

CSIRO Science Leader

Digital integration for BioPrediction

Information for applicants

At CSIRO, we solve the greatest challenges through innovative science and technology.



Introduction

**CSIRO’s Chief Executive**

***Larry Marshall***

I’ve spent a lifetime believing in the power of science to transform economies, countries and lives for the better, and there’s no better place in Australia to see that in action than at CSIRO.

Our Science Leader program is a significant investment and commitment to solving today’s challenges by imagining tomorrow’s solutions.

As Australia’s national science agency, we’re also securing Australia’s future by developing the next generation of STEM leaders, who will reinvent and create new industries for Australia and the world.

To solve the greatest challenges today and into the future, we recruit not only the best and brightest, but also those who are passionate, creative and driven to make a difference with their science and mentor the next generation.

We build teams of talented individuals whose diversity of experience, expertise and perspectives are the compass to guide us through the ambiguity of innovation.

At CSIRO, your knowledge, expertise, relationships and novel capabilities can develop the breakthrough science and cutting-edge technology platforms that will deliver unique value to Australia.

We look forward to welcoming you to the team.

**CSIRO’s Chief Scientist**

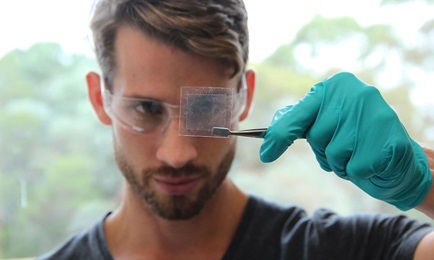
***Cathy Foley***

Australia’s future prosperity will be fuelled by science. Science that solves the greatest challenges while creating new industries, new jobs and shapes the minds and aspirations of our future leaders.

As Chief Scientist at CSIRO, I’m passionate about the brilliant science done by our world-class researchers, enabled by collaboration across disciplines and with industry, government and academia.

As a CSIRO Science Leader, you’ll share my passion for developing new relationships and mentoring our future science leaders.

I’m excited to work with you on bringing new capability and expertise into CSIRO to further grow our culture of science excellence.

Collaborate with talented people to solve the world’s biggest challenges

**Our purpose:** At CSIRO we provide innovative science and technology solutions to national challenges and opportunities that benefit industry, the environment and the community.

You can make a real difference, in an environment where we spark off each other, learn from each other, trust each other and collaborate to achieve more than we could individually - in a supportive, rewarding, inclusive and truly flexible environment.

Be proud of what you do - be part of a better tomorrow.

Grow your skills. Apply your talent. Broaden your horizons.

Join the CSIRO team

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) is one of the world’s largest and most successful publicly funded research and development organisations and is committed to complementing its world-class science and engineering capabilities with outcome-focused research that will generate economic, environmental and social benefits for Australia in a global context. We maximise the impact we deliver for the country by focusing on solving the greatest challenges.

As Australia’s national science and engineering agency our innovation and excellence places us in the top ten applied research agencies in the world. We’re the people behind Wi-Fi, soft contact lenses and the Hendra virus vaccine – and we’re Australia’s leading patent holder.

**Vision:** Australia’s innovation catalyst, collaborating to boost Australia’s innovation performance.

**Mission:** Create benefit for Australia through impactful science, engineering and innovation

Our facilities and physical infrastructure

Doing excellent science and engineering, and delivering services to the benefit of Australia requires appropriate physical and cyber-physical infrastructure.  We have over 50 locations Australia-wide in metropolitan and regional areas as well as internationally. We continue to explore advancements in technological solutions to improve operations.

Our leaders and their careers

‘The things that we do (at CSIRO) are captivating and continue to amaze every day; the people are so passionate and are here for the right reasons and the Australian public want us to be here to do the things we do.’

‘We have everything you need to bring ideas to life.’

‘It is a place where you can dare to dream.’

Benefits our staff value

* Continuous career development
* CSIRO specific experienced leadership skills development
* [Balance](https://www.csiro.au/en/Careers/The-CSIRO-Experience/Balance) in their lives via flexible work practices
* [Diversity](https://www.csiro.au/en/About/Policies-guidelines/Working-at-CSIRO/Diversity-strategy) and inclusion of ideas, individuals and cultures
* Generous leave conditions

Where are our staff?

We have more than 5,000 staff spread over 50 sites across Australia’s cities and regions and internationally.

What do we do?

We do research from the bottom of the ocean to deep space, from a micro to a mega scale from agriculture to digital. And we are custodians of some of Australia’s most valuable facilities and collections.

The breadth of our research allows us to tackle issues from a multi-discipline perspective.

CSIRO Science Leader Program

At CSIRO, we solve the greatest challenges through innovative science and technology by harnessing the incredible intellectual power and expertise of our people, collaborators and partners.

