# Position Details

## Research Projects- CSOF4

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| The following information is for applicants | |
| Advertised Job Title | Robotics Software Engineer |
| Job Reference | 95333 |
| Tenure | Specified Term of 3 years, Full-time |
| Salary Range | AU$89,680- AU$101,459 per annum (pro-rata for part-time) plus up to 15.4% superannuation |
| Location(s) | Clayton, Victoria |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All Candidates |
| Position reports to the | Team Leader, Human-Robot Interaction |
| Client Focus – Internal | 100% |
| Client Focus – External | 0% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Pavan Sikka via email at pavan.sikka@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 Projects staff in CSIRO is to collaborate 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.

This position will bring robotics-focused software engineering capability for a variety of research and external projects in the Human-robot Interaction team located at Clayton (Melbourne). This team is part of the Robotics Design and Interaction group which is mostly located in Pullenvale (Brisbane). The selected candidate will work with the existing robot navigation stack, including path planning, obstacle avoidance and navigation behaviours for ground-based robots, software for supporting robot and human simulation of human-robot teaming simulations, software for supporting multi-modal human-robot interfaces, and software for supporting data collection and analysis during human-robot teaming experiments. The engineer will be required to work closely with robotics researchers and other engineers to develop, evaluate and improve the software systems supporting human-robot teaming, which will involve:

* analysis and development of software requirements for human-robot teaming experiments, both in simulation and in hardware
* proposing algorithms and techniques to address the requirements
* implementing the algorithms in C++ and/or Python
* integrating the novel solutions into the existing robot software stack
* testing and refining the solutions in robotic simulations
* deploying the solutions in hardware and pilot experiments
* testing and refining the solution on robots of different configurations
* Supporting experiments, data collection and data analysis

High level skills in C++ and Python software development for Linux are essential. Desirable experience includes:

* developing with ROS (Robot Operating System)
* working with sensors such as LIDAR, radar, cameras, depth cameras, microphones, physiological sensing
* developing graphical and multi-modal user interfaces
* developing for embedded systems in C++ or python
* using docker for code development, building and deployment
* some experience in working with current machine learning models

### Duties and Key Result Areas

* 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.
* Liaise with clients to determine their needs and take personal responsibility for their satisfaction.
* Address problems promptly and in a constructive manner.
* 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.
* 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 and diversity initiatives.
* Other duties as directed.

## **Selection Criteria**

#### Essential

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

1. Relevant bachelor’s degree or equivalent relevant work experience in an appropriate field of Engineering
2. Experience in C++ and Python software development in a Linux environment

## **Desirable**

1. Experience and/or knowledge of Robotics software frameworks, especially ROS
2. Experience and/or knowledge of Robotics simulation environments
3. Experience in software deployment to support of operation and testing of robot systems
4. Some experience in continuous integration

## **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:** 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 response by adapting/creating and testing alternative solutions.
* **Independence:** Recognise and makes immediate changes to improve performance (faster, better, lower cost, more efficiently, better quality, improved client satisfaction).
* **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 changes.

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.

## **About CSIRO**

We solve the greatest challenges through innovative science and technology. Visit [CSIRO Online](http://www.csiro.au/) and [CSIRO Data61](https://www.data61.csiro.au/) 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