# Position Details

## Research Scientist/Engineer- CSOF6

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| The following information is for applicants | |
| Advertised Job Title | Research Scientist – Computer Vision |
| Job Reference | 92438 |
| Tenure | Specified Term of 3 years  Full-time |
| Salary Range | AU$126,313 - AU$148,014 per annum (pro-rata for part-time)  plus 15.4% superannuation |
| Location(s) | Pullenvale, Brisbane, Queensland |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | * Australian/New Zealand Citizens and Australian Permanent Residents |
| Position reports to the | Team Leader |
| Client Focus – Internal | 0% |
| Client Focus – External | 0% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Jane Hodgkinson by email at jane.hodgkinson@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](mailto:careers.online@csiro.au) or call 1300 984 220. |

**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).

**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).

### 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 and surveyors. We pioneered the use of photogrammetric systems for rock mass characterisation and slope stability assessment, geophysical logging and micro-seismic 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 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.

### Duties and Key Output 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 or equivalent field, 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 ability to generate novel ideas and develop cutting-edge sensing system technologies that have successfully been implemented in products or solutions.
4. Proven track record of successfully obtaining research and development funding from government grants, private industry, or other external sources to create project opportunities and grow innovation.
5. Following the degree or qualification, at least several years’ experience in designing, testing, and documenting robust software algorithms in a related field. The ideal candidate will have a strong background in developing well-structured, high-quality code that is thoroughly tested and meticulously documented to ensure reliability and maintainability.
6. Proven ability to work autonomously, collaboratively, and under minimal guidance to meet deadlines and to manage multiple priorities simultaneously.
7. Excellent communication skills with the ability to communicate fluently and courteously, both orally and in writing.
8. A history of professional and respectful behaviour and attitudes in collaborative environments.

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

## **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:** 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.

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.
* The successful candidate may be required to obtain and maintain a baseline security clearance.

## **About CSIRO**

We solve the greatest challenges through innovative science and technology. Visit [CSIRO Online](http://www.csiro.au/) and [CSIRO Mineral Resources](https://www.csiro.au/en/about/people/business-units/mineral-resources) for more information.

CSIRO is a values-based organisation.  In your application and at interview you will need to demonstrate behaviours aligned to our values of:

* People First
* Further Together
* Making it Real
* Trusted