# Position Details

## Research Scientist/Engineer- CSOF5

|  |  |
| --- | --- |
| The following information is for applicants | |
| Advertised Job Title | Data Scientist (Agricultural Systems) |
| Job Reference | 76153 |
| Tenure | Specified Term of 3 years  Full-time |
| Salary Range | AU$100,710 to AU$108,985 pa + up to 15.4% superannuation |
| Location(s) | Canberra ACT  Perth WA, Brisbane QLD (negotiable) |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | * Australian/New Zealand Citizens, and Australian Permanent Residents currently residing in Australia * Australian Temporary Residents currently residing in Australia (visa sponsorship may be provided to eligible candidates) |
| Position reports to the | Group Leader, Systems |
| Client Focus – Internal | 50% |
| Client Focus – External | 50% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Dr Roger Lawes via email at [roger.lawes@csiro.au](mailto:roger.lawes@csiro.au) or phone +61 8 9333 6455 |
| 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

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.

CSIRO is Australia’s premier science organisation with an outstanding international reputation for science excellence and industry impact. CSIRO Black Mountain site in Canberra is a large science precinct in a modern capital city with excellent public facilities, and the Canberra-based agronomy team has an international reputation in farming systems agronomy. The team is well-linked with other CSIRO and non-CSIRO collaborators nationally and CSIRO provides the opportunity to join a cohort of early-career researchers and engineers who combine their individual disciplinary contributions into mission-focussed R&D. The new Boorowa Agricultural Research Station will be a modern state-of-the-art facility providing a unique opportunity for a self-motivated researcher to develop a career in digital agronomy.

The Integrated Farming Systems Program of CSIRO Agriculture works in partnership with rural industries, communities, and governments to deliver improvements in agricultural productivity and profitability whilst minimising environmental damage. The core of the Program’s science lies in better understanding and managing soil-plant interactions that underpin productive, profitable and sustainable farm businesses. We operate within and across scales; from plants to paddocks, integration of whole farm systems along with landscape management. We use combinations of field experimentation, remote sensing, proximal sensing, crop modelling, and data science to identify and invest in novel approaches to sustainably intensify Australia’s farming systems.

The Data Scientist will be part of the Canberra-based farming systems team with existing skills in data science, GIS and remote sensing, with a strong interest in crops, pastures and agriculture generally. CSIRO is looking to improve the productivity and input-use efficiency of dryland farming systems, with enhanced digital systems and analytics. The team is focussed in south-eastern Australia, but collaborates nationally and internationally. A specific opportunity within this role will be to develop and apply digital agriculture principles at the recently-purchased 280ha Boorowa Agricultural Research Station (BARS) near Canberra. Emerging technologies in soil and crop sensing with next generation low earth orbit satellites and farming systems simulation will be linked to industry needs along with developments in data science, analytics, and high-performance computing, that are being developed for industry application. The Data Scientist must be comfortable managing heterogenous datasets. The farming systems team has a specific and timely opportunity to integrate new data science approaches and tools to research and development activities throughout the systems program. In keeping with CSIRO’s role as an “innovation catalyst” we envisage that the systems program will provide opportunities to link cutting edge data science, data handling, and data integration to existing and emerging problems in the agricultural sector. In this role, the Data Scientist will form an important linkage between data science, residing in CSIRO Data61, and systems science, residing in CSIRO Agriculture and Food.

The Data Scientist will need skills in data science, GIS and remote sensing, with a strong interest in agriculture and a desire to greatly enhance the engagement of the systems program with the broader opportunities within CSIROs data science initiatives and Future Science Platforms within CSIRO. Initially the role will be linked to specific investigations of interest to the Systems program related to quantifying the magnitude of severe events on production with multiple layers of information. However, the position offers a unique opportunity to deploy data science skills into agricultural systems to become a future leader of R&D in the area of modern farming systems research and engineering.

### Duties and Key Result Areas:

* Under the direction of senior research scientists, carry out innovative, impactful research of strategic importance to CSIRO that will, where possible, lead to novel and important scientific outcomes.
* Apply knowledge of big data analytics and data handling to agricultural problems, where data from multiple sources (satellites, industry data, climate data, market data) need to be integrated to generate a solution.
* Develop either big data analytical processes, remote sensing processes, proximal sensing processes or data handling processes that assist monitoring and managing the agricultural landscape. Where appropriate, apply new technologies for soil and crop sensing to monitor systems responses.
* Communicate with other systems scientists, data scientists and engineers, to develop digital agricultural systems of value to the Australian industry.
* Actively engage with industry stakeholders and communicate the value of advanced analytics to potential industry partners.
* Produce high quality scientific and/or engineering papers suitable for publication in quality journals, for client reports and granting of patents.
* Prepare appropriate conference papers and present those at conferences as agreed with your supervisor.
* Contribute to the development of innovative concepts and ideas for further research.
* Contribute to the effective functioning of the research team and help deliver CSIRO’s organisational objectives and plans.
* Work collaboratively with colleagues within your team, the business unit and across CSIRO.
* Communicate effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
* Adhere to the spirit and practice of CSIRO’s Values, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals.
* Undertake appropriate training and development programs developed by CSIRO.
* 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 bachelor’s degree in a relevant discipline, such as data science, computer science, GIS or remote sensing.
2. A current, valid Australian drivers’ licence or the ability and willingness to obtain one.
3. Experience with the Python programming language and demonstrated ability to cope with large, big data problems and heterogenous data.
4. Experience and/or demonstrated knowledge with GIS, remote sensing and/or proximal sensing data.
5. Experience with data analytics, that could include machine learning and artificial intelligence.
6. The ability to work effectively as part of a multi-disciplinary, regionally dispersed research team, plus the motivation and discipline to carry out autonomous research.
7. High level written and oral communication skills with the ability to represent the research team effectively internally and externally, including at national and international conferences.
8. A history of professional and respectful behaviours and attitudes in a collaborative environment. A willingness to communicate across diverse disciplines, and engage with systems scientists, data scientists, and industry personnel with varying technical expertise and specialities.

## **Desirable:**

1. Direct experience with various aspects of digital agriculture, including application of sensor networks, proximal or remote crop or soil sensors and management of derived data and crop models.
2. Direct experience in development of productive and profitable dryland cropping systems.
3. Post graduate qualifications in a relevant discipline.
4. A record of innovation and creativity, plus the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

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/>

## **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 [Agriculture and Food](https://www.csiro.au/en/Research/AF)