University of Southern Queensland

ANNUAL RESEARCH REPORT 2008

School of Information Systems

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SCHOOL OF INFORMATION SYSTEMS

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Executive summary

The School of Information Systems has staff involved in a range of research activities and groupings. A major research interest of the School is the Collaboration for Ageing and Aged-care Informatics Research (CAAIR) involving researchers from across USQ faculties, other Australian and international universities, government and industry. It aims to be the leading centre for information management and technology solutions to address the issues of ageing and aged care that are of increasing concern to most countries.

The Queensland Smart Home Initiative research consortium is now entering its 4th year. It has received Smart State, ARC and industry support. It is currently building the next Demonstrator Smart Home, planning a large-scale roll-out of 100 occupied smart homes project, and building the SAIL (Smart Ageing & Independent Living) Foundation. Participants include Qld Government Departments, IT manufacturers, five Australian universities and community groups. As well, IS staff are involved in the ARC LP-funded "Hospital avoidance and connected communities of care" project in Hervey Bay. This project is supported by Qld Health and Nexus Online and has an ARC Linkage Project grant. Project partners include the District Health Boards, Hospitals, GP and Community Health networks. It provides connections between community-based carers and the hospitals for better coordination care through sharing of information.

The Technology Management project group conducts quality research in the domain of technology management with specific attention paid to human behaviours, knowledge transfer, web services and mobile technology diffusion. For five years, the IT Service Management project group has been active in researching the adoption of process improvement frameworks for IT service management. Frameworks include the IT Infrastructure Library (ITIL) and ISO/IEC 20000. The project group is the preferred research partner of itSMF Australia – the IT Service Management Forum and is undertaking an ARC Linkage project with Queensland Health and itSMF.

Highlights of the year

Publications

IS School members contributed to 28 published research articles as books, book chapters, journal articles and conference proceedings throughout the year.

Research Higher Degree Completions

Six research higher degree students graduated at the 2008 USQ Graduation Ceremonies which were held in April and September.

Visit to USQ by Dr Judith Symonds, Auckland University of Technology

Dr Judith Symonds returned to Toowoomba from Auckland University of Technology to work on an assisted living project with USQ's School of Information Systems. Dr Symonds is working to undertake some field trials and evaluation of the system with Associate Professors Jeffrey Soar and Trudy Yuginovich from Collaboration for Ageing and Aged-Care Informatics Research (CAAIR) at USQ.

Information Systems Research & Higher Degrees Committee

The School of Information Systems Research & Higher Degrees Committee chaired by Dr Aileen Cater-Steel met monthly throughout the year.

Message from Pro Vice-Chancellor (Research)

The School of Information Systems had a very successful "research year" in 2008 as evidenced by the graduation of 6 research higher degree students and the publication of over 20 learned articles. School staff also have continued to contribute as editors and reviewers for a wide spectrum of conferences and journals, and the School had hosted an impressive array of visiting speakers and scholars. I regard the School as an important contributor to the Faculty of Business and University research output, and commend them on their efforts and their aspirations to build further on their solid research foundation.

Professor Frank Bullen
September 2009

ABOUT THIS REPORT

This report has been prepared by Aileen Cater-Steel with help and input from Rae Jones and members of the School of Information Systems. Please address comments, corrections or suggestions to Aileen Cater-Steel at email Aileen.Cater-Steel@usq.edu.au.

Research Higher Degree students: successful completion

Lynn SPARLING
Doctor of Business Administration (DBA)

Dissertation title:	Adoption of e-Commerce by SMEs in the Central Okanagan Region of Canada
Supervisors:	Professor Mark Toleman and Dr Aileen Cater-Steel
Abstract:	While online sales have experienced high growth rates, e-commerce adoption rates by Canadian SMEs have not kept pace. Canadian SMEs continue to lag behind the US and the EU in adopting e-commerce. The majority of businesses in Canada have fewer than 200 employees. These firms have the greatest potential for productivity gains through the adoption of e-business, yet most Canadian SMEs are not capitalizing on this opportunity. This study examines characteristics of SMEs to search for significant factors that differed between SMEs that had adopted e-commerce and those that had not. A mail and online survey was distributed to SMEs throughout the Central Okanagan region of British Columbia, Canada. The research identified five areas in which SMEs that had adopted e-commerce differed from non-adopters. Differences were found for three organization characteristics: technological opportunism and readiness, organization support, and owner's use of computers, and two innovation characteristics: relative advantage and compatibility. A new model of the significant factors affecting e-commerce adoption was developed based on the research results. This model can guide SME owners, e-commerce providers and public sector managers towards increased adoption of e-commerce by SMEs.

Michael DE RAADT
Doctor of Philosophy (PhD)

Dissertation title:	Teaching programming strategies explicitly to novice programmers
Supervisors:	Professor Mark Toleman and Dr Richard Watson (Dept of Maths & Computing)
Abstract:	The traditional approach to training novice programmers has been to provide explicit programming knowledge instruction but to rely on implicit instruction of programming strategies. Studies, reported in literature, have discovered universally poor results on standardised tests for novices studying under this traditional approach. This dissertation describes the explicit integration of programming strategies into instruction and assessment of novice programmers, and the impact of this change on their learning outcomes. The series of experiments focussed on explicitly teaching specific programming strategies rather than teaching problem-solving more generally. These experimental results demonstrate that explicit incorporation of programming strategies may improve outcomes for novices and potentially improve the potential of expert programmers in future.

