Macquarie’s information and computing sciences research is of an international calibre. In the most recent Excellence in Research for Australia (ERA) evaluation, our research in the sub-discipline of computation theory and mathematics received a rating of ‘performance above world standard’, and our research in the sub-disciplines of artificial intelligence and image processing, and distributed computing received a rating of ‘performance at world standard.’

Located in the heart of Australia’s largest high-tech precinct, Macquarie’s information and computing science researchers are uniquely positioned to conduct collaborative research of national and international significance.


Our high-profile researchers – who include a Fellow of the Association for Computational Linguistics and a Microsoft Chair in Innovation in Computing – have made major contributions to the ARC Research Networks in Human Communication Science and Enterprise Information Infrastructure, as well as to one of three ARC-NHMRC Thinking Systems projects, and partner in the Capital Markets CRC.

As an HDR candidate you will have the opportunity to research alongside some of the world’s best scholars whose cutting-edge research continually pushes the boundaries of knowledge. You will also benefit from our working partnerships with many of the global IT companies neighbouring our campus in Australia’s largest high-tech precinct.

**AREAS OF SPECIALISATION**
- Algorithms and cryptography
- Category theory
- Computer and network security
- Information systems
- Intelligent systems
- Machine learning
- Natural language processing
- Programming languages
- Services computing
- Social networks
- Virtual reality

**RESEARCH HUBS**
- Advanced Cyber Security Research Centre
- Centre for Advanced Computing
- Centre for Language Sciences
- Centre for Language Technology
- Centre of Australian Category Theory
- Intelligent Systems Group
- Programming Languages Research Group
- Virtual and Interactive Simulations of Reality
Highlights

• Our researchers sit on the editorial boards of leading journals including *ACM Transactions on Information and System Security; Computational Linguistics; IEEE Transactions on Dependable and Secure Computing; Software: Practice and Experience; Theory of Computing Systems;* and *Discrete Mathematics and Theoretical Computer science*

• The department also has close involvement with the ARC Centre of Excellence in Cognition and its Disorders

Support

We give HDR candidates strong academic and administrative support. This includes:

• an annual conference at which research candidates receive feedback on their work from a panel of academics and a general audience
• commencement and completion programs
• discipline-specific research training units, including workshops in research communication, presentation skills, academic writing skills, thesis planning and poster preparation
• financial support for research project costs, including top-up scholarships from industry.

Research leaders

Macquarie is home to many internationally renowned researchers, including:

**Professor Mark Johnson** is a Fellow of the Association for Computational Linguistics. His expertise spans computational linguistics, natural language processing and machine learning, with a specific focus on parsing and its applications to information extraction from text and speech. He is the director of the Centre for Language Sciences, a Macquarie Concentration of Research Excellence, and a former president of the Association for Computational Linguistics.

**Professor Vijay Varadharajan** is the Microsoft Chair in Innovation in Computing, and is a member of the Australian Government’s peak security advisory body, ITSEAG. He is a former member of the Australian Research Council College of Experts in Engineering, Mathematics and Informatics. His research has contributed to the development of several successful commercial security systems.

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