# Position Details

## Research Scientist/Engineer- CSOF5

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| The following information is for applicants |
| Advertised Job Title | Research Scientist - Soil biophysical and spatial modelling |
| Job Reference | 63555 |
| Tenure | Specified Term of 4 years Full-time |
| Salary Range | AU$98,735 to AU$106,848 pa (pro-rata for part-time) + up to 15.4% superannuation |
| Location(s) | Black Mountain, ACT |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All Candidates |
| Position reports to the | Senior /Principal Research Scientist |
| Client Focus – Internal | 50% |
| Client Focus – External | 50% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Dr Enli Wang via email: Enli.Wang@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 or call 1300 984 220. |

### Role Overview

The role of Research Scientist Staff in CSIRO is to conduct innovative research leading to scientific achievements that are aligned with CSIRO’s strategies. You may be engaged in scientific activity ranging from fundamental research to the investigation of specific industry or community problems. You will have the opportunity to build and maintain networks, play a lead role in securing project funds, provide scientific leadership and pursue new ideas and approaches that create new concepts.

### The role of Research Scientist in CSIRO is to conduct innovative research leading to scientific achievements that are aligned with CSIRO's strategies.

### The Research Scientist for soil biophysical and spatial modelling is to drive a renewed focus in theoretical and applied modelling of soil-plant systems. This will include developing new approaches for the prediction of soil functional properties and the spatio-temporal variation of soil attributes. It will include the synthesis of soil pedological knowledge with process modelling, and specifically with streams of data received from proximal and remote sensing platforms to advance modelling of soil and plant processes. The scientist will play a lead role in assisting to secure project funds, and to develop a research program within the context of digital agriculture, aiming to secure Australian agricultural assets, including soils, and enrich decision making capabilities for farmers, agribusiness, policy-makers and researchers.

### This position is initially for 4 years, with possibility of conversion to indefinite, subject to funding and strategic alignment.

### Duties and Key Result Areas:

* Design and develop innovative approaches to combine process-based modelling and spatial modelling techniques for better prediction of functional soil properties directly relevant to crop production.
* Pursue research to advance the state-of-the-art in simulation modelling of soil-plant systems, with a focus on soil-plant interface and interactions.
* Produce high quality scientific papers suitable for publication in high quality international journals and conferences.
* Work effectively as part of a multi-disciplinary research team, to undertake independent scientific investigations and carry out associated tasks under the guidance of more senior Research Scientists/Engineers.
* Assist in leading research projects
* Provide mentoring and on-the-job training to technical staff and students.
* Communicate openly, effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
* Work collaboratively as part of a multi-disciplinary, often regionally dispersed research team, and business unit to carry out tasks in support of CSIRO’s scientific objectives.
* Adhere to the spirit and practice of CSIRO’s Code of Conduct, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals.
* Other duties as directed.

## **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:** Plans, sets and works to meet challenging standards and goals for self and/or others. Recognises where endeavours will make the most impact or difference, decides on desired outcome and sets realistic goals to reach this target.
* **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 PhD in the field of soil science, agricultural science, systems modelling or similar fields of science.
2. Demonstrated ability to conduct simulation modelling of process interactions in soil-plant systems and to evaluate their impact on crop productivity and soil functions.
3. A sound understanding of soil functions and what drives soil water availability, and carbon and nutrient dynamics across cropping systems.
4. Demonstrated experience in the prediction of soil functional properties using systems understanding combined with novel approaches like process-based modelling, spatial modelling, machine learning and other AI methods.
5. Demonstrated data analytic ability to manage large biophysical datasets and develop customised work routines for automating complex modelling scenarios for soil and plant systems simulations.
6. Excellent written and oral communication skills including the ability to publish research results, prepare reports and present research results at international conferences and stakeholder meetings, evidenced by a **solid record of publication in top-tier journals and conference proceedings.**
7. A record of science innovation and creativity plus the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

## **Desirable:**

1. Knowledge of Australian agriculture and soils
2. Good understanding of remote sensing data platforms, their data and their potential uses within soil and plant modelling contexts
3. Ability of computer programming or using program packages (e.g. with R, C##, C++, etc.)

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/

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