Research Scientist/Engineer – CSOF5/6

Role summary for potential applicants

Advertised Job Title:	Senior Proof Engineer
Reference Number:	50142
Classification:	CSOF5 or CSOF6
Salary Range:	CSOF5 - AU $95,369 to AU $103,205 plus up to 15.4% superannuation CSOF6 - AU $109,474 to AU $128,282 plus up to 15.4% superannuation Appointment will be made at level 5 or 6 depending on skills and experience
Location:	Kensington, Sydney, NSW
Tenure:	☒ Specified Term of 3 years and 6 months
Relocation assistance:	Will be provided to the successful candidate if required.
Applications are open to:	☐ Australian Citizens Only ☐ Australian Citizens and Permanent Residents Only ☒ All Candidates *For Specified Term positions, we will accept applications from Temporary Residents with working rights for the length of the term, who do not require sponsorship.*
Functional Area:	Research Scientist / Engineer
% Client Focus - Internal:	20%
% Client Focus - External:	80%
Reports to the:	Senior Research Engineer
Number of Direct Reports:	0 - 2

Role Overview:
The role of Research Engineer staff in CSIRO is to conduct innovative research leading to scientific achievements that are aligned with CSIRO's strategies. You may be engaged in scientific activity ranging from fundamental research to the investigation of specific industry or community problems. You will have the opportunity to build and maintain networks, play a lead role in securing project funds, provide scientific leadership and pursue new ideas and approaches that create new concepts. You may be involved in leading research projects or undertaking work that has impact on the development of scientific or technical knowledge. The role of Proof Engineer in particular is to develop and expand formal models and proofs and other infrastructure for the development of both verified software itself and of new methodology for producing verified software at greater scale, depth, and speed.

Duties and Key Result Areas:

- Incorporate novel approaches to scientific investigations by adapting and/or developing original concepts and ideas for new, existing and further research.

- Develop, maintain, and improve formal models and proofs using theorem proving technology such as Isabelle/HOL and HOL4.

- Communicate effectively and respectfully in the interests of good business practice, collaboration and enhancement of CSIRO's reputation.

- Optionally, produce high quality scientific and/or engineering papers suitable for publication in quality journals and for presentation at national and international conferences.

- Work effectively as an integral member or leader of a multi-disciplinary, often regionally dispersed research team, to undertake independent scientific investigations and carry out/delegate associated tasks under broad guidance from more senior Research Scientists/Engineers.

- Work collaboratively and honestly with internal and external colleagues, clients and partners to develop and progress challenging but realistic research plans for a range of research projects.

- Lead small research projects and assist with elements of larger projects including the negotiation of resource requirements.

- Adhere to the spirit and practice of CSIRO's Values, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals.

- Other duties as directed.

For appointment at the higher salary level (CSOF6), duties will also include:

- Seek opportunities to improve the way we construct robust, clear, and re-usable formal models, theorems, and other artefacts.

- Lead, coach and supervise staff to ensure projects are established in accordance with research design, within agreed timelines and budget.

Selection Criteria:

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

Pre-Requisites:

1. **Education/Qualifications:** Honours degree in Computer Science/Mathematics/etc. or equivalent experience.
2. **Communication:** Excellent written and oral communication skills, evidenced by high-level reporting, presentation and negotiation abilities, and the capacity to identify and influence critical stakeholders to gain support for contentious proposals/ideas.
3. **Publications:** A significant record of quality publications as primary author in high impact, peer reviewed journals.
4. **Behaviours:** A history of professional and respectful behaviours and attitudes in a collaborative environment.

Essential Criteria:

1. Substantial programming experience, ideally in functional languages (ML/Haskell).
2. An interest in good engineering practice (version control, automated builds, etc.).

3. The ability to understand current research in computer science.

4. The ability to work effectively as a member or leader of a multi-disciplinary, regionally dispersed research team, and carry out independent individual research, to achieve organisational goals.

5. A significant record of science innovation and creativity plus the ability to apply well developed research skills to scientific investigations.

Additional Essential Criteria for CSOF6 Appointment

1. Some experience with project management.

2. Some experience with leadership and management of other engineers.

3. An interest in taking ownership of research projects and making high-level design decisions.

Desirable Criteria:

1. Experience in formal modelling and proof, preferably with theorem proving tools like Isabelle/HOL and HOL4.

2. Experience with systems programming, e.g., C, assembly, OS code.

3. High level of mathematical maturity.

CSIRO is a values based organisation. You will need to demonstrate behaviours aligned to our values of:

- Integrity of Excellent Science
- Trust & Respect
- Creative Spirit
- Delivering on Commitments
- Health, Safety & Sustainability

Data61 is a values based organisation. Our leaders will be expected to demonstrate the following values:

Hierarchy: Country, Company, Team, Individual

Openness: Open debate, collaboration, full commitment

Learning: Calculated risks, institutionalise learning, fast cadence

Impact: Tackle hard problems, create the future, focus on outcomes

Stewardship: Lead, make each function and co. stronger over time

Other special requirements:

Appointment to this role may be subject to conditions including security/medical/character clearance requirements. Applicants who are not Australian Citizens or Permanent Residents may be required to undergo additional security clearance processes; which may include medical examinations and an international standardised test of English language proficiency (i.e. IELTS test).- http://www.ielts.org/default.aspx

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Other Information:

How to Apply

Please apply for this position online at www.csiro.au/careers. You may be asked to provide additional information (online) relevant to the selection criteria. If so, then responding will enhance your application so please take the time to provide relevant succinct answers. Applicants who do not provide the information when requested may not be considered.

If you experience difficulties applying online call 1300 984 220 and someone will be able to assist you. Outside business hours please email: careers.online@csiro.au.

Referees: If you do not already have the names and contact details of two previous supervisors or academic/professional referees included in your resume/CV please add these before uploading your CV.

Contact: If after reading the selection documentation you require further information please contact:

Dr June Andronick via email: June.Andronick@data61.csiro.au

Please do not email your application directly to Dr Andronick. Applications received via this method will not be considered.

About CSIRO

Australia is founding its future on science and innovation. Its national science agency, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) is a powerhouse of ideas, technologies and skills for building prosperity, growth, health and sustainability. It serves governments, industries, business and communities across the nation.

Find out more! www.csiro.au.

CSIRO Data61 In today's data-focused world, there's no doubt that numbers count. Data61 are the largest data innovation group in Australia, a connector that brings together technology innovators, businesses and universities to transform Australian industry and to help solve our greatest challenges. A CSIRO business, we are creating our data-driven future.

Find out more! http://www.data61.csiro.au/