Raul VALVERDE
Doctor of Business Administration (DBA)

Dissertation title:	The ontological evaluation of the requirements model when shifting from a traditional to a component-based paradigm in information systems re-engineering
Supervisors:	Professor Mark Toleman and Dr Aileen Cater-Steel
Abstract:	The vast majority of present legacy information systems were implemented using the traditional paradigm. The traditional paradigm consists of modelling techniques used by system analysts such as System flow Charts and Data Flow Diagrams (DFD) to capture, during the analysis phase, the activities within a system. However, with recent developments, particularly trends towards e-Commerce applications, platform independence, reusability of pre-built components, capacity for reconfiguration and higher reliability, many organizations are realizing they will need to re-engineer their systems into new component based systems that meet these trends given the limitation of legacy systems to adapt to these new technical requirements. This research included directions of future research that put emphasis on the development of automated software tools for systems re-engineering that could implement the rules suggested in this study and the ontological methodology approach used.

Heng-Sheng TSAI (Aaron BOND)

Doctor of Philosophy (PhD)

Dissertation title:	*Mobile business: a framework and successful strategies of the transformation process*
Supervisors:	Associate Professor Raj Gururajan and Professor Mark Toleman
Abstract:	The rapid development of mobile technology in recent years enables the wide usage of mobile devices and mobile services. Mobile technology is transforming working process, supply chains, and customer interactions, and providing new innovations, cost-reduction and revenue opportunities. This phenomenon of m-transformation attracts researchers and practitioners to study this issue. As this is an emerging field, this is perhaps the first attempt in Australia to understand these issues in a rigorous manner. The theoretical model proposed may be one of the earliest models designed for m-business transformation. This is the contribution to the broader field.

Abdalla Khalid AL-MABROUK

Doctor of Philosophy (PhD)

Dissertation title:	*Identification of the major issues for successful information technology transfer in the Arab world*
Supervisors:	Associate Professor Jeffrey Soar and Associate Professor Raj Gururajan
Abstract:	Transfer of enabling technology such as Information Technology (IT) has become a vital component of countries looking for successful technological innovation and techno-economic development in the current era. However, in the history of technology transfer in the Arab world, it is probably true that there has been more failure and disappointment than satisfaction and success in achieving the expected results from the technology transfer agreements. Many complex issues are involved in the consideration of IT transfer in the Arab World. Some of those issues are not completely defined and studied, or cannot be precisely measured. The study findings will be also of interest to all stakeholder groups who seek to better understand the major issues surrounding IT transfer success in developing countries in general, and in the Arab World in particular.

Peter MOMBOURQUETTE

Doctor of Business Administration (DBA)

Dissertation title:	*E-Commerce use in Atlantic Canada*
Supervisors:	Professor Mark Toleman and Dr Aileen Cater-Steel
Abstract:	This research examines the nature and extent of e-commerce use among Atlantic Canadian small and medium enterprises (SMEs), develops a model to explain future intentions to adopt more sophisticated e-commerce technologies and tests the model to determine if it explains current levels of e-commerce adoption. Significant findings from this research are, first, Atlantic Canadian SMEs are adopting basic e-commerce technologies but are not adopting or planning to adopt sophisticated technologies. This is in spite of evidence that suggests that SMEs that adopt e-commerce are likely to experience significant benefits. Second, decision makers in SMEs do not understand the general benefits of adopting e-commerce technology or furthering the extent of their adoption. Third, decision makers in SMEs appear to lack understanding about specific benefits of e-commerce use, are not convinced in their ability to use new e-commerce technologies and do not identify people in their peer group that will positively impact their decision to adopt. In addition while owners/CEOs appear to feel that they are somewhat innovative, have some degree of computer knowledge and that their staff also has some knowledge they are not over certain in their own or their staff's knowledge and skills. Fourthly, the model did explain a significant amount of SMEs' intentions to adopt additionally technology with performance expectancy, effort expectance and social influence being the most significant constructs. The model did not assist in understanding current usage of e-commerce among Atlantic Canadian SMEs.

Higher Degree research supervision (ongoing)

For each student, the names of the principal and associate supervisors and the title of the dissertation are shown.

Doctor of Philosophy

Al-Bakri, A: 'The adoption of business-to-business electronic commerce systems by small and medium enterprises in Jordan and its influence on performance and efficiency'

Supervisors: Dr Aileen Cater-Steel & Assoc Professor Jeffrey Soar

Ally, M: 'Frameworks for the adoption and integration of Internet payment systems into business-to-commerce e-business applications'

Supervisors: Professor Mark Toleman & Dr Aileen Cater-Steel

Gani, Z: 'Critical success factors of teleworking within the business to consumer e-business context'

Supervisors: Professor Mark Toleman & Dr Wui-Gee Tan

Grist, S: 'Scenario-based environmental decision support for Australian agribusiness'

Supervisors: Professor Mark Toleman & Dr Geoff Slaughter (School of Accounting, Economics & Finance)

Hafeez-Baig, A: 'The determinants for the successful adoption of wireless technology for patient data management in Australian healthcare systems'

Supervisors: Assoc Professor Raj Gururajan & Assoc Professor Jeffrey Soar

Hyland, J: 'An investigation into the attitudes and acceptability of personal health records by elderly and chronically ill Australians using fourth generation evaluation'

Supervisors: Assoc Professor Jeffrey Soar & Assoc Professor Trudy Yuginovich (Dept of Nursing)

