POSITION DESCRIPTION

Research Projects – CSOF5

Role summary for potential applicants

Advertised Job Title:	Senior Proof Engineer
Reference Number:	56286
Classification:	CSOF5
Salary Range:	AU $95,369 to AU $103,205 plus up to 15.4% superannuation
Location:	Kensington, Sydney, NSW
Tenure:	2 positions, both specified term of 2 years
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 Research Engineer
Number of Direct Reports:	0

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.

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

- 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.

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:** High-level 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 independently.
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. 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. 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.

6. Demonstrated ability & willingness to contribute novel ideas and approaches in support of scientific investigations.

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.

As Australia's Innovation Catalyst, CSIRO has strategic actions underpinned by behaviours aligned to:

- Excellent science
- Inclusion, trust & respect
- Health, safety & environment
- Delivery on commitments.

In your application and at interview you will need to demonstrate alignment with these behaviours.

Data61 Values:

Great Impact: We focus our valuable resources on areas where we can lead globally and have large impact for Australia, to aid our future prosperity and independence.

Mastery: We are fearless, curious and we improve every day. We strive to excel in research, technology and business, and to work with the best in the world.

Co-Creation of Value: Everything we do involves co-creation with our network: team, customers and partners. Generously empowering their success is central to our success.

Ownership of Results: We jointly hold ourselves accountable for our actions. We do this via trust and commitment.

People and their Differences: We embrace the creativity that comes from the diversity of our people.

Agility and Flexibility: We view the changing world as an opportunity. This requires agility and flexibility in everything we do; everything changes, except our constant desire to adapt.

Tell it Straight, with Respect: We say what we mean, mean what we say, and do not mislead, obfuscate or spin. We're direct and always respectful.

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

Other Information:

How to Apply

Please apply for this position online at https://jobs.csiro.au/ and enter requisition number **56286**. Internal applicants please apply via 'Jobs Central' in SAP (click 'Recruitment')

Please load your CV (Maximum 2MB). You may also be required to respond to some screening

questions.

If you experience difficulties applying online call 1300 984 220 for assistance. Outside Australian business hours please email: csiro-careers@csiro.au.

Referees: Please provide contact details of two previous supervisor or academic/professional referees in your resume/CV. We will ask your permission before making contact.

Contact: If after reading the position details above you require more 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.

We work flexibly at CSIRO, offering a range of options for how, when and where you work. Talk to us about how this role could be flexible for you.

Find out more! CSIRO Balance

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.

Our commitment to you
We work flexibly at CSIRO, offering a range of options for how, when and where you work. Talk to us about how this role could be flexible for you. We emphasise an individual's growth and development which is supported by interacting and learning from world leading scientists and engineers, who provide the opportunity to challenge, transform and innovate new ideas.

CSIRO's Data61 is committed to sourcing the brightest and best talent to become part of the Data61 family, which contributes to creating Australia's data driven future.