# Position Details

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

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| The following information is for applicants | |
| Advertised Job Title | CSIRO Postdoctoral Fellowship in AI and Cybersecurity |
| Job Reference | 74848 |
| Tenure | Specified Term of 3 years  Full-time |
| Salary Range | AU$89,926 to AU$98,504 pa (pro-rata for part-time) + up to 15.4% superannuation |
| Location(s) | Sydney, NSW |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All 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 Seyit Camtepe via email at Seyit.camtepe@data61.csiro.au  *Please do not email your application directly to Seyit Camtepe. Applications received via this method will not be considered.* |
| 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](mailto:careers.online@csiro.au) or call 1300 984 220. |

**Acknowledgement of Country**

CSIRO acknowledges the Traditional Owners of the land, sea and waters, of the area that we live and work on across Australia. We acknowledge their continuing connection to their culture and pay our respects to their Elders past and present. View our [vision towards reconciliation](https://www.csiro.au/en/about/Indigenous-engagement/Reconciliation-Action-Plan).

### 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 of 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.

CERC Postdoctoral Fellows are 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 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 Data61’s vision of driving the development and adoption of Artificial Intelligence in Australia, with a specific digital technology focus on 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 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 cybersecurity maturity levels are no match for competent and cooperating malicious actors. Hence, the role will deliver research projects and activities with three primary focus areas:

(i) developing novel methods to prevent security and privacy attacks against ML and NLP   
 algorithms in cybersecurity settings,

(ii) developing robust machine intelligence to make cybersecurity decisions when faced   
with complex security problems, and

(iii) develop robust ML and NLP techniques to assess, triage and mitigate malware and vulnerabilities in complex application source codes or binaries.

The CERC 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

* + Contribute to projects and carry out research to develop novel methods to prevent security and privacy attacks against ML and NLP algorithms in cybersecurity settings.
  + Contribute to projects and carry out research to develop robust machine intelligence to make cybersecurity 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 conferences.
  + 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.
  + Work collaboratively as part of a multi-disciplinary, often regionally dispersed research team, and business unit to carry out tasks in support of CSIRO’s scientific objectives.
  + 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 supervisors. 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 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 artificial intelligence, machine learning, 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 in domains.
4. High level of 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. **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 achieve project goals.**

## **Desirable**

1. Previous experience in applying artificial intelligence and machine learning 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 ($87,068). 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/medical/character 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.
* The successful candidate may be required to undertake a pre-employment medical examination prior to commencement.
* 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

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