James, DJ: 'Increasing the adoption and use of Web 2.0 collaboration technologies: a study of state government change agents'

Supervisors: Assoc Professor Raj Gururajan & Jeffrey Coutts **(Consultant)**

Moloney, C: 'Innovation, diffusion, and user acceptance of evidence based practice within Queensland Health nurses'

Supervisors: Assoc Professor Raj Gururajan & J March (Queensland Health)

Pease, W: 'Innovation, diffusion and user acceptance of information technology systems in aged care facilities in Australia'

Supervisors: Assoc Professor Raj Gururajan & Assoc Professor Jeffrey Soar

Poepjes, R: 'Development of information security awareness capability model: linking ISO27002 controls with awareness importance, capability and risk'

Supervisors: Dr Michael Lane & Dr Wui-Gee Tan

Raymer, E: 'A case study examining nurse educators' use of information and communication technology for knowledge translation in Queensland Health'

Supervisors: Assoc Professor Raj Gururajan & S Hart (Queensland Health)

Roberts, D: 'Software upgrade adoption'

Supervisors: Professor Mark Toleman & Dr Aileen Cater-Steel

Soroush, L: 'An exploration of telehealth system adoption by clinicians in Australia'

Supervisors: Assoc Professor Raj Gururajan & S Stenhouse (Queensland Health)

Whittaker, F: 'A comparison between three different types of hospital avoidance programs: hospital based, GP based and community based'

Supervisors: Assoc Professor Jeffrey Soar & Assoc Professor Trudy Yuginovich (Dept of Nursing)

Doctor of Business Administration (Dissertations)

The following students have completed the coursework component of the DBA and are currently working on their dissertations.

Koo, WM: 'Is project management able to reduce language barriers in projects in multi-language and multi-cultural context?'

Supervisors: Dr Wui-Gee Tan & Professor Mark Toleman

Billodeau, V: 'How do organisations determine the real net benefits of adopting wireless applications?'

Supervisors: Assoc Professor Jeffrey Soar & Dr Aileen Cater-Steel

Lembach, M: 'Improving pharmaceutical sales-force worker performance by using innovative mobile computing technologies'

Supervisors: Dr Michael Lane & Dr Jianming Yong

Master of Business Research

Howard, A

Supervisors: Assoc Professor Raj Gururajan & Abdul Hafeez-Baig

Discussions on joint USQ/Queensland Health projects (Queensland Smart Home Initiative (QSHI) & Wireless PDA)

USQ Vice-Chancellor, Professor Bill Lovegrove; Assoc Professor Raj Gururajan; Minister for Health the Hon Stephen Robertson MP; Assoc Professor Jeffrey Soar and USQ Deputy Vice-Chancellor (Scholarship), Professor Graham Baker

Source: *Research Matters*, July-August 2009, Vol 1 Issue 4

Research grants

Members of the IS School made a concerted effort to secure funding for research projects and to work on existing research projects.

External Research Funding

Table 1 lists the current competitive grants awarded by funding bodies external to USQ to IS School staff members.

TABLE 1: EXTERNAL COMPETITIVE GRANTS AWARDED

YEAR AWARDED	FUNDING BODY	APPLICANTS	PROJECT	TOTAL VALUE
2008	The Centre for Education and Research in Information Assurance and Security (CERIAS)	**J Yong**	Research on digital identity assurance mechanism	US$15,416
2008	Pfizer Zaidan Research Foundation	S Jeong, Nihon Fukushi Univ, Japan **J Soar**	International comparative study of rehabilitation care for the elderly	US$20,000
2008	French Embassy – French for Scientists Grant	**J Soar**	French for scientists – supporting leading scientists for French collaboration	$400
2008	The Center for Education and Research in Information Assurance and Security (CERIAS)	**J Yong** Purdue University USA	Research on digital identity assurance mechanism	US$15,416
2007	ARC Linkage Project	**R Gururajan** J Gow **J Soar**	Implementing teleauscultation for remote user health services in Australia: A case study with economic evaluation	$237,000
2007	ARC Linkage Project	**J Soar** T Yuginovich P Croll	Reducing avoidable admissions of the frail and elderly	$1.65m (Grant of $360k)
2007	Smart State Funding	**J Soar**	Queensland Smart Home Initiative	$480,000 (Grant of $110k)
2007	ARC Linkage Project	**A Cater-Steel** **M Toleman**	Performance measurement framework for IT service management to improve crucial IT infrastructure in private & public sector organisations	$94,451
2007	ARC Linkage Project	**R Gururajan** V Popvic, D Kerr, A Scott, C Moloney & Chandrasekaren	Remote patient assessment using digital stethoscope for telehealth systems in Australia	$478,862
2006	Queensland Statewide Telehealth Service	**R Gururajan**	Digital Stethoscope Project	$79,000
2006	University of Adelaide	**R Gururajan**	Visiting Scholar Grant	$6,500

Implementing Tele-auscultation for remote user health services in Australia: A case study with economic evaluation, 2009 -2011

Assoc Prof Jeffrey Soar, Assoc Prof Raj Gururajan,
Assoc Prof Jeff Gow and Clint Moloney

Source: Research Matters, Oct-Nov 2008, Vol 1 Issue 7

USQ Research Grants

As shown in Table 2, IS School staff worked on various competitive USQ research grants.

