RESEARCH FELLOW

DEPARTMENT/UNIT
Data Science and Artificial Intelligence

FACULTY/DIVISION
Faculty of Information Technology

CLASSIFICATION
Level B

WORK LOCATION
Clayton campus

ORGANISATIONAL CONTEXT

Everyone needs a platform to launch a satisfying career. At Monash, we give you the space and support to take your career in all kinds of exciting new directions. You’ll have access to quality research, infrastructure and learning facilities, opportunities to collaborate internationally, as well as the grants you’ll need to publish your work. We’re a university full of energetic and enthusiastic minds, driven to challenge what’s expected, expand what we know, and learn from other inspiring, empowering thinkers. Discover more at www.monash.edu.

The Faculty of Information Technology aims to lead global IT research and education. Our strong reputation and international profile attracts the best students worldwide and we offer a range of accredited courses that transform our graduates into highly skilled and sought after IT professionals, equipped to work globally. Our research is multi-disciplinary, multi-campus and multi-national, giving us a unique capacity to reach out further and deeper than any other institution in Australia. Our research priorities are both technically ambitious and embedded in everyday life.

To learn more about the Faculty and the exciting work we do, please visit https://www.monash.edu/it.

In the information age, data are ubiquitous. Data science extracts value from data assets, helping us understand the past, better manage the present, and effectively plan for the future. It plays a critical role in advancing industry, commerce, governance and research. At Monash IT, we have an unsurpassed breadth and depth of expertise across the broad range of areas that underpin the fast-developing field of data science. Our Data Science Group has more than 40 permanent academic staff backed by a large cohort of project-based researchers and postgraduate students, and includes one of the leading optimisation groups in the world.

Our areas of research expertise include:

- Artificial Intelligence: Natural language processing, Computer Vision, Bayesian techniques, knowledge acquisition and processing
- Machine Learning: Deep learning, probabilistic modelling, association discovery, causal models
- Optimisation: constraint and mixed-integer programming, metaheuristics, modelling languages, non-differentiable optimisation, resource planning and scheduling, and path finding algorithms
- Visualisation: immersive analytics, interactive visualisation, and layout and presentation
**POSITION PURPOSE**

A Level B research-only academic is expected to contribute towards the research effort of the University and to develop their research expertise through the pursuit of defined projects relevant to the particular field of research.

The Research Fellow will work on the DARPA project over two years, in the areas of weak supervision of deep learning models for NLP and/or Computer Vision. The relevant topics are multitask learning, learning to learn and meta-learning, zero/few-shot learning, domain adaptation, reinforcement learning, imitation learning, and alike. The potential NLP application includes machine translation. The potential Computer vision applications include Object detection, Object Recognition, and Activity Recognition. There is also the possibility of multimodal applications, such image captioning. The outcomes of this exciting research position are expected to be published at the top-tier venues in Vision, NLP and ML, such as CVPR, ICCV, ACL, EMNLP, NAACL, ICML, NIPS, AAAI, IJCAI, and ICLR.

**Reporting Line:** The position reports to the project Chief Investigator, as part of Data Science and AI.

**Supervisory Responsibilities:** Not applicable

**Financial Delegation:** Not applicable

**Budgetary Responsibilities:** Not applicable

**KEY RESPONSIBILITIES**

Specific duties required of a Level B research-only academic may include:

1. The conduct of research either as a member of a team or independently and the production of conference and seminar papers and publications from that research
2. Supervision of research-support staff involved in the staff member’s research
3. Guidance in the research effort of junior members of research-only Academic staff in their research area
4. Contribution to the preparation or, where appropriate, individual preparation of research proposal submissions to external funding bodies
5. Involvement in professional activities including, subject to availability of funds, attendance at conferences and seminars in the field of expertise
6. Administrative functions primarily connected with their area of research
7. Occasional contributions to the teaching program within the field of the staff member’s research
8. Co-supervision or, where appropriate, supervision of major honours or postgraduate research projects within the field of the staff member’s area of research
9. Attendance at meetings associated with research or the work of the organisational unit to which the research is connected and/or at departmental, school and/or faculty meetings and/or membership of a limited number of committees

**KEY SELECTION CRITERIA**

**Education/Qualifications**

1. The appointee will have:
   - A doctoral qualification in Natural Language Processing and/or Machine Learning;
   - an honours degree in the relevant discipline or have equivalent qualifications or research experience; or
   - an honours degree or higher qualifications in the relevant discipline and/or progress towards a doctorate in the relevant discipline
Knowledge and Skills

2. Demonstrated analytical and manuscript preparation skills; including a track record of refereed research publications in top-tier NLP and/or ML venues, such as ACL, EMNLP, NAACL, NIPS, ICML, and ICLR

3. Strong background in cutting-edge Deep Learning research. Proficiency with any of the following Machine Learning topics would be a great plus: multitask learning, learning to learn and meta-learning, zero/few-shot learning, domain adaptation, reinforcement learning, imitation learning, and alike

4. Strong implementation skills with at least one deep learning package, e.g. PyTorch, Tensorflow, or DyNet

5. Ability to solve complex problems by using discretion, innovation and the exercise diagnostic skills and/or expertise

6. Well-developed planning and organisational skills, with the ability to prioritise multiple tasks and set and meet deadlines

7. Excellent written communication and verbal communication skills with proven ability to produce clear, succinct reports and documents

8. A demonstrated awareness of the principles of confidentiality, privacy and information handling

9. A demonstrated capacity to work in a collegiate manner with other staff in the workplace

OTHER JOB RELATED INFORMATION

• Travel to other campuses of the University may be required
• There may be a requirement to work additional hours from time to time
• There may be peak periods of work during which taking of leave may be restricted

GOVERNANCE

Monash University expects staff to appropriately balance risk and reward in a manner that is sustainable to its long-term future, contribute to a culture of honesty and integrity, and provide an environment that is safe, secure and inclusive. Ensure you are aware of and adhere to University policies relevant to the duties undertaken and the values of the University. This is a standard which the University sees as the benchmark for all of its activities in Australia and internationally.