Research Projects – CSOF3/4

Role summary for potential applicants

Advertised Job Title:	Proof Engineer
Reference Number:	50141
Classification:	CSOF3 or CSOF4
Salary Range:	CSOF3 - AU $61,425 - $78,177 plus up to 15.4% superannuation CSOF4 - AU $80,833 to AU $91,451 plus up to 15.4% superannuation Appointment will be made at level 3 or 4 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 Projects
% Client Focus - Internal:	20%
% Client Focus - External:	80%
Reports to the:	Senior Proof Engineer
Number of Direct Reports:	0

Role Overview:

The role of Research Projects staff in CSIRO is to collaborate in scientific activities with other research staff usually by assisting with detailed planning, undertaking or assisting with experimental and observational work, and in carrying out the more practical aspects of the work. At senior levels, Research Projects staff may be involved in providing consulting services, science management and/or industry liaison.

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:

- Develop, maintain, and improve formal models and proofs using theorem proving technology such as Isabelle/HOL and HOL4.
- 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 as part of a multi-disciplinary, often regionally dispersed research team, to carry out tasks under limited direction in support of scientific research.
- Work collaboratively with colleagues within your team, the business unit and across CSIRO, to reach objectives.
- Allocate activities, direct tasks and manage resources to meet objectives.
- Foster open communication, provide coaching and on-the-job training to both support and research colleagues, as required, and provide recognition and acknowledgement for staff achievements.
- Adapt methods/equipment/software/concepts/ ideas in support of existing and further research.
- 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 (CSOF4), duties will also include:

- Design and implement new approaches to formal modelling and proof.
- Seek opportunities to improve infrastructure and project organisation.

Selection Criteria:

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

Pre-Requisites:

1. **Education/Qualifications:** Relevant Bachelors/Masters Degree &/or equivalent experience in Computer Science, Mathematics, or similar.
2. **Communication:** Excellent communication skills, both written and oral, including the ability to anticipate the interests and knowledge level of an audience and present information and feedback accordingly**.**
3. **Behaviours:** A history of professional and respectful behaviours and attitudes in a collaborative environment.
4. **Adaptability:** The ability to effectively manage a number of competing priorities simultaneously, and carry out non-routine tasks under limited direction.
5. **Problem Solving:** Proven ability to investigate underlying issues of complex and ill-defined problems and develop appropriate responses by adapting/creating and testing alternative solutions.

Essential Criteria:

1. 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 part of a multi-disciplinary, regionally dispersed research team, and carry out tasks autonomously in support of scientific research.
5. Demonstrated ability & willingness to contribute novel ideas and approaches in support of scientific investigations.

Additional Essential Criteria for CSOF4 Appointment

1. Demonstrated ability to solve complex problems with a high degree of autonomy.
2. Experience with mentoring or training other engineers.

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 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/