TABLE 2: USQ COMPETITIVE GRANTS AWARDED

YEAR AWARDED	FUNDING BODY	APPLICANTS	PROJECT	TOTAL VALUE
2008	LTEC	**A Cater-Steel**	Improving the capability of research supervisors	$20,000

IS Staff Research Interests

TABLE 3: IS STAFF RESEARCH INTERESTS

NAME	AREA OF EXPERTISE/INTEREST
Mustafa Ally *MIT QUT*	Agile methodologies; electronic commerce and internet payment systems
Dr Aileen Cater-Steel *PhD Griffith*	IT service management; ICT governance; IT standards; software process improvement; e-Commerce
Rohan Genrich *MEd USQ*	Mobile learning; educational information technology/information systems
Shelly Grist *MDigitalDesign Griffith*	eBusiness for SMEs; software design patterns; information systems development for life cycle assessment
Assoc Prof Raj Gururajan *PhD ECU*	Wireless applications; computer security; IT policy and management; software engineering and management; educational technology
Abdul Hafeez-Baig *MBA, MIS Griffith*	Wireless and healthcare; systems analysis and design; adoption, diffusion, and infusion of information technology
Angela Howard *BIT UCSQ, BSc USQ*	Security (wireless, network, profiling); wireless technologies; combining IT with psychology
Srecko Howard *GDipIT USQ*	Network security, wireless networks; open source systems and software
Dr Michael Lane *PhD USQ*	e-Commerce; IS development; knowledge management; agile methodologies; IT outsourcing; open source development; security; wireless computing
Dave Roberts *MSc Curtin*	Information systems education; adoption and implementation of software
Charmaine Ryan *MEd Qld*	Knowledge management from an information systems perspective; information systems education, in particular generalist, cultural or gender issues; electronic assessment support systems.
Assoc Prof Jeffrey Soar *PhD UTS*	e-Health; health informatics; informatics for ageing and aged care; telehealth; assistive technologies for independent living and home-care; ICT for public safety; strategic planning; organizational change; leadership; benefits realization; business-IT alignment; IT management; project rigour; quality systems; IT in developing countries
Dr Wui-Gee Tan *PhD QUT*	IT project management; IT service management; IT outsourcing; information security governance
Prof Mark Toleman *PhD Qld*	IT service management; ICT governance; agile methods; human-computer interaction; usability
Glen van der Vyver *MCom Witwatersrand* *MSc London* *MA De Montfort, MLitt CQU*	Risk perception; information technology careers; outsourcing and off-shoring; strategic information systems; information technology education; applied organizational psychology in ICT
Dr Jianming Yong *PhD Swinburne UT*	Advanced networking; internet technology; m-commerce; e-business; data integration; workflow systems; information system security; network management; web service for SMEs

Research activities

TABLE 4: RESEARCH ACTIVITIES

PROJECT TITLE	PROJECT TEAM MEMBERS	BRIEF OUTLINE
IT Service Management	**Dr Aileen Cater-Steel** **Dr Wui-Gee Tan** **Prof Mark Toleman** Frances Gacenga (PhD student)	For a number of years, this project group has been active in researching the adoption of process improvement frameworks for IT service management. Frameworks include the IT Infrastructure Library (ITIL), ISO/IEC 20000, and CMMI SVC. As well, ICT governance issues related to service management are examined. The project group has a research agreement with itSMF Australia – the IT Service Management Forum. An ARC Linkage project grant was awarded to commence in 2008. The partners in the ARC project are Queensland Health and itSMF Australia.
The changing role of the CIO	**Dr Michael Lane** **Glen Van der Vyver** Prof Andy Koronios (UniSA)	The management of information communications and technology (ICT) in an organisation is complex and challenging. Given that in the last decade, businesses have experienced significant change due to globalisation, mergers and deregulation and the way ICT can be delivered has changed significantly, it is not surprising the role of the Chief Information Officer (CIO) has become increasingly important and challenging. Given the increasingly vital and strategic role of the CIO in organisations heavily reliant on ICT, a better understanding of the critical dimensions required for the role of the CIO warrants the attention of business and academia.
Impact of partnership quality on IT outsourcing success	**Dr Michael Lane** **Glen Van der Vyver** Assoc Prof Anne Rouse (Deakin Business School)	Proponents of IT outsourcing have emphasized that managing outsourcing relationships is very important. The partnership between the client organisation and IT outsourcing vendor is critical to the success of the IT outsourcing relationship. However, there is a lack of empirical research which has tested the relationship between the quality of the partnership and the success of the IT outsourcing relationship on a large scale. This study will confirm the reliability and validity of a measurement model for partnership quality and IT outsourcing success and test predictive strength of the relationships in the measurement model.
The adoption and diffusion of mobile computing transforming field work in Utilities organisations	**Dr Michael Lane** Dr Jing Gao (UniSA) Prof Gerald Quirchmayr (Uni of Vienna) Prof Andy Koronios (UniSA)	Utilities organisations are in the early stages of adopting mobile computing and have not realised the potential of mobile computing to transform organisational performance. The aim of this project is to develop a theoretical understanding of how and why key factors determine the success of the adoption process of mobile computing in field work. The findings will contribute to a theoretical understanding of how and why key factors determine the success of the adoption process for mobile computing in the field workforce so that substantial economic benefits can be realised from mobile computing at the organisational and national level.
Investigations into and development of an intelligent decision support system for general practitioners in home-based sleep disorder diagnosis	Assoc Prof Don Kerr (Griffith) **Assoc Prof Raj Gururajan** Shamim Khan (Murdoch) Timo Vuori (Murdoch) Clint Moloney (Qld Health)	Sleep disorders cost the Australian health system an estimated $40 million per annum. The general practitioner is not equipped to deal with the diagnosis and the majority of the referrals to specialists are unnecessary. The current system is inadequate and expensive. This project will investigate and develop an innovative intelligent decision support system to provide a cost effective solution. This will enable sleep study to be carried out at home, particularly in remote areas, avoiding the cost incurred at hospital sleep care units. Further, this will enable general practitioners to conduct preliminary diagnoses and avoid unnecessary referrals resulting in significant cost saving.
Nursing Computer Decision Support M-Learning project: Decision making analysis for nurses using hand held computers	Clint Moloney (Qld Health) **Assoc Prof Raj Gururajan** Michelle Cameron (Qld Health)	The Nursing Computer Decision Support M-Learning project, initiated by the District Research Liaison Unit (DRLU) at Toowoomba Health Service District will address the lack of access to clinical decision making information for nursing by developing a prototype of a point-of-care system to deliver clinical knowledge via a handheld computer in conjunction with USQ. We will develop a nurse decision-tree model leading to a series of computerized practice maps. The focus of such maps is to design a database architecture to contain algorithms in order to mimic nursing knowledge for clinical decision processes.