The CSIRO Science Leader program attracts the best researchers from across the globe to deliver outstanding translational science and engineering impact. The purpose of the CSIRO Science Leader Program is to capture new capability and technology into areas which have been identified as strategic, and to assist our business units to manage and develop their capability for the future.

Over their five year appointment, CSIRO Science Leaders play an active role within and across business units and contribute to business goals through both scientific excellence and the translation of research outcomes into impact. They foster a culture of excellence in their teams and peers and have sufficient experience to supervise and mentor early-career researchers.

In addition to the Science Leader’s salary, the Science Leader has generous operating funds, and support for two three-year Postdoctoral Fellowships and two three-year Postgraduate Students top-up scholarships.

Approved CSIRO science leader priority areas will be externally advertised as competitive positions on [CSIRO’s Vacancies site](https://jobs.csiro.au) in consultation with the CSIRO Science Council and business unit.

Eligibility and essential selection criteria

The program is directed towards mid-career researchers who have between 10 to 15 years of post-doctoral experience.

CSIRO Science Leaders need to:

* have established expertise and knowledge aligned to the strategic priority areas;
* bring novel capability into CSIRO; and
* develop cutting edge technology platforms not already in CSIRO.

*CSIRO policy states that to be appointed to a position in CSIRO you must meet all the essential selection criteria.*

Essential Criteria:

A successful science leader will:

* be recognised by their peers as making a significant contribution in their field of science or engineering;
* have a track record of translating scientific outcomes into impact;
* demonstrate the ability to collaborate at the intersection of disciplines;
* bring an extensive network which they will actively share across the whole organisation, engaging and satisfying multiple stakeholders; and
* have the ability to mentor a team of talented postdoctoral fellows and postgraduate students and attract distinguished visiting researchers.

Priority area and duties

The science leader will develop research platforms that use data integration to explore aspects of biology that are important to agriculture and that have potential to deliver transformative impact at a national or global scale. A key aspiration will be to build data-intensive research platforms that transverse different biological, geographical or temporal scales; individuals or populations, spanning fields, landscapes or continents, through different seasons or years.

There are significant scientific challenges to achieving effective data-integration across the complexity of agricultural research domains. These include exploring new ways to design data driven experiments under field conditions and developing approaches to interpret outcomes of machine-learning/AI analyses in relation to agricultural systems. Optimising and layering data inputs, including selecting the most effective data-types/timescales for climate information, developing intelligent complexity reduction approaches or deploying automated tools to assess trait features for crop plants or livestock, will also be required. Advances in information science, computer science, robotics, image analysis and feature extraction, artificial intelligence

A new area of digital integration technologies, which includes learning algorithms such as AI, is developing to overcome this roadblock. These digital integration methods work at the interface of data collection and integration to provide domain-relevant and informative digital collections that generate new insights. Advances in approaches are being driven by scientific advances in information and computer science, statistics, robotics and image analysis. This area of science could draw on rapidly evolving methods such as natural language processing, advanced image analysis or complex feature extraction approaches.

The Science Leader will play a lead role in linking domain science in Agriculture & Food with cutting-edge AI and ML in other areas of CSIRO such as Data61. The Science Leader will contribute intellectual leadership that appreciates the power of bringing domain science together with data analytics. They will also need to be comfortable working across industries or sectors, such as the crop sciences, livestock, and aquaculture. Liaising with researchers with diverse expertise, within Agriculture and Food or in other parts of CSIRO (including Data61, Land and Water, Oceans and Atmosphere), to build multi-disciplinary pan-business unit research projects will be core to the role.

This leadership role will join CSIRO at an exciting time for data driven science. They will leverage pan-CSIRO platform efforts to grow early to mid-career opportunities in AI and ML and be in a position to make strong intellectual contributions to the strategic directions and industry impacts of this area of science. CSIRO is well positioned to support the development of new data driven industry models and this role will be integral to core digital capacity. CSIRO is seen by industry as a natural partner because of its unique combination of digital and domain. There is emerging interest in large multi-national bioscience companies in the application of bio-prediction in their businesses. Research led by the science leader will be essential to ensure that technical advances at AI/ML frontiers are targeted and made available to those applications and science challenges to maximise the potential for impact.

Priority area:

The ability to generate, manage and learn from data combined with developments in associated technology and online platforms is producing fundamental changes in all sectors of industry, government and society. This Science Leader will put CSIRO at the forefront of the tremendous research opportunities generated by artificial intelligence (AI) and machine learning (ML) from digital data. It will expand, accelerate and mainstream the application and development of AI/ML approaches. In general, the Science Leader will progress the application of cutting edge AI/ML techniques to develop platforms for improved prediction, forecasting and system understanding for data that is complex, high dimensional and structured.

