# Position Details

## Research Scientist/Engineer- CSOF5/6

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| The following information is for applicants |
| Advertised Job Title | Research Scientist – Computer Vision  |
| Job Reference | 99566 |
| Tenure and Work Schedule | Specified Term of 3 years Full-time |
| Salary Range | Applications would be assessed across two capability levels, and the successful candidate will be appointed at the level commensurate with their skills and experience, as assessed by the Selection Panel.**CSOF5:** AU$114,219 – AU$123,605 per annum (pro-rata for part-time) plus 15.4% superannuation**CSOF6:** AU$ $131,113 – AU$153,639 per annum (pro-rata for part-time) plus 15.4% superannuation |
| Location(s) | Brisbane, QLD (Turrbal, Jagera and Yugara Country) |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | * Australian/New Zealand Citizens and Australian Permanent Residents
* Australian Temporary Residents with a valid working visa for the duration of the specified term
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| Position reports to the | Team Leader – Mining Geoscience |
| Client Focus – Internal | 40% |
| Client Focus – External | 60% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Jane Hodgkinson by email at jane.hodgkinson@csiro.au |
| Support and Workplace AdjustmentsHow to apply | We offer a range of reasonable support and workplace adjustments. Please let us know via email to the *Talent Acquisition Partner, Vicki Ferrar at Vicki.Ferrar@csiro.au* if we can help you to equitably participate in our recruitment process or the role itself.Apply online at <https://jobs.csiro.au/> Internal applicants please apply via **Jobs Central**We encourage you to reach out if you require any support or experience difficulties when applying - please email careers.online@csiro.au |

**Acknowledgement of Country**

CSIRO acknowledges the Traditional Owners of the land, sea and waters, of the areas that we live and work on across Australia. We acknowledge their continuing connection to their culture and pay our respects to their Elders past and present. View our [vision towards reconciliation](https://www.csiro.au/en/about/Indigenous-engagement/Reconciliation-Action-Plan).

**About CSIRO**

As Australia's national science agency, CSIRO is solving the greatest challenges through innovative science and technology. Many of our iconic innovations were once considered impossible until someone, just like you, joined us and took on the challenge.

As one of the world’s largest multidisciplinary mission-driven research organisations, we are focused on the issues that matter the most: for our quality of life, for the economy and for our environment. We believe diverse teams are more effective and deliver more innovative outcomes. When we all focus on the big things that really matter, and work in partnership with our communities and [Indigenous Australia](https://www.csiro.au/research/indigenous-science), Australian science and technology can solve seemingly impossible problems and create new value for all Australians. Visit [CSIRO.au](file:///C%3A/Users/lui008/OneDrive%20-%20CSIRO/Desktop/LIFE/LEADERSHIP/Inclusive%20Recruitment/PD%20and%20Job%20Ads/CSIRO.au) for more information.

### Role Overview

The role of Research Scientist/Engineer staff is to conduct innovative research leading to scientific achievements that are aligned with CSIRO’s strategies. The Research Scientist/Engineer may be engaged in scientific activity ranging from fundamental research to the investigation of specific industry or community problems. The Research Scientist/Engineer 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 CSIRO Mining Geoscience Team develops technologies for mining, manufacturing, space and other industries to improve safety and productivity. We have a proven track record and are a leading provider of software and hardware to mining professionals such as geologists, geotechnical and blast engineers as well as surveyors. We pioneered the use of photogrammetric systems for rock mass characterisation and slope stability assessment, geophysical logging and microseismic monitoring for the Australian mining industry. We have also developed sensing technologies that are now being utilised or trialled in medical, aeronautical and space industries. Our success has led to long-term and ongoing commercial partnerships with leading technology providers. The work is underpinned by many years of experience with both 2D and 3D imaging systems, geophysical sensing and imaging technologies. We have successfully patented and commercialised innovative sensor and analytics systems.

The Mining Geoscience team is part of the Sustainable Mining Technologies Program in CSIRO Mineral Resources Research Unit, based in Pullenvale, Brisbane. The Program consists of over 80 researchers and engineers specialising in automation, minerals processing, numerical modelling, sensing, geophysics and other domains for applications to the mining industry and beyond.

