# Position Description

## Research Projects – CSOF6

The following information is for applicants 

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| Advertised Job Title**:** | Senior Software Engineer - C++ Application Development |
| Job Reference: | 61494 |
| Relocation Assistance**:** | Will be provided to the successful candidate if required. |
| Applications Are Open To: | Australian/New Zealand Citizens and Australian Permanent Residents Only |
| Number of Direct Reports: | 0 |
| How to apply: | Please apply online at [jobs.csiro.au](https://jobs.csiro.au/) and enter the requisition number**.** Internal applicants please apply via ‘Jobs Central’ through the ‘People Hub’ icon  |
| Contact details to discuss this position: | Damien Watkins via email: Damien.Watkins@csiro.au or phone Lachlan Hetherton on 03 9545 8041*Please do not email your application directly to Damien Watkins. Applications received via this method will not be considered.*  |
| If you have difficulty applying please contact: | Call 1300 984 220 or email csiro.online@csiro.au between 8.30 am and 5 pm Australian east coast time. |

## Role Overview:

Research Projects staff in CSIRO collaborates in scientific and technological activities with other research staff usually by assisting with detailed planning, undertaking or assisting with experimental, observational or technology development work, and in carrying out the more practical aspects of the work. Research Projects staff may be involved in providing consulting services, science management and/or industry liaison.

The Software Engineer - C++ Application Developer will join the Computational Software Engineering and Visualisation Team (CSEV) within Data61 at CSIRO. They will be part of a multi-disciplinary team of software engineers and scientists producing advanced scientific software for real-world applications. To support the development of such applications, the CSEV Team develops world leading scientific and application development frameworks for use both inside and outside CSIRO. One such framework is Workspace: a cross-platform framework designed to enhance productivity, enable collaboration and software reuse and to facilitate the distribution and commercialisation of software products. At senior levels such as this, Research Projects staff are involved in providing project leadership, science management, staff development and/or industry liaison.

**Duties and Key Result Areas:**

* Development of commercial-quality software using C++ and building upon our software framework for deployment both inside and outside of CSIRO. Our software framework has an object-oriented architecture and uses modern C++ facilities such as templates and lambda expressions. It is expected that the successful applicant will contribute to the codebase on a daily basis.
* Compile, execute, profile and debug code on multiple platforms (including Windows, Linux and Mac), and use software engineering best-practices, such as version control, continuous integration, automated test suites and work item tracking software during daily activities.
* Active involvement (as required) in all aspects of the software development lifecycle. This will include requirements gathering and specification, design, development, testing and delivery of applications, components and tools. Ongoing support of these applications, components and tools will also be required.
* Active involvement (as required) in all aspects of project leadership, including interacting with end-users and customers both inside and outside of CSIRO to elicit and refine software requirements and project objectives, guiding the project team in the pursuit of objectives and providing end-user support as required.
* As required and appropriate, contribute to the leadership of the team by setting-up and/or maintaining effective and efficient programs and work teams, allocating and managing resources, and undertaking some aspects of staff performance management and career development.
* Work in multi-disciplinary, geo-distributed teams to carry out tasks autonomously to meet project deliverables.
* Work collaboratively with colleagues within your team, Data61 and across CSIRO to achieve objectives.
* 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.

## 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 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, goals and priorities.

## Selection Criteria:

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

1. A Bachelors/Masters degree in software engineering, computer science or similar and/or equivalent commercial experience.
2. Commercial software engineering experience writing C++ software applications, with a strong customer focus and a proven capacity to deliver. An understanding of object-oriented programming, object-oriented class libraries and modern C++ facilities such as templates is essential.
3. Demonstrated experience working in a test-driven, agile development or continuous integration environment.
4. Experience with the following types of software engineering processes and tools: source code repositories (i.e. Git/SVN/TFS), work item tracking (i.e. JIRA/TFS), GUI libraries (such as Qt), cross platform development tools and environments (such as CMake).
5. The ability to work proactively and effectively as part of a multi-disciplinary, regionally dispersed research team, and carry out tasks autonomously to meet project deliverables.
6. Demonstrated ability & willingness to contribute novel ideas and approaches in support of process improvement.

## Desirable Criteria:

1. Previous experience developing software applications for scientific domains, including experience with scientific workflow platforms.
2. Development experience with one or more higher-level languages and frameworks such as Python, JavaScript, C#, Qt, OpenCV, PCL.
3. Parallel programming experience and/or data-oriented development experience include the use of languages such as OpenCL, CUDA and OpenMP.
4. Project or program leadership experience or the ability to contribute to the leadership of such a team where appropriate.
5. Experience with computational geometry and/or 3D rendering software development.

## About CSIRO:

At CSIRO we solve the greatest challenges through innovative science and technology. See more [online](http://www.csiro.au/)!

**Data61**

In today’s data-focused world, there’s no doubt that numbers count. [Data61](http://www.data61.csiro.au/) are the largest data innovation group in Australia, a connector that brings together technology innovators, businesses and universities to transform Australian industry and to help solve our greatest challenges. A CSIRO business, we are creating our data-driven future.