University of Newcastle, Australia

SCHOOL OF ELECTRICAL ENGINEERING AND COMPUTING

The School of Electrical Engineering and Computing offers undergraduate and postgraduate study in Electrical Engineering, Computer Engineering, Software Engineering, Computer Science and Information Technology. In conjunction with the School of Engineering, we also offer undergraduate study in Mechatronics.

Society is increasingly recognising the importance of developing and maintaining infrastructure, and the need for a highly skilled workforce. Traditional electrical energy systems, as well as the alternative (renewable) energy systems of the future, are built on physical principles, which form the basis for the Electrical Engineering degree program.

Likewise, the proliferation of computer and telecommunication networks, and the increasing sophistication of computer software projects, creates strong demand for graduates with highly developed professional skills in Computer Engineering, Software Engineering and Computer Science. Global digital solutions, advanced by the emergence of Data Science, Information Systems and Machine Learning, are also critical for the future, and our programs in Computing and Information Technology offer a range of degrees in these areas.

Lecturing staff in the School are committed to providing a challenging and rewarding learning environment. The School has excellent laboratory facilities, supporting degree programs that emphasise modern engineering creativity, design and implementation skills, built upon a strong basis of fundamental principles.

In addition to courses taught from the Callaghan campus, we also teach at Ourimbah and UON Singapore Campuses, with several of the Bachelor of Engineering courses and Information Technology courses on offer at alternate locations. Undergraduate degree programs are accredited by Engineers Australia and the Australian Computer Society. Employer demand for our graduates is intense, with very competitive starting salaries and excellent career prospects.

Our School has a strong and long-standing international research profile in a number of areas, including control systems, signal processing, bioinformatics, computing algorithms, human-computer interaction, telecommunications, and energy systems and power electronics. The School is host to the Priority Research Centre for Complex Dynamic Systems and Control (CDSC). In addition, research in the School is focused in University Research Centres in

power electronics (ResTech), the Laboratory for Dynamics and Control of NanoSystems (LDCN), human-computer interaction (i3Lab), applied informatics research (AIR group) and the Newcastle Robotics Laboratory (NUBOTS), with a strong history of competition in the RoboCup World Championships.
Research in the School is strongly supported by external funding sources, including the Australian Research Council, and significant industry funding. In addition to over 40 lecturing staff, our School is home to some 30 post-doctoral research fellows and over 40 higher degree research students studying for research Masters and PhD degrees, making for a vibrant and supportive research environment.

Our programs are underpinned by some of the most exciting research in Australia. In the Australian Research Council research excellence ratings we are the only university in Australia to receive a top rating of '5' for Electrical and Electronic Engineering across all three assessments (2010, 2012 and 2015).

Below is the list of some potential supervisors and their research interests.

Zhiyong Chen: Nonlinear systems and control, networked systems, biological systems, robotics

Colin Coates: Electric Drives, Low Voltage Distributed Generation, Small Scale Wind Turbines

Jose De Dona: Constrained control and estimation, nonlinear control systems, multisensor systems, fault tolerant systems

Andrew Fleming: Dynamics, control and analysis of scanning probe systems

Sarah Johnson: Biomedical signal processing, error correction coding, information theory, signal processing

Jamil Khan: Telecommunications networks, wireless networks, cognitive and cooperative networks and sensor networks.

Yuqing Lin: Combinatorics, graph theory, software engineering

Kaushik Mahata: Signal processing, system identification

Pablo Moscato: Memetic algorithms and its applications.

Nasimul Noman: Memetic algorithms and its applications.

Lawrence Ong: Information theory, coding theory, index coding, wireless communications

Terrence Summers: Electrical engineering, industrial electronics, microprocessor systems, power engineering

James Welsh: Control systems, experiment Design, system identification