We are seeking a passionate and skilled Research Scientist to design and develop cutting edge algorithms and fused sensor systems for mining and aerospace industries.

Applications would be assessed across two capability levels, and the successful candidate will be appointed at the level commensurate with their skills and experience, as assessed by the Selection Panel.

### Duties and Key Result Areas

* R&D Contributions: Contribute to cutting-edge R&D in algorithm design, sensor fusion system designs, utilising technologies such as computer vision, lidar, time-of-flight, radar, accelerometers, and other sensing modalities, focussing on multi-sensor monitoring systems.
* Disseminate findings through publications and patents.
* Algorithm and Software Development: Design, implement, document novel algorithms and thoroughly test software components.
* Project Compliance: Ensure adherence to the team’s systems development life cycle, project plans and industry standards.
* Code Delivery: Oversee and manage the delivery of high-quality production-level code with robust unit tests and demonstrate the deployment of technologies into field applications.
* Leadership: Within the line-management structure of our team, provide oversight and guidance to less experienced team members, offering on-the-job training, as necessary.
* Collaboration: Collaborate effectively within a multi-disciplinary, potentially geographically dispersed research unit to achieve CSIRO’s scientific objectives.
* Compliance and Safety: Uphold the principles of CSIRO’s Code of Conduct, Health, Safety and Environment plans and policies, support Diversity initiatives and contribute to Zero Harm goals.
* Communication: Communicate openly, effectively and respectfully with all staff, clients and suppliers in the interests of good practice, and collaboration and enhancement of CSIRO’s reputation through oral and written reports and prepare documentation for patent applications.
* Identify and adapt quickly to changes in client needs and market directions.
* Lead and supervise staff where necessary, to ensure experiments are established in accordance with the research design and are completed within agreed timeframes and budget.
* Other duties as directed.

**Selection Criteria**

#### Essential

*Under CSIRO policy only those who meet all essential criteria can be appointed.*

1. A PhD (or an equivalent combination of qualifications and research experience) in a relevant field such as physics, mathematics, computer science, with experience in computer vision.
2. A demonstrated publication history of authorship on scientific papers in peer reviewed journals and/or reports, grant applications or inventorship on patent applications.
3. Demonstrated people leadership with ability to attract, retain, empower, and develop professional talent, and to foster inclusivity and high-performance in multidisciplinary groups
4. Following the degree or qualification, at least several years’ experience in:
	1. Proven track record of successfully obtaining research and development funding from government grants, private industry, or other external sources to create and lead projects and grow innovation.
	2. Demonstrated ability to generate novel ideas and develop cutting-edge sensing system technologies that have successfully been implemented in products or solutions.
	3. Prototyping, designing, testing, and documenting algorithms in computer vision applications.

## **Desirable skills**

***We love examples. If you have anything that we can look at, such as industry awards, open source (e.g. on Github or BitBucket), patents or publications we would appreciate it if you mentioned this in your application.***

1. Expertise in development and deployment of computer vision, LiDAR, time-of-flight, radar, accelerometers, photogrammetry systems (software and hardware) in industrial settings, including multi-sensor systems.
2. Designing, testing, and documenting robust, decoupled and testable software in a related field, including version control, issue tracking, test automation, and containerisation.
3. Experience with open-source libraries such as OpenCV and Point Cloud Library (PCL), and languages such as MATLAB, Python, C++.
4. Experience with field-testing of IT systems, including user studies, field experiments, analysis of field trial data, and debugging.
5. Experience with managing multidisciplinary project teams.
6. Extensive experience driving the commercialisation process from concept to market, including product development, market analysis, and strategic partnerships.

**Not sure if you meet all the criteria?**

While it is CSIRO policy that the successful candidate must meet all the essential criteria, there are many ways to demonstrate this. Don’t let the list discourage you. If you are unsure about applying, please reach out to the contact on page 1 of this document so we can discuss the role further.

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## **Required Competencies – CSOF5**

* **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 responses 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 change.