PROJECT TITLE	PROJECT TEAM MEMBERS	BRIEF OUTLINE
Evaluating the suitability of Digital Stethoscope to Queensland State wide Telehealth Services	**Assoc Prof Raj Gururajan** Annette Scott (Telehealth) Clint Moloney (Qld Health)	Current digital stethoscopes appear to be unsuitable to Telehealth. This is because current models either do not offer the real time connectivity or are constrained in replicating a physician's behaviour. When these digital stethoscopes are used on a telehealth platform for remote patient assessment, due to technological constraints, physicians are not able to assess the patients based on the signals sent by these digital stethoscopes. This project will assess the suitability of an available stethoscope (Littman model) and make necessary refinement in order for that to be used on a telehealth platform. The refinement will address sound quality, transmission of noise signals in real time and a clinical testing by physicians to an acceptable level.
Remote patient assessment using digital stethoscope for telehealth systems in Australia	**Assoc Prof Raj Gururajan** Vesna Popovic (QUT) Assoc Prof Don Kerr (USC) Kesavan Chandrasekaran (India) Clint Moloney (Qld Health) Annette Scott (Qld Health)	Health departments in Australia use a significant amount of their budget to assist patients travelling to major centres for assessment prior to surgery or for routine checks. This travel is expensive and disruptive to the patients involved. Digital Stethoscope and associated communications technology offers an alternative for a significant amount of this travel. This project will produce a user friendly, remote patient assessment tool for illness that requires a stethoscope for diagnosis or assessment. Benefits of the project will include incidental learning by remotely located health workers, less disruption to patients and more effective use of the medical professional's time.
Improving Nursing Decision Making using Wireless Handheld Devices	Clint Moloney (Qld Health) **Assoc Prof Raj Gururajan** **Wayne Pease** Michelle Cameron (Qld Health)	The Improving Nursing Decision Making using Wireless Handheld Devices project will address the lack of access to clinical decision making information for nurses in Queensland by developing a prototype of a point-of-care system to deliver clinical knowledge via a handheld computer. A decision-tree model leading to a series of computerized practice maps will be developed and linked to a data base architecture of algorithms in order to mimic nursing knowledge for clinical decision processes. A prototype for a point-of-care system that will make relevant information available to acute care nurses as they make decisions will be developed. The system will be designed to be particularly helpful to novice nurses, assisting them to make more focused assessments, anticipate unsatisfactory patient outcomes, and initiate appropriate early actions.
Cost Effective and Self Managed Obesity in school children using ICT	Vijaya Gururajan (USQ) Clint Moloney (Qld Health) **Assoc Prof Raj Gururajan**	This research aims to correlate weight, sleep, dietary intake and physical activity using a suite of ICT tools in school aged children in order to accurately measure obesity so that contributing factors to childhood obesity are better understood.
Ageing and aged-care informatics research	**Assoc Prof Jeffrey Soar** Assoc Prof J Gow Assoc Prof T Yuginovich Dr S Y Wang C Arden F Whittaker J Hyland	In collaboration with national and international research partners, the Collaboration for Ageing and Aged-care Informatics Research (CAAIR) will be the leading centre for information management and technology solutions to address the issues of aged care that are of increasing concern to most developed countries. Within six years, the first of the millions of baby boomers will turn 65. Within a few years after that, older people will be the largest demographic group in Australia, Japan, the USA and most of Europe. Technologies will be critical in supporting the frail elderly, supporting families of the elderly, enabling clinicians, supporting home and community-based care, and in deferring moves to institutional care settings. There will be large savings from applying technology to foster prevention, early detection and new ways for families and clinicians to support the frail elderly. CAAIR will undertake highly innovative and internationally competitive research on opportunities for technology innovation to address the challenges for enhancing active ageing and meeting increasing demands for aged care in community and institutional settings. The existing strong international links will ensure this research excellence is translated into outcomes of economic, social and cultural benefit to Australia. It also has substantial potential value for improving efficiency and quality of aged care services in Australia as well as providing products that will generate exports.

