

Statistics and ICT

The combination of computer science scholars, information technology experts, statisticians and mathematicians in the School of Computing and Mathematics increases the reliability and quality of results that they produce. They amalgamate strong fundamental theoretical knowledge and in-depth understanding with practical information technology capabilities and human-centered computing – an amalgamation invaluable in many applied areas, from biomedical and social sciences to business. The School's capabilities are combined with extensive interaction with businesses and government bodies.

Emerging business environments

Online virtual worlds are distributed electronic environments where people can work and interact over the Internet in a semi-realistic manner. This is a strong UWS capability that is being applied to potential opportunities for businesses. The analysis of social, behavioural and economic aspects of the virtual communities enabled by these worlds is relevant to organisations, software engineering projects, electronic markets and a myriad of other areas. A feature of the University's facilities is a large virtual reality screen that enables a shared view of developments.

Electronic markets and electronic business transactions are also areas of strong capabilities. Consultancy services provide businesses with advice on future trading environments, especially the support and automation of multi-attribute negotiation in those environments and their anticipated effect on business networks.

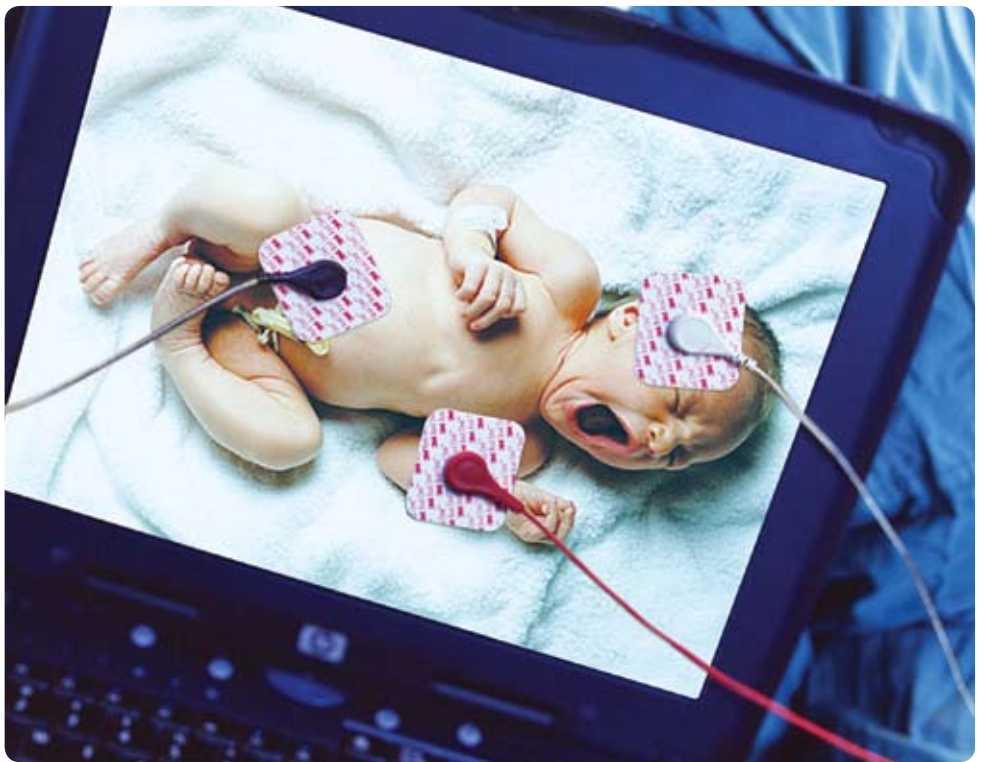
Intelligent information systems expertise is also available in multi-agent systems, case-based reasoning, artificial intelligence technologies and applications of knowledge management and collaborative business processes.

Regional eBusiness focus

Two major surveys in recent years have given the School a deep understanding of the information and communication technology (ICT) needs of businesses in Western Sydney. A team is developing applications to meet these needs, focusing on emerging technologies.

The Advanced Enterprise Information Management Systems (AeIMS) research group is helping small and medium sized enterprises (SMEs) in Western Sydney to progressively plan and implement new business processes based on ICT – the process of 'eTransformation'.

AeIMS is active in both awareness-raising and working directly with clients. AeIMS engages with industry associations and local councils, and is working with the Western Sydney IT Cluster of the NSW Department of State and Regional Development, involving about 240 SMEs, and the Penrith Valley Economic Development Board.



Business intelligence and analytics, statistical and mathematical methods

Knowledge capture and management is a critical competency for the survival of businesses as they grapple with accessing, using and managing vast amounts of often incomplete and inconsistent data and information.

Expert advice is available on:

- » Selecting appropriate analytical mathematical and statistical methods
- » The full range of statistical and data mining approaches
- » The application of mathematical techniques
- » A diverse range of computer programs
- » Interpretation and presentation of results
- » Qualitative and quantitative data analysis
- » Various analytics

Health informatics

Health informatics – or ‘e-health’ – provides information and communication technology support in health and medicine. It involves the fusion of ICT with medical and biological sciences and organisational aspects of health care.

Expert advice is available on various aspects of e-health, including:

- » Administrative systems for admission and finances
- » Patient journey transformation
- » Business process modelling
- » Clinical data collection
- » Physiological data collection
- » Data and information integration, warehousing, mining and visualisation
- » Clinical analysis and research
- » Training
- » Telemedicine and telehealth, based on using broadband networks
- » Virtual reality anatomy models

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