removed altogether from the PD and re-written for the advert, e.g.*

CSIRO is expanding the Assembly, Integration and Verification (AIV) Team to include an AIV Systems Scientist (Integration and Verification). As the AIV Systems Scientist (Integration and Verification), you will will work on the planning, execution and management of the AIV activities for the SKA Low Telescope. You will initially be based in Perth but it is likely the position will be relocated to Geraldton once site activities commence. The role will involve some travel to the MRO, other CSIRO sites and overseas locations.

***James -****some of the info below may also need to be integrated into the advert – will leave that you’re your discretion and judgement. Again, please revise to more appropriate marketing language…*

The AIV System Scientist (Integration and Verification) is responsible for the development and management of the Continuous Integration and Verification (CI&V) Flow of the products which make up the SKA Low Telescope as an important input to the System AIV Plan. The role will then work closely with the AIV Team Manager, the SKA Low Product Delivery Teams, and SKA Low Telescope Delivery Team to develop the System AIV Plan and work collaboratively as part of the AIV team to deliver it.

The AIV System Scientist (Integration and Verification) role will also include day-to-day technical and scientific leadership of AIV Team members to deliver the integration and verification activities detailed in the System AIV Plan using experience gained from previous Radioastronomy projects.

The AIV System Scientist (Integration and Verification) role will report to the AIV Team Manager who has the overall responsibility for the successful integration and verification of the SKA Low Telescope.

***James –*** *the paragraph below should stay in the PD but also should be the final paragraph in the advert ….*

CSIRO’s Space and Astronomy business unit (S&A) is committed to providing a safe and inclusive work culture and implementing initiatives to improve diversity and equity within our workplaces. This position is available on a full-time or part-time basis (minimum 0.8 FTE), and flexible working arrangements will be considered in agreement with the Line Manager. Please indicate your preference for full-time or part-time in your application.

***James*** *- the info below doesn’t really fit in the role overview, rather it should be in the Duties below*

The successful candidate will draw from a broad background that includes experience in

* design, installation and commissioning of Radioastronomy telescopes, preferably radio interferometers
* system engineering (including development of test plans and procedures for integration and verification)
* one or more SKAO specific technical areas (radioastronomy, RF signals and instrumentation, electronics/ software engineering)
* practical integration and verification testing of complex systems.
* project management (contribution to project plans, knowledge of tools and processes)
* collaboration with partners as part of an international project.

### Duties and Key Result Areas:

***James*** *– please check with the manager whether the below item is* ***an integral part of the job*** *to this role, as it will need to be clearly defined in the duties list wrt police clearances (I’ve crossed out the ones that are likely not relevant or have already been covered, all but one!!) …..….*

*CSIRO requires National Police Checks to be provided by preferred applicants for all new positions. Where matters are disclosed in a National Police Check, only those that are relevant to the position and the ability of the applicant to perform the role will be taken into account. Accordingly it is important to consider, and include in the position description, all duties and responsibilities relevant to the position, to assist with the consideration of any record that may be disclosed through the National Police Check process. For example:*

*~~­ Financial and asset management responsibilities, including financial delegations.~~*

*­ Access to commercially sensitive* *information pertaining to CSIRO and/or research or commercial partners) (see suggestion below, 5th dot point from end)*

*~~­ Requirement to represent CSIRO externally, including in public forums, with industry or the research sector or with Government.~~*