## **Required Competencies – CSOF6**

* **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:** Identifies critical stakeholders and influences them via an influential third party, for example through an established network, to gain support for sometimes contentious proposals/ideas.
* **Resource Management/Leadership:** Sets up and maintains effective and efficient work teams and manages performance and resources, to achieve objectives. Chooses appropriate management strategies and communication styles to maintain high levels of motivation and productivity. Gives feedback for development purposes and provides support and direction for improvement.
* **Judgement and Problem Solving:** Anticipates and manages problems in ambiguous situations. Develops and selects an appropriate course of action and provides for contingencies. Evaluates, interprets and integrates complex bodies of information and draws logical conclusions, synthesises proposals and defends options with reasoned arguments.
* **Independence:** Assesses the risk and opportunity of identified strategies, options and actions. Overcomes problems and setbacks in achieving goals. Invariably includes consideration of value-added future impact on bottom line when determining the optimal and efficient use of resources.

## **Adaptability:**Demonstrates flexibility in thinking and adapts to, and manages, the increasing rate of organisational change by adjusting strategies, goal and priorities.

**Setting You Up For Success**

We understand that not everyone works in the same way and sometimes people may require reasonable support and adjustments to perform at their best. Whether related to the recruitment process and or the role itself, this may include options such as providing different methods of communication, flexible hours or physical adjustments to work methods. If you feel comfortable, we encourage you to share any support and adjustments you may need to carry out the inherent requirements of the role. Please let us know via email (vicki.ferrar@csiro.au) if we can help you to equitably participate in our recruitment process or the role itself.

**Life at CSIRO and Flexible Working Arrangements**

We [work flexibly at CSIRO](https://www.csiro.au/en/careers/life-at-csiro/Flexible-work), offering a range of options for how, when and where you work.  We can discuss flexible work arrangements with you during the recruitment process. CSIRO also offers a range of leave entitlements, [benefits](https://www.csiro.au/en/careers/life-at-csiro/Benefits) and [career development](https://www.csiro.au/en/careers/life-at-csiro/Career-development) opportunities. To learn more, visit [Careers at CSIRO](https://www.csiro.au/en/careers).

We celebrate the uniqueness of our workforce and are committed to creating [diverse and inclusive teams](https://www.csiro.au/en/careers/life-at-csiro/Diversity-inclusion-belonging) where everyone feels they belong. CSIRO is an equal employment opportunity organisation dedicated to recruiting people based on merit, and reflecting the diversity of the community we serve. We recognise true diversity encompasses all ages, nationalities, abilities, cultures, genders, sexualities, faiths, levels of education, diversity of thought and many more aspects of identity. By empowering diverse teams, our community is reflected in the solutions we create.

**CSIRO Values**

CSIRO is a values-based organisation committed to values-based leadership.

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| **Value** | **Descriptor** | **Behaviour** |
| **People First** | Our priority is the safety and wellbeing of our people. We believe in, and respect, the power of diverse perspectives. We seek out and learn from our differences.  | * Respectful
* Caring
* Inclusive
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| **Further Together** | We achieve more together than we ever could alone. We listen and collaborate, in teams, across disciplines, across boundaries. We embrace ambiguity and use discussion and persistence to generate unique solutions to complex problems. | * Accountable
* Authentic
* Courageous
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| **Making it Real** | We do science with real impact. We thrive when taking on the big challenges facing the world. We take educated risks and defy convention. We celebrate successes and failures and leverage them to learn as we strive to be the force for positive change. | * Partnering
* Cooperative
* Humble
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| **Trusted** | We’re driven by purpose but remain objective. We fight misinformation with facts. We earn trust everywhere through everything we do. We trust each other and we hold each other accountable. Together our actions drive Australia’s trust in CSIRO. | * Curious
* Adaptive
* Entrepreneurial
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**Child Safety**

CSIRO is committed to the safety and wellbeing of all children and young people involved in our activities and programs. View our [Child Safe Policy](https://www.csiro.au/en/about/policies/child-safe-policy).

Special Requirements

Appointment to this role is subject to provision of a pre-employment background check and may be subject to other security/medical/character clearance requirements.

* The successful candidate will undertake a pre-employment background check. Please note that individuals 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/