# Position Description

## Research Projects – CSOF4CSIRO Data61 logo/5

The following information is for applicants

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| Advertised Job Title**:** | Software Engineer |
| Job Reference: | 61567 |
| Relocation Assistance**:** | Will be provided to the successful candidate if required. |
| Applications Are Open To: | Australian/New Zealand Citizens and Australian Permanent Residents Only |
| Reports to the: | Team Leader, Confidential Computing |
| Number of Direct Reports: | 0 |
| Name and Contact Details For Applicant Enquiries  | Jeremy Thorp via email: Jeremy.Thorp@csiro.au*Please do not email your application directly to Jeremy Thorp. Applications received via this method will not be considered.* |
| Contact Details For Applying | Call 1300 984 220 or email careers.online@csiro.au.  |
| 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  |

## Role Overview:

Confidential Computing at Data61 brings together engineering and research expertise from different disciplines including Cryptography, Machine Learning, Analytics and Software Engineering. The team is focussed on creating a new type of “privacy-preserving” data science capability for Data61’s various enterprise and government customers and partners.

Privacy-preserving record linkage (PPRL) is part of these efforts, permitting multiple organisations to link sensitive datasets without revealing personally identifiable information. We are seeking a talented and adaptable software engineer to join the project to build the next generation of PPRL technologies.

The Software Engineer will work closely with other engineers in the Confidential Computing group, as well as Data61 researchers and will liaise with clients to understand and meet their needs. The Engineer will have the ability to learn fast, contribute ideas, and use agile approaches to develop production software. Working on the open source AnonLink projects, using Python, and where appropriate other languages, to help drive the development of these technologies.

## Duties and Key Result Areas:

* Research novel methods in privacy-preserving record linkage.
* Produce high quality engineering artefacts (e.g., design, patents, code, and demos).
* Apply cryptographic techniques to perform private federated learning.
* Build and deploy distributed microservices.
* Build elegant, efficient and readable code.
* Maintain open-source libraries.
* Develop proofs of concept to client specifications.
* Always consider the goals and requirements of users, including the software developer users of APIs.
* Work with customers and partners to understand their needs and make sure they are met.
* 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.
* Under general direction participate in planning projects and accept responsibility for the scheduling and completion of major parts of projects, including allocating and directing tasks where appropriate.
* Provide coaching, on-the-job training and instruction to colleagues, on activities pertaining to the immediate work area and responsibilities, allocate activities, direct tasks and manage resources to meet objectives, as required.
* Adapt and/or develop original experimental methods/equipment/software/concepts/ ideas in support of existing and further research, promptly addressing where methods may not be defined and initiative is required in seeking new approaches to meet experimental and/or technological needs.
* 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, often regionally dispersed research team, and business unit to carry out tasks in support of CSIRO’s scientific objectives.
* Adhere to the spirit and practice of CSIRO’s Code of Conduct, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals.
* Other duties as directed.

**For appointment at the higher salary level (CSOF5), duties will also include:**

* Provide technical direction, take ownership of projects, present ideas and foster creativity in others.
* Choose appropriate management strategies and communication styles to maintain high levels of motivation and productivity, give feedback for development purposes and provide support and direction for improvement, as required.

## Competencies:

1. **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.**
2. **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.**
3. **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.**
4. **Judgement and Problem Solving:** Investigates underlying issues of complex and ill-defined problems and develops appropriate response by adapting/creating and testing alternative solutions.
5. **Independence: Recognise and makes immediate changes to improve performance (faster, better, lower cost, more efficiently, better quality, improved client satisfaction).**
6. **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.

**Additional competencies at CSOF 5 level:**

1. **Resource Management/Leadership:** Gives feedback for development purposes and provides support and direction for improvement.
2. **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.

## Selection Criteria:

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

* Tertiary qualification and/or equivalent engineering experience in a relevant discipline area, such as cryptography, big data analytics, distributed computing, high-performance computing, or system architecture.
* At least one year of industry experience in a comparable position.
* Experience developing in Python (3.x preferred).
* Experience of developing in one or more commonly-used, statically-typed, object-oriented languages (such as Scala, Java or C++).
* Strong understanding of basic mathematical concepts.
* Ability to work collaboratively and to perform tasks under minimal supervision.
* Ability to think creatively, prototype new ideas and deliver them through to clients, working to deadlines.
* Ability to collaborate and grow with a multidisciplinary, regionally dispersed team.

**For appointment at the higher (CSOF5) salary level, as well as satisfying the Essential Criteria listed above, you must also have:**

* Strong software product development experience.
* Demonstrated experience in negotiating requirements with project partners, planning project activities (for self and others), and delivering to deadlines.
* At least 4 years’ experience developing in Python (3.x preferred).
* Extensive experience of developing in one or more commonly-used, statically-typed, object-oriented languages (such as Scala, Java or C++)
* Experience with low-level programming or GPU programming.
* A history of developing robust and secure applications. (We love code examples – please attach anything you have developed that we can look at, eg. open source projects.)

## Desirable Criteria:

* A proven record of engineering innovation and creativity
* Analytics skills, with broad knowledge of analytics algorithms, understanding of their underlying mathematical basis, and experience in their application to data
* A record of quality publications and presentations.
* Exposure to both industry and academic research.
* Interest in privacy research.
* Experience in one or more of the following: data analytics, cryptography, machine learning, record linkage, or graph analytics.
* Proven ability to write optimised, readable, and elegant code.
* Experience in REST API design and implementation using current development tools and methodologies including microservices, Docker, and/or Kubernetes.

## Special Requirements:

Appointment to this role may be subject to conditions including security/national police/medical/character clearance requirements. Applicants who are not Australian Citizens or Permanent Residents may be required to undergo additional security clearances, which may include medical examinations and an international standardised test of English language proficiency (i.e. IELTS test).- <https://ielts.com.au/>

## About CSIRO:

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

Find out more about CSIRO [Data61](https://www.data61.csiro.au/)