# Position Details

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

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| The following information is for applicants | |
| Advertised Job Title | CERC Postdoctoral Fellowship in 4D Minerals Data Science |
| Job Reference | 76966 |
| Tenure | Specified Term of 3 years  Full-time |
| Salary Range | AU$89,926 to AU$98,504.46 pa (pro-rata for part-time) + up to 15.4% superannuation |
| Location(s) | Lucas Heights, Sydney |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | * Australian/New Zealand Citizens, Australian Permanent Residents and Australian temporary residents currently residing in Australia (visa sponsorship may be provided to eligible onshore candidates) |
| Position reports to the | Research Scientist |
| Client Focus – Internal | 100% |
| Client Focus – External | 0% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Mark Lindsay via email at mark.lindsay@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. |

### 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 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 Fellows **are appointed for three years or part time equivalent.**

The Sensing and Sorting program develops advanced technologies to aid CSIRO's objectives in creating a more sustainable, productive and globally competitive mining industry. The CERC Fellow will join a team of physicists and engineers in Sensing and Sorting at CSIRO’s Lucas Heights site in Sydney under the supervision of the Science Leader: 4D Minerals and the Mining Value Chain.

The role will integrate geological knowledge and data with various sensor measurements to predict mineral distributions and improve processing productivity for bulk ore sorting systems. The CERC Fellow will identify opportunities, explore research questions and make recommendations to support decision-making.

The CERC Fellow will be required to interact with other programs within CSIRO Mineral Resources (e.g., Discovery, Characterisation) and Data61 to translate data, information and knowledge to support and augment modelling and simulation at different phases of the mining value chain. Communication of key results will be required through publication in international scientific journals and presentation at conferences, workshops and internal meetings. Opportunities for external collaboration with world-class institutions (e.g., the University of Western Australia, University of Sydney, University of New South Wales, Cambridge University) and researchers to expand professional networks, learn the latest methods and provide an experience leading to high-impact scientific discovery.

### Duties and Key Result Areas:

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

* Derive and communicate scientific requirements with an emphasis on data science and decision making with implementation both within CSIRO and to our industry and government partners.
* Convey research ideas and scientific requirements into a technical software development plan.
* Actively contribute towards strategic development.
* Communicate effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
* Work as part of and with multi-disciplinary, often regionally dispersed researchers and to carry out tasks autonomously in support of scientific research.
* Work collaboratively with colleagues within your team, the business unit and across CSIRO, to reach objectives.
* Choose appropriate management strategies and communication styles to maintain high levels of motivation and productivity, give feedback for development purposes and provide support and direction for improvement, as required.
* Adapt and/or develop original experimental methods/equipment/ software/concepts/ideas in support of existing and further research.
* 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.

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
* 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). The doctorate must be in arelevant discipline area, such as in statistics / applied mathematics, artificial intelligence (including machine learning).

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

1. Expertise with Bayesian inference, stochastic modelling methods and uncertainty quantification
2. A high degree of competency in scientific computing languages (Python, R, Julia, etc).
3. The ability to work effectively as part of a multi-disciplinary, regionally dispersed team of engineers and domain researchers, and carry out tasks autonomously in support of scientific research
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 sound history of publication in peer reviewed journals and/or authorship of scientific papers, reports, grant applications or patents.
6. A record of science innovation and creativity, including the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

## **Desirable:**

1. **Experience with natural science datasets**
2. **Experience with hierarchical modelling, imputation and transfer learning methods.**
3. **Familiarity with multi-dimensional, multivariate sensing technologies and physical principals**
4. **Familiarity with C and/or Fortran**
5. **Ability & willingness to contribute novel ideas and approaches in support of scientific investigations.**
6. **Experience in converting research into relevant support for non-expert decision making**
7. **Remain productive, positive and resilient in complex, ambiguous and/or uncertain environments.**
8. **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 Fellow within CSIRO, candidates are required to have **submitted** their doctoral thesis 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.
* 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 [Mineral Resources](https://www.csiro.au/en/Research/MRF)