



Position Description

Research Data Engineer

Artificial Intelligence and Cyber Futures Institute

Office of the Deputy Vice-Chancellor, Research

Classification	Level 8
Special conditions	Nil
Workplace agreement	Charles Sturt University Enterprise Agreement
Date last reviewed	September 2024



Office of the Deputy Vice-Chancellor, Research

The Office of the Deputy Vice-Chancellor, Research is responsible for leading Charles Sturt University's research agenda to enhance research impact, output and engagement. This includes research training, partnerships, innovation, and commercialisation. A key focus is the development and implementation of strategies in these areas that increase capability, quality and impact in accordance with the goals of the university. The portfolio also includes First Nations engagement, which is a key area of importance for Charles Sturt.

To deliver on the university goal of research excellence, the university is establishing three research institutes, all with a digital and regional focus:

1. Gulbali Institute
2. Rural Health Research Institute
3. Agri Park
4. Artificial Intelligence and Cyber Futures Institute

Artificial Intelligence and Cyber Futures Institute

Artificial Intelligence and Cyber Futures Institute (AICF) is a new research Institute at Charles Sturt University aiming to become a world class research centre of excellence in data science, artificial intelligence, and cyber security, to pursue the agenda of regional discovery, showing how AI developed 'off the beaten track' and 'in the wild' can better serve not only rural and regional communities, but society as a whole, creating a new comparative advantage for Australia internationally.

Current work in data science and AI happens primarily in large cities, which makes the production of research outcomes particularly relevant for people, algorithms, and complex systems located in large metropolitan areas. Yet, according to the United Nations, 3.4 billion people live in rural areas. These people are currently unable to enjoy the benefits of data-driven research as technologies, which work in large cities, but are not always operational, effective, and, most importantly, relevant, for regional communities.

AICF will explore how regional and rural data, data-driven tools, practices developed based on these data and tools, as well as systems that combine human-machine interactions in non-urban environments can be developed, enhanced and popularised to benefit society. Such data, tools, practices, and systems, due to their inherently inclusive, diverse, and sustainable nature will suggest new pathways to: building trustworthy data-driven systems; embedding transparent reporting practices in all AI-related research; promoting inclusive interoperable AI design relevant not only to cities but also to rural areas; maintaining ethical integrity of AI-driven designs, which should not exploit rural populations for the benefit of urban systems; and encouraging respectful co-creation between regions and cities.

The AICF will seek to discover possible, feasible, and desirable regional futures, by advancing data science, artificial intelligence, and cyber security research to achieve a positive change in complex regional environments. The core principle of the AICF is research excellence, which implies having the best talent focused on challenging problems, working with dedication, integrity, sophistication, and responsibility.

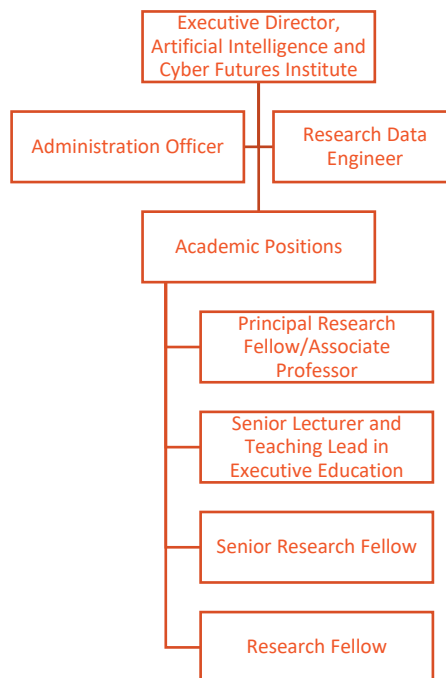
The AICF objectives are to:

- **Advance** research in AI for Regional Futures: innovate and develop world-class research in data science, artificial intelligence, and cyber security with a regional AI flavour that supports next generation theoretical developments for society as a whole.
- **Translate** the research to address real-world problems: ensuring that the Institute's research is co-created with practitioners and applied to real-world problems, generating the establishment of new businesses, services, and jobs.