This priority area will develop cutting edge approaches for streamlining data integration from multiple sources including phenomics, climate and genomics across multiple production systems (crop, livestock and aquaculture), building on existing domain expertise within CSIRO Agriculture and Food. The area of science captured by this priority area is rapidly emerging globally in response to the opportunities presented by AI/ML as they utilise rich data streams, but require them to be well integrated and in some cases, qualified for relevance to the analytical domain, in this case bioprediction.

For example, data streams from crop genomics, phenomics (including sensors and drones), climate and on-farm management currently ingest large volumes of data with great potential to provide new insights in AI applications. Critically, before they can be useful, these streams need to be integrated, and due to increasing volume and velocity this cannot be achieved manually and require new digital integration technologies.

In the longer term, impacts from the Science Leader’s program of work will include a revolutionary shift in how agricultural data is collected and used by researchers and industry, together with contributions to global food security and the optimisation of resource use efficiency in agricultural production systems.

Duties

Research Scientists at CSIRO conduct innovative research aligned with CSIRO’s strategies. You may be engaged in scientific activities 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.

* Lead the development and delivery of cutting edge scientific research, demonstrating a considerable degree of originality, creativity and innovation in solving problems and introducing new directions and approaches.
* Build and maintain active national and international research partnerships that advance scientific goals and contribute to a reputation of intellectual leadership within the field.
* Actively seek opportunities across scientific domains for novel, trans-disciplinary science and in particular, maximise opportunities for collaboration across Agriculture and Food and across CSIRO.
* Foster the development of early to mid-career scientists including the building and supporting of diverse teams.
* Develop an understanding of opportunities for CSIRO to deliver impact with commercial and non-commercial delivery partners.
* Communicate research results to clients and the scientific community through oral and written reports, which may include the preparation of documents for patent applications.
* Lead and supervise staff to ensure that scientific directions are established in accordance with the research design and work is completed within the agreed timeframes and budget.
* 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.

Conditions of employment

**Leave:** Four weeks of annual recreation leave and 15 days of sick/carer’s leave apply.

**Flexibility:** CSIRO’s [Balance](https://www.csiro.au/en/Careers/The-CSIRO-Experience/Balance) initiative offers all employees the opportunity to balance their work and personal lives.

**Diversity:** We are working hard to recruit diverse people and ensure that all our people feel supported to do their best work and feel empowered to let their ideas flourish. [Diversity and Inclusion Strategy](https://www.csiro.au/en/About/Policies-guidelines/Working-at-CSIRO/Diversity-strategy)

**Salary:** An attractive salary package will be oﬀered.

**Reference Number:** 61414

**Tenure**: Indefinite with an initial five years specific science leader funding

**Location(s):** Black Mountain (Canberra) ACT is preferred, however other sites are possible on negotiation

Relocation and immigration assistance will be provided to the successful candidate where required

How to apply

Please apply online at <https://jobs.csiro.au> entering the reference number and uploading in Microsoft Word your CV/resume, and a cover letter outlining your relevant experience and your motivation for applying. Please ensure you address both the eligibility and selection criteria for the CSIRO Science Leader Program as well as any selection criteria listed for the specific priority area. In your CV please include the contact details of three referees. Referees will only be contacted after prior consultation with you at which time please ensure that your referees are willing to provide reports when contacted

Contacts

If you are considering applying for this position please contact **Dr Jen Taylor**, [Jen.Taylor@csiro.au](mailto:Jen.Taylor@csiro.au), +61 2 6242 1660; or **Dr Steve Swain**, [Steve.Swain@csiro.au](mailto:Steve.Swain@csiro.au), +61 2 6246 4813 to discuss the priority area, role and expectations.

Please do not send your application directly to Dr Taylor or Dr Swain because your application may not be considered by the selection panel.

Should you have difficulty applying please contact [careersonline@csiro.au](mailto:careersonline@csiro.au) or call 1300 984 220 during Australian business hours.

*NB: As part of the selection process candidates may be asked to do abilities testing and/or a personality questionnaire and/or to give a presentation to staff.*

*On acceptance of an offer of a position with CSIRO the appointee will be need to provide proof of their identity, give permission for verification of their tertiary qualifications and apply for a security check or Australian Federal Police check.*

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| CONTACT US  t 1300 984 220    e careersonline@csiro.au  w www.csiro.au  WE DO THE EXTRAORDINARY EVERY DAY  We innovate for tomorrow and help improve today – for our customers, all Australians and the world.  Our innovations contribute billions of dollars to the Australian economy  every year. As the largest patent holder  in the nation, our vast wealth of intellectual property has led to more  than 150 spin-off companies.  With more than 5,000 experts and a burning desire to get things done, we are Australia’s catalyst for innovation.  WE IMAGINE. WE COLLABORATE.  WE INNOVATE. |  |  |