PROJECT TITLE	PROJECT TEAM MEMBERS	BRIEF OUTLINE
Connected communities of care	**Assoc Prof Jeffrey Soar** Assoc Prof J Gow Assoc Prof T Yuginovich Dr S Y Wang C Arden F Whittaker J Hyland	Connected communities for care in: Hervey Bay (ARC funding) Stanthorpe (Dept Communities grant), and Brisbane North Health District. Clinical, social and economic evaluation
Smart homes for independent living	**Assoc Prof Jeffrey Soar** Assoc Prof J Gow Assoc Prof T Yuginovich Dr S Y Wang	Building and evaluating smart homes for their clinical, social and economic benefits
Capacity building in developing nations	**Assoc Prof Jeffrey Soar**	Strategic analysis, planning and management capacity building in developing nations including Fiji and the Solomon Islands

Improving Nurses Decision Making Using Wireless Handheld Devices

From left to right: Viji Gururajan (Project Manager), Greg Weale (Motorola), Clint Moloney (Queensland Health), Andrew Robinson (Motorola), Gary Brady (Commercialisation), Assoc Professor Raj Gururajan, Abdul Hafeez-Baig

Source: *Research Matters*, May-June 2008, Vol 1 Issue 2

Editorial contribution

School members contributed to the IS discipline by reviewing papers for journals and conferences.

TABLE 5: EDITORIAL CONTRIBUTION BY IS STAFF

STAFF MEMBER	JOURNAL OR CONFERENCE TITLE AND EDITORIAL ROLE
Mustafa Ally	International Conference on Information Systems – reviewer Informing Science + Information Technology Education (InSite) – editor International Journal of e-Business – reviewer Australian Journal of Information Systems – reviewer Australasian Conference on Information Systems (ACIS) – reviewer
Aileen Cater-Steel	Australasian Conference on Information Systems (ACIS) HICCS Software Process Improvement Conference (SPICE) – reviewer IEEE Software – reviewer Special issue editor ISM
Raj Gururajan	Computer Methods and Programs in Biomedicine – reviewer Queensland Nursing Council Grants – reviewer ARC Linkage and DP applications – reviewer Australian Business and Behavioural Sciences Association Conference – reviewer International Conference on Qualitative Research in IT (Qual IT) – reviewer Technology Management Conference – reviewer Australasian Conference on Information Systems (ACIS) – reviewer International Research in Information Systems (IRIS) – reviewer International Conference – Innovative New Product Development: Engineering Meets Marketing (INPDEM) – reviewer International Conference on Globally Distributed Work (GDW) – reviewer International Association for Development of the Information Society – reviewer
Abdul Hafeez-Baig	The 3rd International Conference on Pedagogies and Learning: Meanings Emerging in Practice – reviewer
Michael Lane	Journal of Information Technology – reviewer Journal of Strategic Information Systems – reviewer International Conference of Information Systems Development – reviewer
Charmaine Ryan	Australasian Conference on Information Systems (ACIS) – reviewer
Jeffrey Soar	Integrated Publication & Information Systems Institute Journal – reviewer Health Informatics Conference – reviewer Editorial Board member of: eJournal of Health Informatics Clinical Medicine: Case Reports FICOSSER (International Federation of Health Systems Research Centres) International Congress on Pervasive Computing and Management International Journal of Pervasive and Ubiquitous Computing (IJPUC) IBIMA (International Business Information Management Association) IEEE ICETiC: International Conference on Emerging Trends in Computing Grants reviewer for: ARC NHMRC Arab Science & Technology Foundation 2008 Organiser and Chair, Aged Care Informatics 2008. A special Symposium of HIC08 Health Informatics Conference, Health Informatics Society of Australia, Melbourne, July 2008. 2008 Chair of research stream (ITAC-R) within the Information Technology in Aged Care annual conference, ACAA/HISA, Melbourne, 4 September 2008.
Wui-Gee Tan	Journal of Software Maintenance and Evolution – member of editorial board International Journal of Information & Decision Sciences – member of editorial board International Journal of Information Systems in the Service Sector – member of editorial board Australian Conference on Information Systems (ACIS) – reviewer International Conference on Information Systems (ICIS) – reviewer INTREADER for ARC – DP and LP applications – reviewer

STAFF MEMBER	JOURNAL OR CONFERENCE TITLE AND EDITORIAL ROLE
Mark Toleman	ACIS 2008, Christchurch, NZ – track chair and session chair ITME 2008, Xiamen, China – member of program committee Information Resources Management Journal – member of editorial board International Journal of Knowledge and Learning – member of editorial board International Journal of Information Quality – member of editorial board Journal of Management Practice – member of editorial board Information Systems Management Journal – reviewer IEEE Transactions on Software Engineering – reviewer IBIMA 2008, Cairo, Egypt – reviewer OZCHI 2008, Cairns – reviewer ACIS 2008, Christchurch, NZ – reviewer Bled 2008, Bled, Slovenia – reviewer ARC Discovery and Linkage Grant Applications – OZReader
Jianming Yong	Proceedings of the 2008 12th International Conference on Computer Supported Cooperative Work in Design, Volume I, April 16-18, 2008, Xi'an, China Edited by: Weiming Shen, Qinghua Zheng, Jean-Paul Barthès, Junzhou Luo, Jianming Yong, Zhenhua Duan, Feng Tian Proceedings of 2008 IEEE International Symposium on IT in Medicine and Education, 12-14 Dec., 2008, Xiamen, China. Edited by: Shaozi Li, Wei Pan, Jianming Yong Lecture Notes in Computer Science Volume 5236 Springer 2008. Edited by Weiming Shen, **Jianming Yong**, Yun Yang, Jean-Paul A. Barthès, Junzhou Luo

Visiting speakers

The following list details the international, national and USQ speakers whose presentations were arranged by, or of particular interest to IS researchers.

