# Position Details

## Research Scientist/Engineer – CSOF6

The following information is for applicants

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| Advertised Job Title**:** | Senior Software Engineer |
| Job Reference: | 60806 |
| Relocation Assistance**:** | Will be provided to the successful candidate if required. |
| Applications Are Open To: | Australian Citizens Only  Australian/New Zealand Citizens and Australian Permanent Residents Only   * All Candidates |
| Tenure: | Indefinite OR  Specified Term of 3 years |
| Percentage of Client Focus - Internal: | 100% |
| Percentage of Client Focus - External: |  |
| Reports to the: | Research Group Leader, Signal Processing Technologies |
| Number of Direct Reports: | 0 |
| Name and Contact Details For Applicant Enquiries: | **Dr John Tuthill**via email: john.tuthill@csiro.au or phone: **+61 2 9372 4392**  Please do not email your application directly to Dr Tuthill. Applications received via this method will not be considered. |
| Contact Details For Applying: | If you experience difficulties applying online Call 1300 984 220 or email [careers.online@csiro.au](mailto:careers.online@csiro.au). |
| How to Apply: | Please apply online at [jobs.csiro.au](https://jobs.csiro.au/) and enter the requisition number 59048**.** Internal applicants please apply via ‘Jobs Central’ in SAP (click ‘Recruitment’) |

## Role Overview:

The Signal Processing Technologies Group at CSIRO Astronomy and Space Science (CASS) provides a diverse range of R&D services to support the delivery of world-class, leading-edge technology for Australian radio astronomy and space science capability. Our work includes:

* Research and development in areas including Digital Signal Processing (DSP), algorithm development and implementation, high-speed data networks, precise timing generation and distribution, optical signal and data transport technology, multi-channel high speed data acquisition, autonomous and fault-tolerant systems.
* The development of large-scale real-time distributed control systems, software and firmware for ultra-fast DSP systems built around Field Programmable Gate Array (FPGA) technology, custom electronics system design including complex multi-layer PCB design, high-speed digital design, low-noise electronics, Radio Frequency Interference (RFI) compliant systems and end-to-end prototype production and testing.

This role centres on working with the CASS Signal Processing Technologies engineering team to develop new systems, techniques and technology for current and future radio astronomy and space science projects in the group. Specifically, you will contribute to the architecture designs and development of software and embedded firmware for large-scale systems built around FPGA technology.

## Duties and Key Result Areas:

* Lead the architecture design and development for components of software for systems built around FPGA technology aimed at radio astronomy and space science applications.
* Adapt and/or develop new engineering techniques, software and FPGA firmware in support of existing and future instruments and projects by delivering clean, scalable, reliable and high quality test-driven code.
* Communicate effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
* Work effectively as an integral member of a large multi-skilled, multi-disciplinary team, to undertake independent engineering related activities and carry out or delegate associated tasks under broad guidance.
* Collaborate effectively with international partners and establish effective processes and work practices that facilitate engineering development across a geographically diverse team.
* Provide technical leadership and mentoring to junior engineers and technical staff.
* Adhere to the spirit and practice of CSIRO’s Values, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals.
* Contribute to documentation, publications and presentations to support project delivery and to enhance the profile of the group both internally within CSIRO and externally to the wider engineering community.
* Maintain a personal learning and development program to stay current with technology trends with a view to capitalise on opportunities for evaluating or adapting these towards the goals of the group.

## 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:** 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.
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:** Demonstrates flexibility in thinking and adapts to, and manages, the increasing rate of organisational change by adjusting strategies, goal and priorities.

## Essential Criteria:

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

1. Relevant Bachelor’s Degree or equivalent experience in software engineering, computer science or electronic engineering.
2. The ability to work effectively as part of a multi-disciplinary engineering team with a demonstrated ability and willingness to communicate and contribute novel ideas and approaches in support of engineering development and to carry out tasks autonomously.
3. Experience with developing in C/C++ and Python in a team environment and practical knowledge of software development, test and verification methodologies.
4. Experience with the development of systems using Field Programmable Gate Array (FPGA) technology: Hardware Description Language (HDL); the methods and tools used for developing embedded firmware; experience with electronic systems testing in a mixed hardware/software environment.

## Desirable Criteria:

1. Knowledge of large distributed control systems such as Tango or EPICS.
2. Practical experience with high-speed networking software and firmware.
3. Experience or a keen interest in any of the following: embedded software, Linux operating systems and device drivers, Graphics Processor Unit (GPU) programming, digital signal processing, scripting languages.

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