# 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 Artificial Intelligence for IoT Data Trust and Privacy |
| Job Reference | 83505 |
| Tenure | Specified Term of 3 years  Full-time |
| Salary Range | AU$89,926 to AU$98,504 pa + up to 15.4% superannuation |
| Location(s) | Pullenvale, Brisbane, QLD |
| Relocation Assistance | Will be provided to the successful candidate if applicable |
| Applications are open to | All Candidates |
| Position reports to the | Team Leader |
| Client Focus – Internal | 100% |
| Client Focus – External | 0% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Volkan Dedeoglu via email at [volkan.dedeoglu@csiro.au](mailto:volkan.dedeoglu@csiro.au) |
| 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) Fellowships** provide opportunities to scientists and engineers who have completed their doctorate and have less than three years relevant research experience. These fellowships aim to develop the 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 Fellows **are appointed for three years full-time or equivalent.**

This position will be a part of the **Distributed Sensing Systems (DSS)** group, which is a world-leading research group specialised on large-scale, decentralized, and intelligent sensing technologies. The group is based in Pullenvale, Queensland, Australia, and is part of the Cyber-Physical Systems research program within the CSIRO’s Data61 business unit. With over sixty staff and students, the DSS group is comprised of Research Scientists, Postdoctoral Fellows, Engineers, Postgraduate Students, and Industrial Trainees.

The group’s research focuses on creating integrated sensing technologies that enhance the efficiency and quality of data/knowledge acquisition on large scales through employing artificial intelligence (AI) and machine learning (ML) on embedded systems, at edge, or in the cloud. Technologies developed by the DSS group have been deployed in a broad range of environmental, agricultural, and industrial applications.

The DSS group’s scientific vision consists of three interrelated perspectives:

1. **Scalable Sensing for Sustainability**: Developing intelligent and scalable sensing systems to help Australia and the world tackle significant large-scale sustainability challenges.
2. **Ubiquitous AI in Real World**: Building embedded and edge AI capabilities that bridge the gap between the physical and digital worlds.
3. **Trusted IoT/Sensor Networks**: Incorporating data trust, privacy, and security into IoT/sensor networks to promote trustworthy and responsible data collection and analytics.

The position is funded through CSIRO’s Future Digital Manufacturing Fund (FDMF), which directs strategic investment into fundamental research to enable the development of innovative data-driven technologies for advanced manufacturing applications.

The CERC Fellow will conduct research on enhancing data trust evaluation and privacy preservation using AI/ML and develop secure intelligent IoT platforms primarily for future digital manufacturing applications. The CERC Fellow will also utilise the developed technologies in real-world use-cases and industry deployments.

### Duties and Key Result Areas:

Under the direction of the senior DSS group members, the successful candidate will:

* + Obtain a thorough understanding of IoT data trust notion in digital manufacturing context and determine the key underlying scientific challenges.
  + Develop ML/AI solutions that help tackle these scientific challenges and are suitable for distributed and in-network processing or edge computing.
  + Implement and evaluate the developed algorithms and methods efficiently in Python.
  + Publish results in relevant reputable journals and conferences and prepare patent applications.
  + Recognise and utilise opportunities for innovation and the generation of new theoretical perspectives, and progress opportunities for further development or creation of new lines of research.
  + Collaborate with members of diverse project teams and external partners to ensure research directions can lead to lasting impact in application domains.
  + Communicate effectively and respectfully with all staff, clients, and suppliers in the interests of good business practice, collaboration, and enhancement of CSIRO’s reputation.
  + 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 Fellow learning, development and training programis developed between the CERC Fellow and their CSIRO supervisor. The program will focus on enhancing the Fellow’s 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, and
* 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, engineering, mathematics, or similar.

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

1. Solid understanding of the fundamentals of probability theory, statistics, and machine learning.
2. Experience with using ML/AI algorithms in real-world applications.
3. Record of publication in reputable peer-reviewed journals/conferences or authorship of scientific reports, grant applications, or patents.
4. Proficiency in programming with Python.
5. Ability to work effectively as part of a multi-disciplinary, regionally dispersed research team, plus the motivation and discipline to carry out autonomous research.
6. High level of written and oral communication skills with ability to effectively represent the research team internally or externally, including the presentation of research outcomes at international conferences.

## **Desirable:**

1. Knowledge of or experience in IoT data security, privacy, or trust.
2. Experience with developing machine learning algorithms for and implementing them on embedded systems or edge devices.
3. Knowledge of software engineering principles and experience with source code version-control systems such as Git.

To be appointed as a Postdoctoral Fellow within CSIRO, the successful candidate will be expected 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 (AU$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.
* 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 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.

Find out more about our CSIRO Early Research Career (CERC) Fellow Experience Employee Value Proposition (EVP) [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

Find out more about CSIRO [Data61](https://www.csiro.au/en/about/people/business-units/Data61)

Find out more about the [Distributed Sensing Systems (DSS) Group](https://research.csiro.au/dss/)