*~~­ Access to hazardous materials.~~*

*~~­ Supervision and other management responsibilities.~~*

*~~­ Working with children and other vulnerable persons.~~*

*~~­ Operate a vehicle or machinery requiring a licence~~*

***James –*** *the below points need to be cut right down for the advert as they’re too wordy (OK for the PD)*

* Develop further understanding of general characteristics of the Aperture Array Verification System (AAVS) Low antenna system including methods and tests for field node calibration and its frequency and the assessment of the efficacy of the same, and measurement and assessment of the gain and phase drift experienced by field nodes over time.
* Development of the Systems AIV Plan in line with the SKAO I&V Strategy in collaboration with internal and external stakeholders including identification of opportunities to install and integrate other SKA Low components and demonstrate their interfaces to the Low hardware at the Prototype System Integration (PSI), AAVS and the Integrated Test Facility (ITF).
* Determine the raw data products needed by AIV to evaluate the SKA Low signal chain as part of the definition and development of the System Continuous Integration and Verification Flow for SKA Low.
* Identify and support the links between science, system requirements and test design for AIV activities through the definition and development of Use Cases.
* Develop of performance analysis tools (made by AIV, for AIV) using the Software Prototype Integration platform (SKAMPI) and AAVS, PSI and ITF installed systems.
* Diagnose problems and support the establishment of robust operating procedures for complex signal-processing and related systems and take an active part as part of the AIV team in the Verification Activities for the System Under Test (SKA Low Telescope, ITF).
* Contribute to, support and represent the AIV Team (as necessary) for product integration, supplier delivered product training, AIV delivered systems training, system acceptance and other product milestone events.
* Contribute to the planning and prioritisation of AIV related SKA Low project activities within a Lean Agile process and support the AIV Team Leader with project management activities.
* Lead and Manage Integration and Verification Activities as part of a multi-disciplinary, geographically dispersed integration and verification team within Australia and overseas.
* Build relationships with internal and external stakeholders and work collaboratively to reach project objectives including information sharing with the SKAO on methods and approaches for characterising telescope performance.
* *Refer comments above re police check - Suggest: Maintain confidentiality when dealing with commercially sensitive information pertaining to CSIRO and/or research or commercial partners.*
* Undertaketravel as necessary to support AIV activities within Australia and overseas.
* Communicate openly, effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
* Adhere to the spirit and practice of CSIRO’s Code of Conduct, Health, Safety and Environment procedures and policy, Diversity initiatives and Zero Harm goals.
* Other duties as directed.

## **Selection Criteria**

#### Essential

*Under CSIRO policy only those who meet all essential criteria can be appointed.*

***James –*** *these will need to be cut down for the advert as they’re too lengthy – OK for the PD*

1. A PhD in Astrophysics/Radio Astronomy *(suggest ‘or similar’ – check with HM as to the possibility of getting other similar disciplines as we won’t be able to appoint if they don’t have specifically Astrophysics or Radio Astronomy??),* or a combination of a Bachelor’s Degree plus relevant experience, which together are equivalent to a PhD. *Remember to update the screening question if this is changed – currently reflects my suggestion*
2. Sound knowledge and practical understanding of radio interferometry.
3. Specialist domain knowledge of one or more SKA relevant areas of activity (correlation and beamforming, electronic engineering, software engineering, digital signal processing, high performance computing and network infrastructure, AAVS).
4. Significant and demonstrable experience in:
* the development and management of processes, for, and implementation of, the integration and verification of complex radio astronomy systems;
* leading or influencing teams for developing roadmaps and testing pathways.
1. Demonstrable experience of collaborative working as part of a complex international project in a multicultural environment, and able to work flexibly and adapt to change.
2. Ability and willingness to travel as required *can we get anymore detail around this as we often get questions around this, especially from candidates with carer responsibilities??*

## **Desirable**

1. Membership of, or eligibility for membership of recognised national or international systems engineering institutes.
2. Working knowledge of modern collaboration tools such as Confluence, Jira, Jama, Miro.
3. Knowledge of Lean Agile management tools and processes, including SAFe.
4. Familiarity with project management and Systems Engineering Concepts and Tools.
5. Good understanding of configuration management and engineering change processes.
6. Practical experience of Quality Assurance.

## **Required Competencies:**

1. **Teamwork and Collaboration:** Creates and fosters an environment in which there is a high level of cooperation within and between teams. Facilitates positive team relationships to build interactions across Business Units and the organisation.
2. **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.
3. **Resource Management/Leadership:** Provides leadership that fosters an environment that encourages new ideas and provides support for the development of emerging skills. Creates trust by displaying consistency, understanding, integrity and patience. Plans, seeks, allocates and monitors resources to achieve outcomes.
4. **Judgement and Problem Solving:** Resolves major conceptual scientific, technical, commercial or management problems, which have a significant impact upon the field of research, professional function, the Business Unit or the Organisation. Situations faced have little or no precedent and require original concepts and approaches.
5. **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.
6. **Adaptability:**Is flexible in response to external change or when faced with external constraints. Identifies and promotes the opportunities arising as a result of change.

Special Requirements

* The successful candidate will be asked to obtain and provide evidence of a National Police Check or equivalent. Please note that people 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/>

## **About CSIRO**

We solve the greatest challenges through innovative science and technology. Visit [CSIRO Online](http://www.csiro.au/) and [Space and Astronomy](https://www.csiro.au/en/Research/Astronomy) for more information.

CSIRO is a values-based organisation.  In your application and at interview you will need to demonstrate behaviours aligned to our values of:

* People First
* Further Together
* Making it Real
* Trusted