# Position Details

## Research Projects- CSOF5

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| The following information is for applicants |
| Advertised Job Title | Research Software Engineer |
| Job Reference | 77628 |
| Tenure | Indefinite  |
| Salary Range | AU$100k - AU$109k per annum, plus up to 15.4% superannuation |
| Location(s) | Sydney, NSW |
| 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 | 100% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Surya Nepal via email at surya.nepal@csiro.au or phone +61 2 9372 4256 |
| 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 or call 1300 984 220. |

### Role Overview

CSIRO’s Data61 is the data and digital specialist arm of Australia’s national science agency. Data61 is at the forefront of digital science and innovation, leading both in developing new research as well as working across disciplines and sectors to apply technologies and drive impact. We are home to one of the largest collections of research and development expertise in Artificial Intelligence (AI) and data science globally and host cutting-edge facilities. Our research expertise includes AI, robotics, cyber security, modelling and analytics.

The role of Research Software Engineer 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.

The Research Software Engineer will work closely with leading Research Scientists and Engineers within the Autonomous and Application Security team of the Distributed Systems Security group. They participate in innovative, impactful research of strategic importance to CSIRO with the possibility of novel and important scientific and commercial outcomes.

The Research Software Engineer will contribute to the Data61 vision of driving the development and adoption of Artificial Intelligence in Australia, with a specific digital technology focus on AI and Cyber Security. The Autonomous and Application Security (AAS) team of the Distributed Systems Security group leads and delivers research projects with the vision of protecting society, government, and industry from highly advanced malicious cyber actors using machine intelligence. The Research Software Engineer will deliver software systems, frameworks and platforms with novel robust artificial intelligence (AI), machine learning (ML) and natural language processing (NLP) techniques that empower organisations and people against sophisticated cyber-attacks.

### Duties and Key Result Areas

* Hands on delivery of impact from cyber security research in Data61 to industry, government, and society.
* Design, develop and adapt experimental methods and systems, and software and/or user experience with novel robust artificial intelligence (AI) and machine learning (ML) algorithms including natural language processing (NLP) techniques against sophisticated cyber attacks, e.g., malware detection, phishing detection, identity management, vulnerability and threat analysis, risk assessment, etc.
* Develop novel techniques to produce enhanced results, providing researchers with new or improved approaches to research or technological problems in AI and Cyber Security.
* Liaise with clients to determine their needs, address problems promptly and in a constructive manner and take personal responsibility for client satisfaction.
* 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.
* 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.
* 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.
* 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 Making Safety Personal goals.
* Other duties as directed.

## **Selection Criteria**

#### Essential

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

1. Relevant trade certificate/diploma/bachelor’s degree or equivalent relevant work experience in Science, Engineering, Computer Science, Information Technology, other relevant field, or equivalent commercial experience in software engineering.
2. Solid engineering and software development skills, with experience in writing scalable, high performance, production quality code.
3. Proficiency in a wide range of programming languages including Python, Java, C/C++, Go or equivalent.
4. Proficiency in using RDBMS and NoSQL such as MySQL, PostgreSQL, Sqlight, MongoDB.
5. Proficiency in front end development, especially using node.js, Angular 10+, ReactJS, VueJS or equivalent.
6. Experience in using artificial intelligence (AI) and machine learning (ML) methods, including natural language processing (NLP) software tools and libraries (e.g., Tensorflow, Pytorch, NLTK, etc.) for solving complex problems.
7. Familiar with security concepts and the corresponding technologies, e.g., cryptography, network security, computer security, etc.
8. Familiar with cloud solutions/providers e.g., OpenStack, AWS, Azure.

## **Desirable**

1. Experience with testing, continuous integration and continuous delivery.
2. Experience with latest technologies (e.g. Git, Selenium, VMs, Docker, Kubernetes, Ansible, Terraform, etc.) for developing, testing and deploying applications.
3. Experience with developing in an agile team environment.
4. Familiar with BigData tools e.g. Cassandra, Kafka, Elasticsearch, Spark and Hadoop.
5. Ability to work effectively as part of a multi-disciplinary, regionally dispersed development. team, and carry out tasks under general direction from scientific researchers.
6. Have demonstrated interest in research, collaboration and publications.

## **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 team 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:** 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:** Investigates underlying issues of complex and ill-defined problems and develops appropriate response 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 changes.

Special Requirements

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. Visit [CSIRO Online](http://www.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