From research into data science, internet of things, cyber security and intelligent virtual agents to service computing and mobile computing, Macquarie’s information and computing science researchers are taking on the grand challenges that society faces today.

Our location in the heart of Australia’s largest high-tech precinct facilitates collaborative research projects with industry that seek bold solutions for national and global challenges.

High-profile industry partners include the Australian Signals Directorate, BCS Online, CSIRO, Datacom, Defence Science and Technology Group, EMC, Holocentric, Honeywell, Huawei, IBM, Microsoft and Optus.

Since 2016, we have been collaborating with Optus Business in the $10 million Optus Macquarie University Cyber Security Hub. The objective of the Cyber Security Hub is to help businesses and governments raise awareness of the increasing number of cyber threats, as well as to develop effective, research-informed methods that protect against security threats. Professional training and consultancy services are provided to the private sector and government agencies.

Our renowned researchers – including a Fellow of the Association for Computational Linguistics and an ARC Future Fellowship holder – have made major contributions to the ARC Research Networks in Human Communication Science and Enterprise Information Infrastructure, as well as to one of the three ARC/NHMRC Thinking Systems projects, and Capital Markets CRC.

Macquarie also enjoys enviable rankings. In the most recent Excellence in Research for Australia evaluation, our research in computation theory and mathematics received a rating of performance above world standard, and our research in artificial intelligence and image processing, and distributed computing received a rating of performance at world standard.

As a higher degree research candidate at Macquarie, you’ll have the opportunity to conduct research alongside some of the world’s best scholars whose cutting-edge research continually pushes the boundaries of knowledge. You’ll also benefit from our working partnerships with many of the global IT companies neighbouring our campus.
AREAS OF SPECIALISATION

- Algorithms and cryptography
- Big data analytics
- Business process management
- Category theory
- Computer and network security
- Computer games
- Cyber security
- Image processing and computer vision
- Information systems
- Intelligent systems and knowledge management
- Internet of things, digital health and smart cities
- Machine learning
- Natural language processing
- Programming languages
- Services computing and cloud computing
- Social networks
- Software verification
- Trust management
- Virtual reality

RESEARCH HUBS

- Centre for Advanced Computing
- Centre for Language Sciences
- Centre for Language Technology
- Centre of Australian Category Theory
- Intelligent Systems Group
- Optus Macquarie University Cyber Security Hub
- Programming Languages and Verification Group
- Sustainable Software and Systems Group
- Virtual and Interactive Simulations of Reality

OUR RESEARCH PRIORITIES

We pursue excellence in a broad range of research areas. Our five interdisciplinary strategic research priorities – Healthy People, Resilient Societies, Prosperous Economies, Secure Planet and Innovative Technologies – respond to globally significant challenges and opportunities to improve the lives of millions. Together, these research priorities provide a focal point for research, with discoveries made under these priorities translating into real improvements in the lives of local, national and global communities.

JOINTLY SUPERVISED PHD PROGRAMS

Macquarie actively encourages cotutelles and joint degrees – shared supervision arrangements with universities whose research activity strongly aligns with ours. Under each model, you are enrolled at two universities with a principal supervisor at each and may be eligible for additional scholarship support.

mq.edu.au/research/information-and-computing-sciences