# 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 Modelling multi-actor socio-agro-ecological systems |
| Job Reference | 77807 |
| 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) | Brisbane, QLD or Canberra ACT |
| 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 | Project Leader |
| Client Focus – Internal | 100% |
| Client Focus – External | 0% |
| Number of Direct Reports | 0 |
| Enquire about this job | Hazel Parry, [hazel.parry@csiro.au](mailto:hazel.parry@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) 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 or part-time equivalent.**

The CSIRO Data61 and Agriculture and Food business units are recently established a new 3-year shared strategy project to develop digital/data transformation for agriculture. As a member of this multidisciplinary team, you will work with CSIRO scientists, engineers and collaborate with national and international university partners to develop new socio-agro-ecological models of adaptive management strategies that have general applicability for decision making in agricultural landscape management.

The postdoctoral researcher will work closely with leading scientists in the Agriculture and Food and Data61 machine learning and data analytics business unit, developing computer simulation models for multi-actor landscape management. Your research will focus on developing a modelling framework that will allow for the integration of existing representations of human decision-making that are based on social science theories about land management behaviour in Australia, with real-time updates and system-learning based on observed behaviours. The successful candidate will work within national and international settings and as part of a diverse multidisciplinary team.

### Duties and Key Result Areas:

Under the direction of senior research scientists and engineers in CSIRO, the successful candidate will:

* + Develop a computer simulation model using agent-based modelling approaches to explore multi-actor land management behaviours and the optimization of outcomes for both agricultural production and environmental protection.
  + Implement the general model in specific contexts to provide adaptive management solutions based on future trajectories, through the integration of localized decision-making and observed behaviours.
  + Publish results in relevant international scientific venues (high-level journals and conferences).
  + Evaluate the developed model to demonstrate its fitness for purpose, taking responsibility for functionality, performance, and robustness.
  + Interpret and present research findings to scientists and practitioners from a wide range of other scientific areas.
  + 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 to further develop or create new lines of research.
  + Collaborate with members of a diverse project team 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 practise 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 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, geography, economics, environment, agricultural science or social science.

*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. Solid knowledge of theories on human decision-making and socio-agro-ecological systems.
2. A history of publication in peer-reviewed journals and/or authorship of scientific papers, reports, grant applications or patents.
3. The ability to work effectively as part of a multidisciplinary, regionally dispersed research team, plus the motivation and discipline to carry out independent research.
4. Knowledge of agent-based simulation modelling methods and tools such as NetLogo, Repast or GAMA, or the ability to program with object-oriented languages such as Java or C++.
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 record of science innovation and creativity, including the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

## **Desirable:**

1. Understanding of agricultural systems and management practices in Australia, in particular the area-wide management of weeds, pests and diseases.
2. Experience in resource allocation and use modelling incorporating behaviours.
3. Good statistical analysis capabilities.
4. Experience using high-performance computing clusters and source code versioning systems such as Git.

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

* 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, including 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 also 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/)!

**About Data61:**

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

**About Agriculture and Food:**

Find out more about CSIRO [Agriculture and Food](https://www.csiro.au/en/Research/AF)