# Position Details

## Research Projects- CSOF7

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| The following information is for applicants | |
| Advertised Job Title | Principal Software Engineer - Cybersecurity |
| Job Reference | 81882 |
| Tenure | Indefinite |
| Salary Range | AU$ 141,949 - AU$ 153,273 per annum (pro-rata for part-time)  plus up to 15.4% superannuation |
| Location(s) | Sydney |
| 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](mailto: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, cybersecurity, modelling and analytics.

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

The Principal Software Engineer will have a leading role to 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 Principal Software Engineer will deliver software systems, frameworks and platforms with novel robust artificial intelligence (AI), machine learning (ML) 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.
* Set project goals within the Business Unit’s research direction and manage the delivery of project outcomes.
* Apply specialist expertise to solve complex problems within a discipline or across a diverse range of projects.
* Extend existing knowledge of experimental design and/or technology via achievements which facilitate the development of new perspectives in a field, or fields of, research or technology.
* Address ill-defined problems and make critical choices between options requiring knowledge of the most recent scientific/technical developments or novel methodologies.
* Influence colleagues to observe relevant professional standards and may contribute to the generation of standards or methodologies within technical areas.
* Progress complex sensitive or contentious matters to finality.
* May be recognised as an authority in area of expertise and typically possess specialised knowledge across a range of cross-functional technological/scientific areas.
* Within their area of work, anticipate, plan (including long term/strategic planning) and may implement change.
* May lead and/or participate in many projects simultaneously (including multi-disciplinary or multi-Business Unit projects).
* Typically play a leading role in the effective transfer of new technologies to industry/community.
* Be accountable for the quality of the results delivered and the alignment of the project activities with business and research directions.
* Play a key advisory role in decisions concerning scientific/technology direction.
* Maintain a sound understanding of the client’s business, negotiate work requirements with clients or project teams and ensure that client needs are met.
* Act as a trusted advisor and demonstrate creativity to determine, anticipate and adapt to client or industry needs.
* Gain the support of influential clients for the goals of their project(s).
* Represent the organisation in external scientific or technological forums as required and may establish and lead such forums.
* 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:** 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:** Provides leadership that fosters an environment that encourages new ideas and provides support for the development of emerging skills. Creates trust by displaying consistency and understanding through integrity and patience. Plans, seeks, allocates and monitors resources to achieve outcomes.
* **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:**Is flexible in response to external change or when faced with external constraints. Identified and promotes the opportunities arising as a result of change.

Special Requirements

Appointment to this role may be subject to conditions including provision of a national police check.

## **About CSIRO**

We solve the greatest challenges through innovative science and technology. 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