# Research Scientist (CSOF5)

Role summary for potential applicants

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| Advertised Job Title | Research Scientist in Geostatistics and Probabilistic Prospectivity Mapping – *Deep Earth Imaging* Future Science Platform |
| Reference Number | 56188 |
| Classification | CSOF5 |
| Salary Range | AU $95,369 to AU $103,205 per annum plus up to 15.4% superannuation |
| Location | Kensington, Western Australia |
| Tenure | Specified Term – 3 Years |
| Relocation assistance | Will be provided to the successful candidate if required |
| Applications are open to: | * CSIRO internal |
| Functional Area | Research Scientist |
| % Client Focus - Internal | 70% |
| % Client Focus - External | 30% |
| Reports to | Deep Earth Imaging Theme Leader Potential Field and Electromagnetic Imaging |

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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. *Deep Earth Imaging* science 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 who has demonstrated excellence in geostatistics and its applications in earth sciences, machine learning and probabilistic methods that could be applied to resource prospectivity studies. We are after a candidate with a proven track record of delivery of research in these key domains as a new member of a growing team of 25 researchers. The successful candidate will develop and apply methods to probabilistically map resource potential for minerals, with possible extensions to perform similar studies for energy and water resources.  This role would involve the development of a research plan to implement *Deep Earth Imaging’s* vision for 21st century holistic exploration tools; the researcher would also be responsible for utilising the research of postdoctoral research fellows to study resource potential. |

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| **Duties and Key Result Areas** |
| * Under the direction of senior research scientist(s) in the *Deep Earth Imaging* Future Science Platform and CSIRO Mineral Resources, the successful candidate will conduct innovative research aligned with the project goals, producing novel and important scientific outcomes: * Develop and apply geostatistical methods to assist study of resource prospectivity; * Develop and apply novel machine learning tools to heterogeneous geoscience data; and * Develop new tools and techniques to assist in probabilistic mapping of resource potential. * Undertake regular reviews of relevant literature and intellectual property. * Produce quality scientific and/or engineering papers suitable for publication in quality journals, presentation to clients, and/or applications for patents. * Prepare and present conference papers as agreed with the *Deep Earth Imaging* Theme Leader (Potential Fields and Electromagnetic Imaging). * 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, and 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.   **Note: candidates should develop a 1-2 A4 page research plan outlining their concepts for research they would like to undertake in this role should they be successful. Candidates should show how they can meet the research vision of *Deep Earth Imaging*.** |

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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 geology or statistics with a focus on geostatistics or machine learning. 2. **Work experience:** At least two years post-PhD experience in the application of geostatistics, machine learning to earth science problems. 3. **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.** 4. **Publication A record of publications in high-quality, peer-reviewed journals.** 5. **Behaviour** A history of professional and respectful behaviours and attitudes in a collaborative environment.   ***Selection Criteria:***   1. Demonstrate, through a 1-2 page research plan, an ability to plan research aligned to the vision of *Deep Earth Imaging*. 2. Experience in a wide range of geostatistical approaches to simulate spatially variable fields, such as lithology, earth properties or fault networks. 3. Demonstrated experience and skill in machine learning and/or scientific programming. 4. Evidence of high quality written and oral communication skills achieved through high-level reporting, presentations and especially peer-reviewed publications. 5. **Evident 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. Familiarity with applying Bayesian techniques for probabilistic modelling 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 Research Scientist, candidates must have **submitted** their PhD at the time of commencement as a minimum requirement, and demonstrate an ability to undertake research supporting the vision of the organisation. If a candidate has submitted, but their PhD has not yet been formally awarded, the Research Scientist’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 **56188**. 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:  Richard Chopping: richard.chopping@csiro.au  Please do not email your application directly to Mr Chopping. 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> |