# Postdoctoral Research Fellow (CSOF4)

Role summary for potential applicants

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| Advertised Job Title | Postdoctoral Research Fellow in Spatial Statistics and Machine Learning – *Deep Earth Imaging* Future Science Platform |
| Reference Number | 61371 |
| Classification | CSOF4 |
| Salary Range | AU$83K to AU$94K plus up to 15.4% superannuation |
| Location | Kensington, West Australia |
| Tenure | Specified Term – 1 Year |
| Relocation assistance | Provided to successful candidates if required |
| Applications are open to: | * All Candidates |
| Functional Area | Postdoctoral Research Fellow |
| % Client Focus - Internal | 80% |
| % Client Focus - External | 20% |
| Reports to | Theme Leader (Data Assimilation) and *Deep Earth Imaging* Future Science Platform (CSIRO Minerals) |

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| **Overview** |
| Australia’s future minerals, energy and water resources will come from greater depths in the onshore regions and from deep offshore plays. Our ability to find, define and exploit mineral resources is limited by a deep and complex regolith that covers about 80% of the Australian land mass. Undiscovered conventional oil and gas lies in deeper or more subtle traps, or else is sourced from unconventional sources onshore that require new geophysical methods to quantify. The science of *Deep Earth Imaging* will help us more precisely image and understand the significance of subsurface rock properties, which in turn will unlock the resource potential of this vast and relatively under-explored continent.  As a part of this effort, we seek an outstanding early career researcher with a background in **Spatial Statistics and Machine Learning** with significant experience in exploratory data analysis and hypothesis generation for geological datasets to join a growing, world-leading team of 25 researchers. The successful candidate will have demonstrated experience in exploratory data analysis and visualization of large spatio-temporal datasets.  **Postdoctoral Fellowships** at CSIRO provide opportunities to scientists and engineers who have completed their doctoral studies and who have less than three years of relevant postdoctoral work experience. These fellowships will help launch their careers, provide experience that will enhance their career prospects, and facilitate the recruitment and development of potential leaders for CSIRO.  Postdoctoral Fellows **are appointed for terms of up to three years** and work closely with leading research scientists and engineers. They carry out innovative, impactful research of strategic importance to CSIRO with the possibility of novel and important scientific outcomes and present the findings in international publications and conferences. |

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| **Duties and Key Result Areas** |
| * Under the direction of a senior research scientists, the successful candidate will conduct innovative research aligned with the goals of *Deep Earth Imaging* that ideally lead to novel and important scientific outcomes: * Develop approaches for intuitive visualisation of large spatio-temporal datasets to allow formulating hypotheses on the underlying data-generating process * Develop and apply machine learning algorithms for classification and regression of earth science datasets, with particular emphasis on incorporating expert knowledge in training data set generation * Undertake regular reviews of relevant literature and intellectual property. * Produce quality scientific and/or engineering papers suitable for publication in quality journals, presentations to clients, and/or applications for patents. * Prepare and present conference papers as agreed with the Theme Leader (Data Assimilation). * Contribute to the development of innovative concepts and ideas for further research. * Contribute to the effective functioning of the *Deep Earth Imaging* research team and help deliver to CSIRO’s organisational objectives, plans and strategies. * Work collaboratively with colleagues within the *Deep Earth Imaging* team, the Minerals, Energy, data61, and Land and Water Business Units or other CSIRO Business Units as required. * Adhere to the spirit and practice of CSIRO’s Values, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals. * Undertake an appropriate training and development program developed by CSIRO. * Other duties as directed.   **CSIRO’s postdoctoral training program**is a personalised plan developed jointly by the Fellow and the Theme Leader (Data Assimilation). 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. * <http://www.csiro.au/en/Careers/Student-and-graduate-programs/Postdoctoral-fellowships> |

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| **Selection Criteria:** |
| Note: Under CSIRO policy only those who meet all essential criteria can be appointed.  ***Prerequisites:***   1. **Education/Qualification** A doctorate in a relevant discipline such as geophysics, geology, applied mathematics or statistics. Note: [1] Candidates who will soon satisfy the requirements of a PhD will be considered; [2] To be eligible, you must have **less than 3 years** of relevant postdoctoral experience. 2. **Communication High level written and oral communication skills with the ability to represent the research team effectively both internally and externally, including at national and international conferences.** 3. **Publication A record of publications in high-quality, peer-reviewed journals.** 4. **Behaviour** A history of professional and respectful behaviours and attitudes in a collaborative environment.   ***Selection Criteria:***   1. Demonstrated experience in exploratory data analysis and visualisation of large spatio-temporal datasets 2. Demonstrated experience in applying machine learning techniques to spatio-temporal problems 3. Demonstrated experience and skill in scientific programming 4. Evidence of high quality written and oral communication skills achieved through high-level reporting, publication, and presentation. 5. **Evidence ability to work effectively as part of a multi-disciplinary, research team** 6. **Motivation and self-discipline to conduct independent research.** 7. A record of science innovation and creativity with the ability and willingness to incorporate novel ideas and approaches into scientific investigation.   **Desirable Criteria:**   1. Background in geology or hydrology 2. Advanced computing skills, with a specific emphasis on high-performance computing, ideally in a Unix/Linux environment.   **As Australia’s Innovation Catalyst, CSIRO has strategic actions underpinned by behaviours aligned to**:   * Excellent science * Inclusion, trust & respect * Health, safety & environment * Delivery on commitments.   **In your application and at interview you will need to demonstrate alignment with these behaviours.**  To be appointed as a CSIRO Postdoctoral Fellow, candidates must have **submitted** their PhD at the time of commencement as a minimum requirement. If a candidate has submitted, but their PhD has not yet been formally awarded, the Fellow’s starting salary will be CSOF4.1*.* Upon verification via written confirmation that the PhD has been awarded (within a six-month period from date of commencement), the Fellow’s salary will be increased to the negotiated level and the difference will be retroactively back-paid to the Fellow’s start date.  **Other special requirements**  Appointment may be subject to conditions including security/medical/character clearance requirements. Applicants who are not Australian Citizens or Permanent Residents may be required to undergo additional security clearance processes. These may include medical examinations and an international standardised test of English language proficiency. |

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| **Other Information:** |
| **How to Apply**  Please apply for this position online at <https://jobs.csiro.au/> and enter requisition number **61371**. Internal applicants please apply via ‘Jobs Central’ in SAP (click ‘Recruitment’)  Please load your CV (Maximum 2MB). You may also be required to respond to some screening questions.  Where text responses are required, to avoid being timed out of the system we recommend that you prepare your responses off line and paste them into the appropriate spot prior to submitting your application.  If you experience difficulties applying online call 1300 984 220 for assistance. Outside Australian business hours please email: [csiro-careers@csiro.au](mailto:csiro-careers@csiro.au).  **Referees**: Please provide contact details of two previous supervisor or academic/professional referees in your resume/CV. We will ask your permission before making contact.  **Contact** If, after reading the selection documentation you require further information, please contact:  Dr Luk Peeters: luk.peeters@csiro.au  Please do not email your application directly to Dr Peeters. Applications received via this method will not be considered.  **About CSIRO** At CSIRO we do the extraordinary every day. We innovate for tomorrow and help improve today – for our customers, all Australians and the world. *We imagine. We collaborate. We innovate.*  **What CSIRO offers** Thesuccessful candidate will join CSIRO’s *Deep Earth Imaging* Future Science Platform, a team of 18 early career researchers with expertise in geophysics, geology, and data science, together with a leadership team of five senior science leaders.  Find out more at <http://www.csiro.au> |