# 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 Natural Language Processing (Information and Knowledge Extraction) for Sustainability Data Science |
| Job Reference | 79834 |
| 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) | Sydney, NSW  Other locations negotiable |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All Candidates |
| Position reports to the | Team Leader, Language and Social Computing Team, Analytics and Decision Sciences Program, CSIRO Data61. |
| Client Focus – Internal | 70% |
| Client Focus – External | 30% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Stephen Wan via email at [Stephen.Wan@csiro.au](mailto:Stephen.Wan@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) 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.

CERC Postdoctoral Fellows **are appointed for three years full-time equivalent.**

The Postdoctoral Fellow will play a pivotal research role in CSIRO’s Valuing Sustainability Future Science Platform. The **Valuing Sustainability Future Science Platform (VS FSP)**is a substantial new 5-year investment in cutting edge research by CSIRO that will recruit 15 post-docs who will be embedded diverse inter-disciplinary research teams. The VS FSP aims to co-produce future pathways, measures, and indicators to underpin sustainable innovation and prosperity for current and future industries and communities. The VS FSP will bring together social, biophysical, economic and data science teams and work with diverse stakeholders to advance these outcomes, in part through developing measurement and assessment technologies that can support decision-making, attribute change to practice, and track progress.

Within the VS FSP, the **Sustainability Science Scaffolding project** includes three post-docs (and a team of leading researchers spanning multiple CSIRO business units conduct cross-cutting research on): (1) directionality of systems innovation, (2) interoperability across diverse knowledge and data systems (this postdoctoral fellowship position), and (3) the co-production of knowledge and values in the generation of useful indicators and metrics of sustainability.

This Postdoctoral Fellow will develop and use Natural Language Processing, Information Retrieval and Artificial Intelligence methods as appropriate to the specific project goals to collect and analyse natural language data pertaining to knowledge about sustainability and related societal values. This data may come from scientific literature, technical documentation, and social- or user-generated data (such as data from social science methods and/or social media), where such knowledge is described or discussed.

The project will build upon CSIRO Data61’s Natural Language Processing capabilities, designing, and implementing new algorithms and software to ultimately improve specific sustainability decision-making. Examples of such analyses might include: (1) inferences about relevant societal values inherent in social media, and (2) linking descriptions of sustainability goals to reported outcomes to quantify impact.

The ultimate goal of the project is to be able to diagnose fit-for-purpose data science methodologies that could be deployed and scaled by CSIRO and its partners in tackling ongoing sustainability challenges.

The CERC Fellows in this project will work with a larger team of inter- and trans-disciplinary researchers in the project and across the VS FSP, including social scientists, environmental economists, systems modellers, and researchers in innovation system, as well as with farmers, policy-makers, Indigenous leaders and others.

For this FSP, the data science postdoctoral fellow with a specialisation in natural language data will work with biophysical and/or social science researchers to incorporate natural language analyses into specific applied processes, methods and/or tools, and translate research outputs into real-world options for improving sustainability outcomes.

As such, this research role has the potential to embed new ways of undertaking research for sustainability within CSIRO and more widely. The Postdoctoral Fellow will have a strong background in data science, with expertise in one or more of the following: Natural Language Processing (Information Extraction), Information Retrieval, Social Media Text Analytics, Machine Learning, Artificial Intelligence. The Fellow will also have a commitment to outcome-oriented and inter-disciplinary research.

### Duties and Key Result Areas:

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

* + Carry out innovative, impactful research of strategic importance to CSIRO that will, where possible, lead to novel and important scientific outcomes.
  + 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 and methodological advance in applied areas on social science
  + 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.
  + 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: Natural Language Processing (Information Extraction), Information Retrieval, Social Media Text Analytics, Machine Learning, Artificial Intelligence, with an understanding of social sciences and investigations of interactions between actors, institutions, knowledge systems and decision-making.

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. Demonstrated experience in working with diverse teams in ways that are productive and proactive, balancing constructive and critical engagement with a willingness to enable and empower other team members.
2. A strong foundation in data science methodologies and methods and demonstrated ability to design and undertake rigorous research with the support of an engaged team.
3. Demonstrated capacity to engage effectively with stakeholder groups in development and conduct of projects or activities.
4. Significant interest and/or experience in sustainability related issues.
5. 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.
6. A sound history of publication in peer reviewed scientific publications, reports, grant applications or patents.
7. A record of research innovation and creativity, including the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

## **Desirable:**

1. Experience working in inter- or trans-disciplinary teams, such as action research.
2. Remain productive, positive, and resilient in complex, ambiguous and/or uncertain environments.
3. **Experience working in 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 (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.

Include if relevant:

* 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

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