Dr Latif Hakim, School of Management & Marketing, USQ, Toowoomba – *New Perspective for Mapping Information Flow Within Surgery Operating Rooms* – 25 September 2008.

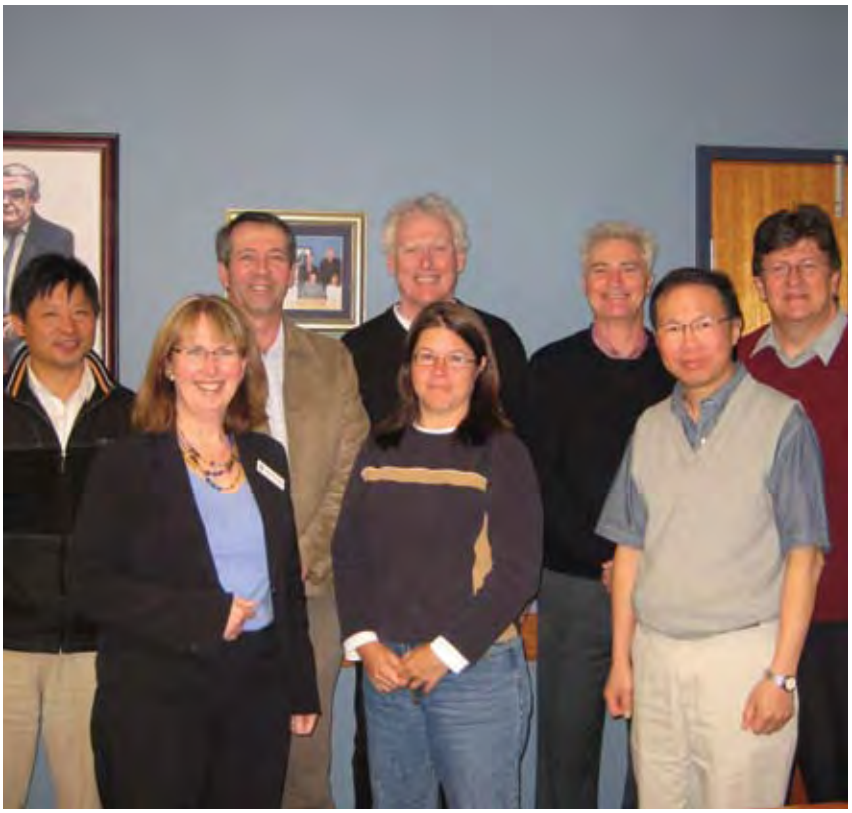
Professor Gordon M Hunter, Faculty of Management, University of Lethbridge, Alberta, Canada – *Qualitative Research Methods: Field Experience* – 2 July 2008.

Professor Xiaofang Zhou, School of Information Technology and Electrical Engineering, University of Queensland – *Data Quality: a Database Perspective* – 26 June 2008.

Professors Jeretta Horn Nord and G Daryl Nord, Oklahoma State University, Stillwater, Oklahoma, USA – *Research and Publishing in the IT Environment* – 20 June 2008.

Dr Judith Symonds, Auckland University of Technology, New Zealand – *Angel: Raising the Alarm When the Button is Out of Reach* – 22 May 2008.

Dave Roberts, Anas Al Bakri, Shelly Grist – University of Southern Queensland – School of Information Systems PhD Seminar – 8 May 2008



Back row: Dr Jianming Yong, Dr Michael Lane, Professor Gordon M Hunter, Dave Roberts, Glen van der Vyver
Front row: Dr Aileen Cater-Steel, Shelly Grist, Dr Wui-Gee Tan

Invited keynote addresses and IS staff presentations

IS School staff and students were invited to conduct the following presentations and keynote addresses. A complete list of presentations of peer-reviewed conference research papers is provided in this report.

Aileen Cater-Steel

- Governance of ICT – ISO/IEC 38500, Information Systems Audit and Control Association (ISACA), QUT Brisbane, 20 August.
- ITSM Education and research, itSMF USA Academic Summit, San Francisco – 6-7 September.
- IT Governance: "town" debates "Gown". A "Debate" between Academia and Industry on Effective IT Governance, UQ Business School, Brisbane CBD – 12 September.
- Using institutionalism as a lens to examine ITIL adoption and diffusion, Research Seminar Series, UQ St Lucia – 31 October.
- Applying Institution Theory to examine ITIL Adoption, Research Seminar, UCD Dublin – 19 December.

Jeffrey Soar

- Assistive Technology for Early Intervention, Early Intervention Forum, Aged Care Queensland, Brisbane Australia – 25 February.
- State of the Art in Assistive Technology for Chronic Disease, Queensland Chronic Disease Forum – "Putting the Pieces Together", Queensland Health, Brisbane – 6 March.

Dr Judith Symonds, Auckland University of Technology and Assoc Professor Jeffrey Soar, USQ

Source: *USQNews*, http://www.usq.edu.au/newsevents/usqnews/2008/newsitems/news/judithsymonds.htm

IT SMUG (IT Service Management Users Group) meeting at USQ

Industry links

Jeffrey Soar and the CAAIR Group**:**
QSHI (Queensland Smart Home Initiative): Intel, Tunstall, Springfield Land Corporation, Queensland Health, Aged Care Queensland, Council on the Ageing, Disabilities Queensland, Department of Communities, Australian Department of Health & Ageing, Hervey Bay Council; Nexus Online; Toowoomba Health District Service; Lutheran Care, Baptist Care.

