# Research Scientist/Engineer – CSOF5

Role summary for potential applicants

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| Advertised Job Title**:** | Research Scientist – Crop Genome Analysis |
| Reference Number**:** | 38526 |
| Classification**:** | CSOF5 |
| Salary Range: | AU $92K to AU $100K plus up to 15.4% superannuation |
| Location**:** | Black Mountain, Canberra preferred, may consider St Lucia QLD, Waite Campus, Adelaide and Floreat, Perth |
| Tenure: | Indefinite/Ongoing |
| Relocation assistance**:** | Will be provided to the successful candidate if required. |
| Applications are open to: | * All Candidates |
| Functional Area**:** | Research Scientist / Engineer |
| % Client Focus - Internal: | 20% |
| % Client Focus - External: | 80% |
| Reports to the: | Team Leader |
| Number of Direct Reports: | 0 |

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| **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.  This role will conduct innovative research leading to scientific achievements that contribute to internationally competitive project outputs in cereal genomic science. The scientist in this role will conduct and lead the analysis of polyploid crop genomes and provide scientific expertise towards project planning and management of project resources. This work will contribute to projects seeking to understand the genetic determinants of important crop performance traits. The role will work closely within a multi-disciplinary project team and under direction of the project leader develop and manage completion of milestones for substantial and complex scientific outputs in genomic science, bioinformatics and statistical analysis. The role will provide genome analysis capability to several externally funded projects utilising the large CSIRO MAGIC wheat platform. The role will lead the development of new analytical approaches in genetic map construction and bioinformatics methods to analyse newly formed MAGIC HIF (heterogeneous inbred families). The role will work closely with CSIRO scientific capability in wheat functional genomics, cereal bioinformatics and external in partners in crop genetics research to develop new research directions and capability strengths that continue to grow CSIRO's position in wheat research.  Enquiries from applicants seeking part time work are encouraged and will be considered case-by-case. |

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| **Duties and Key Result Areas:** |
| * Incorporate novel approaches to scientific investigations by adapting and/or developing original concepts and ideas for new, existing and further research. * Provide analytical expertise, develop and deploy novel computational methods to complete genetic and genomic research projects in cereal genomics including the completion of genetic mapping analyses and candidate gene identification * Develop new research directions and projects in the area of complex crop genome architecture including whole genome research approaches to develop new genetic and molecular understanding of complex performance traits of agricultural importance. * Collaborate with project leadership to provide technical and resource management capacity and expert advice in crop genomics and genetics for timely completion of project milestones. * Contribute scientific leadership in the area of wheat genetics and biostatistics to address complex methodological challenges and set project research directions in the area of cereal genomics. * Develop and maintain genetic maps and genetic mapping resources for structured genetic populations in wheat as required. * Play a lead role in mutually beneficial collaborations with national and international collaborations in crop biostatistics and support and develop external client relationships. * Communicate effectively and respectfully in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation. * Lead small research projects and assist with elements of larger projects including the negotiation of resource requirements. * Lead, coach and supervise staff to ensure experiments are established in accordance with research design, within agreed timelines and budget. * Produce high quality scientific and/or engineering papers suitable for publication in quality journals and for presentation at national and international conferences. * Work effectively as part of a multi-disciplinary, often regionally dispersed research team, to undertake independent scientific investigations and carry out associated tasks under the guidance of more senior Research Scientists/Engineers. * Under the guidance of Senior Research Scientists/ Engineers, work collaboratively and honestly with internal and external colleagues, clients and partners to help define and satisfy objectives for small to medium research projects, including respect of commercial in confidence and intellectual property obligations with external partners * Assist in leading small research projects, including the negotiation of resource requirements. * Provide coaching and on-the-job training to technical staff and students to ensure experiments are established in accordance with research design. * Adhere to the spirit and practice of CSIRO’s Values, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals. * Other duties as directed. |

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| **Selection Criteria:** |
| *Under CSIRO policy only those who meet all essential criteria can be appointed*  ***Pre-Requisites:***   1. **Education/Qualifications:** A doctorate or equivalent research experience in a relevant discipline area, such as genetics, bioinformatics, information science or agricultural science. 2. **Communication:** Strong written and oral communication skills including the ability to publish research results, prepare reports and present the results of scientific investigations at national and international conferences and stakeholder meetings. 3. **Publications: A solid record of publication in quality, peer reviewed journals.** 4. **Behaviours: A history of professional and respectful behaviours and attitudes in a collaborative environment.**   ***Essential Criteria:***   1. Experience in the statistical analysis of genetic traits in complex genomes including the construction and use of genetic maps, interval mapping, analysis of copy number variation and approaches for effective experimental design. 2. Experience with the design and analysis of transcriptome assembly, differential expression analysis and candidate gene identification strategies in non-model genomes. 3. Experience in at least one of R, Python or Perl as well as experience in utilising enterprise scale high-performance computing environments. 4. Experience in the effective communication scientific findings in written and verbal form, including the authorship of scientific reports for internal and external collaborators. 5. **The ability to work effectively as part of a multi-disciplinary, regionally dispersed research team, and carry out independent individual research, to achieve organisational goals.** 6. A record of science innovation and creativity plus the ability & willingness to incorporate novel ideas and approaches into scientific investigations.   **Desirable Criteria:**   1. Experience in the analysis of polyploid genomes including genome assembly or haplotype inference approaches. 2. Experience with, or knowledge of, reproducibility and version control approaches for computational biology. 3. Experience in graph analysis methods or similar that could be used to interrogate complex network or pathway interactions.   **CSIRO values:**  As Australia’s Innovation Catalyst, CSIRO has strategic actions underpinned by behaviours aligned to Excellent science, Inclusion, trust & respect, Health, safety & environment and Deliver on commitments. In your application and at interview you will need to demonstrate alignment with these behaviours.  ***Other special requirements:***  Appointment to this role 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; which may include medical examinations and an international standardised test of English language proficiency (i.e. IELTS test). [*http://www.ielts.org/default.aspx*](http://www.ielts.org/default.aspx) |

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| **Other Information:** |
| **How to Apply**  Please apply for this position online at [www.csiro.au/careers](http://www.csiro.au/careers). Please provide enough information relevant to the selection criteria for this position to enable the assessment panel to determine your suitability, and upload one document containing your CV/resume and cover letter.  If you experience difficulties applying online call 1300 984 220 and someone will be able to assist you. Outside business hours please email: [careers.online@csiro.au](mailto:careers.online@csiro.au).  **Referees**: If you do not already have the names and contact details of two previous supervisors or academic/ professional referees included in your resume/CV please add these before uploading your CV.  **Contact:** If after reading the selection documentation you require further information please contact:  Dr Jen Taylor via email: [Jen.Taylor@csiro.au](mailto:Jen.Taylor@csiro.au) or phone: +61 2 6246 4929.  Please do not email your application directly to Dr Taylor. Applications received via this method will not be considered.  **About CSIRO**  Australia is founding its future on science and innovation. Its national science agency, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) is a powerhouse of ideas, technologies and skills for building prosperity, growth, health and sustainability. It serves governments, industries, business and communities across the nation.  Find out more! [www.csiro.au](http://www.csiro.au).  **CSIRO Agriculture and Food** is helping Australian farmers and industry improve productivity and sustainability across the agriculture sector. The Agriculture and Food business unit will conduct research to impact on the whole value chain from paddock to plate by focussing on the following challenges:   * crop improvement * livestock and aquaculture genetic improvement * farming systems for productivity and sustainability * interactions between agriculture and the environment; climate change, adaptation and mitigation; science for health soils * global food security and development. |