# Position Details

## Research Projects- CSOF6

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| The following information is for applicants |
| Advertised Job Title | Senior Data Engineer |
| Job Reference | 76840 |
| Tenure | Indefinite Full-time |
| Salary Range | AU$101k - AU$129k per annum (pro-rata for part-time)plus up to 15.4% superannuation |
| Location(s) | Sydney, Canberra, Brisbane |
| 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, AI Engineering |
| Client Focus – Internal | 50% |
| Client Focus – External | 50% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Melissa Sunteo via email at melissa.sunteo@csiro.au or phone +61 2 9490 5849 |
| 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

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. At senior levels, Research Projects staff may be involved in providing consulting services, science and technology management and/or industry liaison.

## The Senior Data Engineer designs, develops, deploys and maintains data pipelines in cloud products and services. These applications are prototypes and products that make economic, environmental and societal impact through digital delivery of CSIRO’s research and technology. Data pipelines include batch and streaming data, data transformation and deployed algorithms, including machine learning classifiers.

The Senior Data Engineer works in a multidisciplinary team comprising scientists, engineers, UX designers and product managers, to develop impactful technology in a range of domains. The team’s roadmap includes:

* Reinventing science: building technology prototypes that enable new ways of conducting science across CSIRO’s research domains
* Digital twins: models of physical systems (building infrastructure, agriculture) that incorporate real-time and modelled data streams, providing analytics for information and decision support
* Climate risk: modelling financial risk of climate scenarios

### Duties and Key Result Areas

* Design, develop, deploy and maintain machine learning data pipelines on internal and cloud infrastructure.
* Create and validate machine learning algorithms, including data cleaning, transformation, feature engineering, hyperparameter tuning, performance validation, scaling and monitoring.
* Review and guide software architecture and development by outsourced and junior software engineers.
* Contribute to CSIRO’s engineering discipline by promoting the effective the use of software development tools, practices and culture.
* 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 delivery 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 bachelor’s degree or equivalent relevant work experience in software engineering.
2. Deep expertise developing and deploying cloud software.
3. Proven expertise in creation and deployment of machine learning algorithms.
4. Experience mentoring junior software developers.
5. A minimum of 4 years of commercial software development experience.
6. Demonstrated experience with contemporary software development tools and practises: version control, unit testing, automated testing, issue tracking.
7. Sound interpersonal skills as evidenced by the ability to work effectively and collaboratively within and across teams.
8. Good judgement as applied to the identification and successful resolution of complex (technical and non-technical) problems and issues.

## **Desirable**

1. Expertise in a range of machine learning frameworks such as PyTorch, TensorFlow, Keras, scikit.learn, pandas
2. Varied programming language paradigms, including object oriented and functional
3. Cloud DevOps and container technologies
4. Design and use of REST APIs
5. Reactive programming
6. Relational, NoSQL, time series and spatial databases
7. Message queues (Kafka, Kinesis, MQTT, RabbitMQ)
8. Databases (SQL and NoSQL, time-series, administration, performance tuning, schema design and modelling, stored procedures, triggers, clustering, query design and evaluation)
9. Continuous integration/continuous deployment (Jenkins, Gitlab, Buildkite)
10. Agile project management

## **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:** 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.

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/) and [Data61](https://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