Position Details

## Software Engineer – CSIRO4/5

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| The following information is for applicants | |
| Advertised Job Title | Software Engineer |
| Job Reference | 85435 |
| Tenure | indefinite |
| Salary Range | AU$87,068 - AU$111,165 pa (pro-rata for part-time) + up to 15.4% superannuation |
| Location(s) | Canberra |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All applicants meeting the below criteria are encouraged to apply. However, there is a preference for Australian and New Zealand Citizens, and Permanent Residents. |
| Position reports to the | Team Lead Quantitative Imaging |
| Client Focus | 60% |
| Internal Focus | 40% |
| People Leadership | 0% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Dadong Wang via email at Dadong.Wang@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. |

### Role Overview

CSIRO’s Data61 is the digital technologies and data science arm of Australia’s national science agency. With around 400 staff and another 300 affiliate staff, Data61 represents one of the largest collections of R&D expertise in artificial intelligence, data science, cybersecurity, robotics, and software engineering in the world. With a focus on impact-driven science and technology, Data61 works across disciplines and industry sectors to solve some of the world’s greatest challenges through digital R&D.

The Quantitative Imaging team within Data61 has an exciting opportunity for a Software Engineer with strong skills in software engineering and a record of delivering commercial software and outcomes. In this position, the successful candidate will contribute to projects in diverse range of application areas, making use of advanced Augmented Reality (AR) facilities in Data61’s Canberra Labs, and collaborating widely within CSIRO, across universities, with industrial partners. develop novel interactive computer vision and computer graphics applications. Recent team projects have included systems that combine Computer Vision, AR, VR, and/or Web3D technologies for the remote guidance of maintenance workers, interactive annotation of 3D scans, novel urban visualisation for in-situ stakeholder engagement, detection of vehicle damage using mobile devices, augmented farming, and safety risk training.

The role of Software Engineer in CSIRO is to collaborate in scientific and innovation activities with other research staff and students usually by assisting with detailed planning, undertaking or assisting with experience design, software development and system evaluation. This position also includes the opportunity and encouragement to publish research results in international conferences and journals.

### Duties and Key Result Areas:

CSOF4:

* Under general direction, contribute to research and/or technology through the development of original and adapted experimental methods, equipment or software.
* Undertake a wide variety of tasks or tasks with a high degree of specialisation.
* Show initiative to seek new approaches to meet experimental or technological needs when encountering new problems where methods are not defined.
* Participate in the identification and definition of research and/or technological problems with colleagues.
* Participate in planning projects and accept responsibility for scheduling and completion of major parts of the project, including evaluation of options, experimental design, data collection and analysis, user and customer research, user experience and/or software design, implementation and delivery,
* Make significant contributions to the interpretation and communication of research or technological results and may collaborate on drafting presentations to, and/or detailed written reports for, clients and the scientific and/or technology community.

CSOF5:

* Design, develop and adapt experimental methods and systems, software and/or user experience, requiring high levels of initiative, ingenuity and skills (some of which are outside a single discipline).
* Develop novel techniques to produce enhanced results, providing researchers with new or improved approaches to research or technological problems.
* Lead teams and/or collaborate with staff from other teams in meeting their objectives as required.
* May initiate and maintain collaborative relationships with external researchers and experts, manage contracts and transfer technology to industry.
* Participate in work which is highly involved because of the unique or unusual features and complications, requiring the creation of original user experiences, the design & development of original technologies, and/or the development of original experimental or observational techniques and insightful interpretation of data.
* Participate in project scoping and planning, making significant contributions to the research or technological direction, and may advise on the level and type of services that are provided.
* Have a significant role in communicating research or technological results in internal and external forums and, where applicable, contribute to and/or generate scientific papers.

For both CSOF4 and CSOF5:

* Liaise with clients to determine their needs and take personal responsibility for their satisfaction.
* Address problems promptly and in a constructive manner.
* 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, regionally dispersed research team to carry out tasks in support of CSIRO’s scientific objectives.
* Adhere to the spirit and practice of CSIRO’s Values, Code of Conduct, Health, Safety and Environment procedures and policy, Diversity initiatives and Zero Harm goals.
* Other duties as directed.

### Required Competencies:

* **Education/Qualifications:** Relevant Bachelors, Masters, PhD Degree and/or equivalent experience in Computer Science, Engineering, or a directly related field.Demonstrated experience of technology transfer or leading commercialisation of research to external clients.
* **Communication:** Exceptional communication skills, both written and oral, including the ability to anticipate the interests and knowledge level of an audience and present information and feedback accordingly. Demonstrated ability to write high quality software and hardware documentation for external clients.
* **Behaviours:** A history of professional and respectful behaviours and attitudes in a collaborative environment.
* **Adaptability:** The ability to effectively manage a number of competing priorities simultaneously, and carry out non-routine tasks independently.
* **Problem Solving:** Proven ability to anticipate problems in ambiguous situations, develop appropriate solutions based on thorough evaluation and interpretation, and defend the conclusions with reasoned arguments**.**

## **Selection Criteria**

#### *Essential*

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

1. *Demonstrated experience with real time 3D graphics and/or computer vision.*
2. Familiarity with Augmented Reality, Virtual Reality, and/or Web3D.
3. *Demonstrated experience building interactive software with one or more programming languages such as: Javascript, C++, C#, Python, Matlab.*
4. *The ability to work effectively as part of a multi-disciplinary, regionally dispersed research team, and carry out tasks autonomously.*
5. *Familiarity with modern Computer Graphics Engines such as Unity or Unreal and/or familiarity with Graphics Libraries such as OpenGL, Vulkan, or DirectX.*
6. *Demonstrated ability & willingness to contribute novel ideas and approaches in support of scientific investigations*.

#### *Desirable Criteria:*

1. *Experience with Web and/or distributed systems as well as an appreciation of open web standards such as HTML 5, WebGL, WebRTC, X3D, WebVR, etc.*
2. *Familiarity with modern front-end web frameworks such as Angular, React, Ember etc.*
3. *Familiarity with server-side web frameworks such as Node.js/Express, Ruby on Rails, Django etc.*
4. *Familiarity with Human Computer Interaction and/or Interaction Design concepts and methods*
5. *Familiarity with concepts of human visual perception and optics*
6. *Familiarity with 3D Modelling Packages*
7. *Familiarity with 3D Scanning and 3D Reconstruction technologies*
8. *Familiarity with Multimodal User interaction (Auditory, Haptics, etc.)*
9. *Experience implementing mobile applications*
10. *Experience implementing simulations on GPUs*
11. *Experience with statistical methods*
12. *Aptitude for 3D mathematical concepts, particularly linear algebra*
13. *Entrepreneurial and Innovative*
14. *Established and growing a relevant professional network*
15. *Hunger for professional development*
16. *Track record of Research Publications and/or knowledge of recent global research advancements.*

CSIRO believes that innovation thrives on the diversity of thought, ideas, and lived experiences being brought to the table by all to solve Australia’s greatest challenges. CSIRO is an Equal Opportunity employer working hard to recruit world-class talent that represents the diversity across our society, empowering staff to bring their whole selves to work and supporting everyone to enable their ideas to flourish. CSIRO recognises that a candidate's capability to perform a role can be demonstrated in a variety of ways and encourages candidates to address the role criteria with this in mind.

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.

## **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. We expect our employees to demonstrate behaviours aligned to our values of:

• People First

• Further Together

• Making it Real

• Trusted

**About Data61:**

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**About ICV Group:**

Find out more about [the Imaging and Computer Vision Research Group](https://research.csiro.au/icv/).