

CLASSIFICATION: BRF

ACADEMIC UNIT: UniSA Education Futures

LAST REVIEWED: March 2025

BROAD PURPOSE

The Postdoctoral Research Fellow will contribute to cutting-edge research in learning sciences, artificial intelligence, quantitative ethnography, and learning analytics across various educational environments, including K-12 and higher education. The role focuses on developing data-driven solutions that improve student learning outcomes by leveraging artificial intelligence, learning analytics, and learning sciences. Working collaboratively with academic and industry partners, the position will develop innovative methodologies and tools, and analyse complex datasets to uncover key drivers of student success, engagement and equity.

This role is ideal for researchers with expertise in learning analytics, AI in education, or related fields with a strong interest in advancing evidence-based strategies to improve teaching and learning outcomes.

POSITION ENVIRONMENT

The **University of South Australia (UniSA)** is Australia's University of Enterprise. We are South Australia's largest university and one of the very best young universities in the world. At UniSA, we are authentic, resilient, and influential - and we deliver results. We pride ourselves on our dynamic and agile culture, which embraces challenges and thrives on breaking new ground. Plus, we are committed to the principles of excellence and equity.

Our people are critical to our success. They are creative, enterprising, and innovative thinkers, communicating with clarity, conviction, and enthusiasm.

We educate global professionals ready to create and inspire change, through more than 200 world-class degrees. We deliver outcomes-focused research that is inspired by global challenges and opportunities, to deliver economic and social prosperity.

Our strategic plan, Enterprise25, focusses on our people, programs and precincts, and sets out our path to ensure that we continue to deliver quality teaching, research and student outcomes.

At **UniSA Education Futures**, we develop education professionals who will play a crucial role in the learning and development of children, young people and adults. Our research contributes to innovation in education and preparation for learning, supporting and informing new approaches to practice in the ever-evolving education sector. Within UniSA Education Futures, **UniSA College** is responsible for the university's pre-degree and pathway programs for Australian students, and implements the University's Participation Strategy, aimed at increasing the number of students from a low socio-economic background enrolled in the University.

REPORTING RELATIONSHIPS AND KEY STAKEHOLDERS

This position reports to the Associate Professor.

Key stakeholders that this position must liaise with include:

Internal: Researchers within the Centre for Change and Complexity in Learning, Academic and Professional staff within the Education Futures Academic Unit and across the University.

External: Partner organisations and industry stakeholders.

CORE RESPONSIBILITIES

1. Develop and apply artificial intelligence, quantitative ethnography, and learning analytics techniques to uncover patterns in student engagement and learning outcomes.
2. Analyse educational data to generate actionable insights that inform and improve student engagement, learning outcomes, and instructional design.
3. Contribute to learning analytics initiatives by designing and implementing AI-driven interventions that personalise learning experiences and optimise educational outcomes.
4. Develop automated models that support adaptive learning, formative feedback, and targeted educational interventions.
5. Collaborate with academic and industry partners to integrate AI-driven interventions into learning environments and support their deployment at scale.
6. Assess and address limitations in existing virtual and technology-enhanced learning environments, refining data analysis methods and enhancing the effectiveness of AI-driven educational strategies.
7. Combine the analyses and communicate recommendations, identifying the best approach to representing data to a range of diverse audiences.
8. Lead and conduct independent, collaborative research projects that generate high-quality scholarly publications.
9. Collaborate with staff, researchers, and students at project partners to generate high-quality scholarly publications.
10. Provide reports, presentations, and other required documentation to grant funders, including monthly updates.
11. Keep abreast of the scientific literature and developments in artificial intelligence in education, learning analytics, quantitative ethnography, and related fields.
12. Actively participate in growing the research and teaching culture of artificial intelligence and learning analytics across the University and within Education Futures.
13. Undertake administration activities primarily connected with the staff member's area of research within the C3L research centre.
14. Collaborate with the members of C3L in a manner that reflects a commitment to the University's goals, information sharing and effective problem-solving practices.

SPECIAL REQUIREMENTS

- Some out-of-hours work will be required.

UNIVERSITY REQUIREMENTS

Staff must follow and apply the following:

1. Core Staff Attributes

To contribute to a successful and enterprising culture at UniSA, each staff member is expected to demonstrate the following key behavioural attributes:

- **Is trusted, authentic and self-aware** – establishes credibility, is honest, reliable, accountable, and responsive
- **Takes the initiative and delivers results** – by seizing opportunities and being outcome and customer-focused.
- **Provides solutions** – through logical, creative and innovative thinking and timely, transparent and consultative decision making.
- **Communicates with impact** – displays clarity, diplomacy, persuasiveness and sensitivity.
- **Leads and works well with others** - displays conviction and resilience, working collaboratively, motivating others and mobilising influence.

2. Health Safety & Injury Management

- Follow reasonable instructions, work procedures and practices to maintain the health and safety of yourself and others.
- Report all identified workplace hazards and incidents.

3. Performance Development and Management

Participate in the University's Performance Development and Management process.

SELECTION CRITERIA

Essential

1. A PhD in a relevant discipline (e.g., artificial intelligence, data science, statistics, computer science, learning engineering, learning sciences, learning analytics, or educational data mining) with demonstrated experience in analysing and interpreting student learning data.
2. Strong knowledge of education theory, as well as quantitative and qualitative research methodologies applicable to learning analytics and AI-driven educational interventions.
3. Experience with generative AI-driven methods for processing educational data.
4. Proven expertise in learning analytics, educational data mining, and artificial intelligence in education, with the ability to develop or support the development of data-driven solutions for enhancing student engagement and learning outcomes.
5. Excellent analytical skills and proven ability to translate observations into shared knowledge.
6. Record of independent research resulting in high-quality publications and evidence of growing citation impact.
7. High-level communication skills and ability to represent data in a number of ways to communicate findings to a diverse audience.
8. Sound interpersonal skills, including demonstrated ability to effectively collaborate with team members, other colleagues and external parties.

Desirable

1. Experience working and researching with stakeholders in Government and the K-12 Sector.
2. Familiarity with qualitative methods and human-AI partnership for qualitative analysis and/or other mixed-initiative human-AI partnership approaches.
3. Experience with natural language processing (NLP)