- **Train** academic and industrial leaders of the future: train the next generation of data science, AI, and cyber security academics and practitioners with the necessary breadth and depth of technical and ethical skills to match the Australia's growing industrial and societal needs.
- **Position** Charles Sturt University as a leader in AI and cyber security research for regional discovery: develop and highlight the unique expertise of Charles Sturt University in regional and rural AI data, tools, practices, and systems; as well as support the University in achieving its strategic goals.
- **Lead** the public conversation in AI for Regional Futures: through agenda-setting research, public engagement, and expert technical advice, drive new and innovative ideas which have a significant influence on industry, government, regulation, or societal views, or which have an impact on how data science and artificial intelligence research is undertaken in Australia as well as internationally.

Organisational chart



Reporting relationship

This position reports to: Executive Director, AI and Cyber Futures Institute

Key working relationships

- Deputy Vice-Chancellor, Research Portfolio
- Office of the Chief Information Officer at Charles Sturt
- Academics and Professional Staff within AI and Cyber Futures Institute
- Other Research Institutes, Centres, and Laboratories at Charles Sturt
- Faculties and Schools at Charles Sturt



Position overview

The Research Data Engineer will wrangle and integrate large volumes of data from various sources. The position demands a level of quality and rigour, along with an awareness of data analytics and data science functions. The position will investigate data and produce high quality, curated data assets for downstream teams' self-service analytics. Moreover, this position will be a go-to for all data-related queries and will perform the duties of both an Information Analyst and Data Engineer seamlessly. Additionally, this role has an opportunity for academic research, in a broad range of disciplines.

This is a varied role, centred around disseminating AI and Cyber capabilities to our regional and global communities, through delivering on industry funded AI/Cyber projects as well as through opportunities to work on academic research.

Your work in the Institute will be focussed in one of the following priority areas:

- Defence and cybersecurity
- Sustainable behaviours
- Smart supply chains
- Responsible AI
- Digital Twins
- Agriculture

Principal responsibilities

- Work closely with the AI and Cyber Futures Institute (AICF) team, CSU Faculty, and the Office of the Chief Information Officer at Charles Sturt University (CSU) to understand data requirements and develop scalable data pipelines.
- Mine, extract, transform, and load data from various sources and perform data wrangling to ensure data quality and accuracy.
- Implement quality assurance procedures to ensure data accuracy and consistency.
- Ensure compliance with data governance and data architecture best practices.
- Collaborate with stakeholders across the AICF team to understand their data needs and provide solutions.
- Work with a variety of stakeholders within and outside AICF and CSU, to engage and attain industry projects in AI, Cyber and analytics. Show casing the Institutes capabilities and completing funded projects, while helping companies realise the potentials of AI technologies.
- Continuously improve data pipelines and processes to ensure data accuracy, completeness, and timeliness.
- Work on research initiatives, from creation, development and to publishing of working papers in multi-disciplinary fields.
- Apply for grant proposals and lead on initiatives to find and propose research opportunities to aid in attaining grants for the institute.
- Produce documentation and support to the team to ensure knowledge around the Institute is adequately disseminated.



- Develop annual KPIs and performance plan in accordance with the AICF strategic goals.
- Carry out other duties and responsibilities assigned by the Executive Director, annually review position goals and KPIs in conjunction with the Executive Director in accordance with directions provided by DVCR portfolio.
- Working and standing up platforms, for various pieces of research. From setting up platforms to allow for research in the various speciality areas within the institute. To creating front end dashboards or apps/sites for users to interact with the product from.
- An agile mindset to initiate technology driven tasks within the institute, with a growth mindset to always be open to learn.

Required capabilities

This section comprises capabilities from the Charles Sturt [Capability Framework](#). Read the Framework for more detail regarding these capabilities.

