# Position Details

## CSIRO Early Research Career (CERC) Postdoctoral Fellowship– CSOF4

|  |
| --- |
| The following information is for applicants |
| Advertised Job Title | CSIRO Postdoctoral Fellowship in AI and Cyber Security |
| Job Reference | 73162 |
| Tenure | Specified Term of 3 years, Full-time  |
| Salary Range | AU$86,434 to AU$94,679 pa + up to 15.4% superannuation |
| Location(s) | Marsfield, NSW |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | * Australian/New Zealand Citizens and Australian Permanent Residents
* Australian temporary residents currently residing in Australia (visa sponsorship may be provided to eligible candidates)
 |
| Position reports to the | Team Leader, Autonomous and Application Security |
| Client Focus – Internal | 50% |
| Client Focus – External | 50% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Dr Surya Nepal via email at Surya.Nepal@data61.csiro.au or phone +61 2 9372 4256 |
| How to apply | Apply online at <https://jobs.csiro.au/> Internal applicants please apply via **Jobs Central**If you experience difficulties when applying, please email careers.online@csiro.au or call 1300 984 220. |

### Role Overview

**CSIRO Early Research Career (CERC) Postdoctoral Fellowships** provide opportunities to scientists and engineers who have completed their doctorate and have less than three years relevant postdoctoral work experience. These fellowships aim to develop the next generation of future leaders of the innovation system through:

* A differentiated career development program to deliver capability excellence and breadth across all facets of the national innovation system.
* Research training via strategic research and development projects with a clear focus that will deliver real impact through science and engineering excellence;
* An innovative culture supporting the development and demonstration of original thinking and expertise leading to peer-recognition; and
* Opportunities to develop skills and experience in collaborative research teams to effectively work within national and global multi/transdisciplinary and multi-stakeholder environments.

The Postdoctoral Fellow will be **appointed for three years.** They will work closely with leading Research Scientists and Engineers within the Autonomous and Application Security team of the [Distributed Systems Security](https://research.csiro.au/distributed-systems-security/) group. They carry out innovative, impactful research of strategic importance to CSIRO with the possibility of novel and important scientific outcomes. They present the findings in appropriate publications and at conferences.

The role will contribute to the Data61 vision of driving the development and adoption of Artificial Intelligence in Australia, with a specific digital technology focus of AI and Cyber Security. The Autonomous and Application Security (AAS) team of the Distributed Systems Security group leads and delivers research projects with the vision of protecting the society, government and industry from highly advanced malicious cyber actors using machine intelligence. The role will develop robust machine learning (ML) and natural language processing (NLP) techniques that empower organisations and people against sophisticated cyber-attacks.

The fast pace of digital transformation has been producing cyber systems and applications at increased complexity and scales. Cyber users with low cyber security maturity levels are no match for competent and cooperating malicious actors. Hence, the role will deliver research projects and undertake research with two primary focus areas: (i) developing robust machine intelligence to make cyber security decisions when faced with complex security problems and (ii) develop robust ML and NLP techniques to assess, triage and mitigate malware and vulnerabilities in complex application source codes or binaries.

The Postdoctoral Fellow will collaborate in developing a stream of research and development that contributes to high quality articles acceptable to high rank conferences (IEEE S&P, ACM CCS, NDSS, Usenix Security, ESORICS, ASIA CCS or similar) and high impact journals (IEEE Transactions on Information Forensics and Security, IEEE Transactions on Dependable and Secure Computing, or similar).

### Duties and Key Result Areas:

Under the direction of senior research scientists and engineers, CERC Postdoctoral Fellows:

* + Contribute to projects and carry out research to develop robust machine intelligence to make cyber security decisions when faced with complex security problems.
	+ Contribute to projects and carry out research to develop robust ML and NLP techniques to assess, triage and mitigate malware and vulnerabilities in complex application source codes or binaries.
	+ Carry out innovative, impactful research of strategic importance to CSIRO that will, where possible, lead to novel and important scientific outcomes including high quality scientific and/or engineering papers suitable for publication in quality journals and top ranked conference.
	+ Recognise and exploit opportunities for innovation and the generation of new theoretical perspectives, and progress opportunities for the further development or creation of new lines of research.
	+ Utilise design thinking methodology to plan and prepare research proposals; and apply non-academic impact methodology to research projects.
	+ Carry out research investigations requiring originality, creativity and innovation
	+ Record, manage, and analyse data/information using relevant domain data science techniques.
	+ Communicate effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
	+ Proactively undertake development to grow effective researcher capabilities to support career goals.
	+ Adhere to the spirit and practice of CSIRO’s Code of Conduct, Health, Safety and Environment procedures and policy, Diversity initiatives and Making Safety Personal goals.
* Other duties as directed.

