



Research Scientist/Engineer – CSOF5

Role summary for potential applicants

Advertised Job Title:	Research Scientist in Formal Verification
Reference Number:	50461
Classification:	CSOF5
Salary Range:	AU \$95,369 to AU \$103,205 plus up to 15.4% superannuation
Location:	Kensington, Sydney, NSW
Tenure:	Indefinite
Relocation assistance:	Will be provided to the successful candidate if required.
Applications are open to:	All Candidates
Functional Area:	Research Scientist / Engineer
% Client Focus - Internal:	50%
% Client Focus - External:	50%
Reports to the:	0 - 3
Number of Direct Reports:	Senior /Principal Research Scientist

Role Overview:

The role of Research Scientist in CSIRO is to conduct innovative research leading to scientific achievements that are aligned with CSIRO's strategies. Within Trustworthy Systems, we aspire to world leading research excellence, underpinned by a long-term vision and driven by practical results and deployment. You will have the opportunity to build and maintain networks, play a lead role in securing project funds, provide scientific leadership, and develop and pursue research agendas within the context of our vision for fundamentally transforming the safety and security of computer systems for the better.

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.
- Pursue research to advance the state of the art in producing high-performance, formally verified software feasibly

- Be able to understand, and to communicate at a variety of levels about, your field(s) of expertise in computer science and the research directions pursued by Trustworthy Systems
- Communicate effectively and respectfully in the interests of good business practice, collaboration and enhancement of CSIRO's reputation.
- 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 part of a multi-disciplinary, often regionally dispersed research team, to undertake independent scientific investigations and carry out associated tasks under the guidance of more senior Research Scientists/Engineers.
- Under the guidance of Senior Research Scientists/ Engineers, work collaboratively and honestly with internal and external colleagues, clients and partners to help define and satisfy objectives for small to medium research projects.
- Assist in leading small research projects, including the negotiation of resource requirements.
- Provide coaching and on-the-job training to technical staff and students to ensure experiments are established in accordance with research design.
- 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:** A doctorate in Computer Science, in a relevant area such as Formal Methods, Programming Languages, Systems, or Security.
2. **Communication:** Strong written and oral communication skills including the ability to publish research results, prepare reports and present the results of scientific investigations at national and international conferences and stakeholder meetings.
3. **Publications:** A solid record of publication in quality, peer reviewed conference proceedings and/or journals.
4. **Behaviours:** A history of professional and respectful behaviours and attitudes in a collaborative environment.

Essential Criteria:

1. Experience in interactive theorem proving and/or functional programming.
2. Alignment with the Trustworthy Systems group's research activities in formal verification of real systems.
3. University graduate or some postdoctoral experience in a university and/or commercial research laboratory.
4. The ability to work effectively as part of a multi-disciplinary, regionally dispersed research team, and carry out independent individual research, to achieve organisational goals.
5. A record of science innovation and creativity plus the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

Desirable Criteria:

1. Multiple years of experience with theorem proving in higher-order logic, such as using HOL4, Isabelle/HOL, or HOL Light.

2. Experience with large-scale verification projects such as seL4 or CakeML.
3. A track record of publications and/or other research activities advancing the art of system verification.

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>

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/>