Capability	Capability Definition	Level of influence
Innovates		
Acts Strategically	Analyses opportunities to determine effective solutions and solve problems in order to achieve short and long-term objectives.	Influence self
Navigates Complexity	Adjusts and responds effectively to new or unexpected situations, challenges, or opportunities whilst developing strategies to manage wellbeing in a challenging environment.	Influence self
Creates Innovative Solutions	Uses methodologies that open up creative thinking and transform ideas into actionable plans and strategies. Reflects on outcomes and drives ongoing improvement.	Influence self
Optimises Digital Environment & Data	Builds own knowledge of new technologies, adopts appropriately and uses data to draw insightful conclusions.	Influence self
Connects		
Builds Relationships	Implements interdisciplinary collaboration, adopts diversity and inclusion principles, and facilitates relationship building to work effectively with others.	Influence self
Communicates with Influence	Listens to understand the position of others and leverages effective communication and negotiation skills in order to influence and navigate toward mutually beneficial outcomes.	Influence self
Creates Alignment	Aligns behaviours with values, recognises interconnectedness in the environment and takes effective action.	Influence self
Connects in a Global World	Recognises and values cultural differences, is contextually aware, and acts within scope of role but with consideration for global trends and issues.	Influence self
Achieves		
Manages Change	Assumes responsibility for change. Supports change initiatives, builds knowledge to understand purpose and impact. Supports others to engage with change to deliver outcomes.	Influence self



Plans and Prioritises	Effectively plans and aligns priorities with strategy. Effectively allocates and utilises resources to achieve goals.	Influence self
Optimises Outcomes	Consistently achieves desired results as evidenced through measurement. Recognises accomplishments by praising achievements and sharing success stories to promote learning.	Influence self
Drives Impact	Collaboratively engages with peers and stakeholders in the community and industry. Places our people and students at the centre of design decisions.	Influence self

This section comprises of Enabler and Manages Effectively capabilities from the Charles Sturt [Capability Framework](#).

Capability	Capability description	Level of influence
Enablers		
Practices Effective Governance	Refers to policies, processes and guidance to support effective decision making and applies risk management processes to mitigate risk and proactively manage safety and compliance obligations.	Influence self
Manages Finances	Applies responsible financial and resource management practices to achieve value for money and support financial sustainability.	Influence self
Utilises Technology Effectively	Builds capability in relevant technologies, complies with security obligations and addresses the ethics of technology use to minimise risk.	Influence self
Manages Projects Effectively	Applies effective planning and coordinates effort using project management practices to deliver specific project objectives.	Influence self
Manages Effectively		
Clarifies Purpose and Inspires Direction	Clearly articulates the purpose and strategies of Charles Sturt and alignment to teamwork priorities. Provides a sense of direction and motivates people and teams to strive for it.	Influence self
Demonstrates Self Awareness	Builds an understanding of own thoughts, feelings, strengths, weaknesses and behaviours, to understand how others perceive them, to make sound	Influence self
Coaches and Develops Others	Guides and supports individuals to enhance their skills, knowledge, and capabilities, fostering personal and professional growth, and empowering them to reach their full potential.	Influence self
Builds Effective Teams	Builds teams with complementary abilities and skill sets, encourages effective communication and collaboration and cultivates a supportive environment to reach objectives.	Influence self



Physical capabilities

The incumbent may be required to perform the following.

- Work in other environments beyond your base campus, such as other campuses.
- On occasion drive a vehicle distance up to 500km per day within the terms of the university's [Driver Safety Guidelines](#)

Selection criteria

Applicants are expected to address the selection criteria when applying for this position.

Essential

- A. Bachelor's degree in Computer Science, Analytics, Engineering, or related field, or substantial professional experience in Data Engineering/Science/Analytics.
- B. Minimum of 2 years of experience in data analytics/science, data engineering, or AI engineering, including software development principles.
- C. Experience with machine learning, statistical models, or AI solutions, and familiarity with big data technologies, APIs, data warehousing, data lakes, and data governance.
- D. Strong verbal and written communication skills, with experience in academic research and working on research projects.
- E. Open-mindedness and a growth mindset to tackle challenging projects, with proficiency in Python, R, MATLAB, SQL, or Julia.

Desirable

- F. Knowledge of data visualisation tools.
- G. Awareness of data management, risk, privacy and cyber principles.
Previous experience in interdisciplinary or research environment.
- H. Previous experience working in regional or rural context.
- I. Familiarity with AWS and/or other cloud providers.
- J. Experience in writing grant proposals, or alternatively, exposure to project management or consulting work