[**The CERC Postdoctoral Fellow learning and development program**](http://www.csiro.au/en/Careers/Student-and-graduate-programs/Postdoctoral-fellowships)is developed between the CERC Postdoctoral Fellow and their CSIRO supervisor. The program will focus on enhancing the Fellows’ capabilities to the level expected of an independent researcher and will include on-the-job and course-based development encompassing:

* Discipline-specific techniques and protocols
* Professional growth
* Project management
* Communication and influencing skills
* Working and collaborating with others

## **Required Competencies:**

* **Teamwork and Collaboration:** Cooperates with others to achieve organisational objectives and may share team resources in order to do this. Collaborates with other teams as well as industry colleagues.
* **Influence and Communication:** Uses knowledge of other party's priorities and adapts presentations or discussions to appeal to the interests and level of the audience. Anticipates and prepares for others reactions.
* **Resource Management/Leadership:** Allocates activities, directs tasks and manages resources to meet objectives. Provides coaching and on the job training, recognises and supports staff achievements and fosters open communication in the team.
* **Judgement and Problem Solving:** Investigates underlying issues of complex and ill-defined problems and develops appropriate response by adapting/creating and testing alternative solutions.
* **Independence:** Recognise and makes immediate changes to improve performance (faster, better, lower cost, more efficiently, better quality, improved client satisfaction).
* **Adaptability:**Copes with ambiguity or situations that lack clarity. Adapts readily to changing circumstances and new responsibilities (which may include activities outside own preferences) in the interests of achieving team objectives. Recognises the need for and undertakes personal development as a result of changes.

## **Selection Criteria**

#### Essential

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

1. A doctorate (or will shortly satisfy the requirements of a PhD) in a relevant discipline area, such as Computer Science, Data Sciences, Cyber Security, Information Technology, Communications or Software Engineering.

Please note: To be eligible for this role you must have **no more than 3 years** (or part time equivalent) of postdoctoral research experience.

1. Demonstrated experience in conducting research activities in information security and having the ability to undertake research in trust and privacy.
2. Proven ability to conduct high quality research, development and implementation in AI and Cyber Security with publications in the top tier security conferences IEEE S&P, ACM CCS, NDSS, Usenix Security, or similar level conferences in other domains.
3. Experience in applying research outcomes in solving practical/industry problems, preferably in the area of data and system security and security automation.
4. High level written and oral communication skills with the ability to represent the research team effectively internally and externally, including the presentation of research outcomes at national and international conferences.
5. A record of science innovation and creativity, including the ability & willingness to incorporate novel ideas and approaches into scientific investigations.
6. A history of professional and respectful behaviours and attitudes in a collaborative environment.

## **Desirable:**

1. Previous Experience in applying theoretical computer science (e.g., information theory, algorithms, complexity theory and optimization or number theory) in practical cybersecurity problems.
2. Experience in developing security, privacy and trust solutions for distributed systems architecture and platforms.
3. Remain productive, positive and resilient in complex, ambiguous and/or uncertain environments.
4. **The ability to work effectively as part of a multi-disciplinary, potentially regionally dispersed research team, plus the motivation and discipline to carry out autonomous research.**

To be appointed as a CERC Postdoctoral Fellow within CSIRO, candidates are required to have **submitted** their PhD at the time of commencement, as a minimum requirement, if PhD conferment has not been obtained. If a candidate has submitted, but their PhD has not yet been formally attained, the starting salary will be CSOF4-1 ($83,687). Upon CSIRO receiving written confirmation that the PhD has been awarded (within a six month period from commencement date), the salary will be increased to the negotiated level and the difference will be back-paid to the Officer’s start date.

Special Requirements

Appointment to this role may be subject to conditions including provision of a national police check as well as other security clearance requirements.

* The successful candidate will be asked to obtain and provide evidence of a National Police Check or equivalent. Please note that people with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.
* If the successful candidate is not an Australian Citizen or Permanent Resident, they may be required to undergo additional security clearances, which may include medical examinations and an international standardised test of English language proficiency (i.e. IELTS test).- https://ielts.com.au/

**Our value proposition**

We want CERC Postdoc Fellows to join our world class science, engineering and digital teams to solve big, complex problems that make a real difference to the future of Australia and the world.

You'll get to work with some of the most talented minds in their fields, not just in Australia, but in the world. At CSIRO, we spark off each other, learn from each other, trust each other and collaborate closely to achieve more than we could individually.

CSIRO Early Research Career (CERC) Postdoctoral Fellow Experience Employee Value Proposition (EVP). Find out more [here](https://www.csiro.au/en/careers/postdoctoral-fellowships)!

## **About CSIRO:**

We solve the greatest challenges through innovative science and technology. To find out more visit us [online](http://www.csiro.au/)!

CSIRO is a values-based organisation.  In your application and at interview you will need to demonstrate behaviours aligned to our values of:

* 1. People First
	2. Further Together
	3. Making it Real
	4. Trusted

**About Data61:**

We solve the greatest challenges through innovative science and technology. To find out more visit us [online](https://www.data61.csiro.au/)!