Aileen Cater-Steel, Wui-Gee Tan and Mark Toleman: IT Service Management Forum (itSMF) Australia; Queensland Health.

Raj Gururajan and Abdul Hafeez-Baig: Queensland Health, Australian Centre for Rural and Remote Evidence based practice, Motorola and RMK Engineering (India).

Green IT Seminar participants:
Back row: Prof Mark Toleman, Phillip Nyssen, Trevor Henderson
Front row: Dr Paul Campbell, Ms Bobbie Brazil, USQ Chancellor, Dr Aileen Cater-Steel

Publications

Publications not recognised by the Australian Government Department of Education, Science and Training (DEEWR) are denoted by *. Names of IS School staff and students are presented in bold case. Full text of most articles is available from USQ e-Prints http://eprints.usq.edu.au/

Books and/or Book Chapters

Cater-Steel, Aileen and Rout, Terry (2008) SPI long term benefits: case studies of five small firms. In: Oktaba, Hanna and Piattini, Mario, (eds.) Software process improvement for small and medium enterprises: techniques and case studies. Information Science Reference (IGI Global), Hershey PA, USA, pp. 223-241. ISBN 978-1-59904-906-9

Darroch, Fiona and **Toleman, Mark** (2008) Lessons in implementing a learning management system in a university: the academic user perspective. In: Clarke, Steve, (ed.) End-user computing: concepts, methodologies, tools and applications. Information Science Reference (IGI Global), Hershey, PA, pp. 1291-1303. ISBN 978-1-59904-945-8

Gururajan, Raj and **Hafeez-Baig, Abdul** and Khan, Shamim (2008) Online learning with peer-review: an initial study. In: E-Learn 2008, 17-21 Nov 2008, Las Vegas, United States.

Roberts, Barbara and **Toleman, Mark** (2008) The role of government in e-business adoption. In: Anttiroiko, Ari-Veikko, (ed.) Electronic government: concepts, methodologies, tools, and applications. Information Science Reference (IGI Global), Hershey, PA, USA. ISBN 978-1-59904-948-9

Stair, Ralph and Reynolds, George and Moisiadis, Frank and **Genrich, Rohan** (2008) Principles of information systems. Thomson Learning, South Melbourne, Australia. ISBN 9780170132831

Journal Articles

Cater-Steel, Aileen and **Toleman, Mark** (2008) The impact of national culture on software engineering practices. International Journal of Technology, Policy and Management, 8 (1). pp. 76-90. ISSN 1468-4322 (Print), 1741-5292 (Online)

Eley, Robert and Fallon, Anthony Bruce and **Soar, Jeffrey** and Buikstra, Elizabeth and Hegney, Desley (2008) Nurses' confidence and experience in using information technology. Australian Journal of Advanced Nursing, 25 (3). pp. 23-35. ISSN 0813-0531 (Print), 1447-4328 (Online)

Eley, Robert and Fallon, Anthony Bruce and **Soar, Jeffrey** and Buikstra, Elizabeth and Hegney, Desley (2008) The status of training and education in information and computer technology of Australia's nurses: a national survey. Journal of Clinical Nursing, 17 (20). p. 2758-2767. ISSN 0962-1067

Gururajan, Raj and Quaddus, Mohammed and Xu, Jun (2008) Clinical usefulness of handheld wireless technology in healthcare: a cross-national study of Australia and India. Journal of Systems and Information Technology, 10 (1). pp. 72-85.

Gururajan, Raj and **Hafeez-Baig, Abdul** and Kerr, Don (2008) Reactions and perceptions of healthcare professional towards wireless devices in healthcare environment in the developing world: a case of Pakistan eJHI: electronic Journal of Health Informatics, 3 (2). -10. ISSN 1446-4381

Li, Jiuyong and Wang, Hua and Jin, Huidong and **Yong, Jianming** (2008) Current developments of k-anonymous data releasing. eJHI: electronic Journal of Health Informatics, 3 (1). ISSN 1446-4381

Conference Proceedings

Al-Mabrouk, Khalid and **Soar, Jeffrey** (2008) Building a framework for understanding and improving information technology transfer process in the Arab countries. In: 9th International Business Information Management Association Conference, 4-6 Jan 2008, Marrakech, Morocco.

Al-Mabrouk, Khalid and **Soar, Jeffrey** (2008) Issues for successful IT transfer in the Arab world: a multiple stakeholder perspective. In: 9th International Business Information Management Association Conference, 4-6 Jan 2008, Marrakech, Morocco.

Cater-Steel, Aileen and Pollard, Carol (2008) Conflicting views on ITIL implementation: managed as a project – or business as usual? In: 2008 International Conference on Information Resources Management (CONF-IRM 2008), 18-20 May, 2008, Niagara Falls, Ontario, Canada.

de Raadt, Michael and **Toleman, Mark** and Watson, Richard (2008) Incorporating programming strategies explicitly into curricula. In: 7th Baltic Sea Conference on Computing Education Research (Koli Calling 2007), 15-18 Nov 2007, Koli National Park, Finland.

Gururajan, Raj and **Hafeez-Baig, Abdul** and Gururajan, Vijaya (2008) Clinical factors and technological barriers as determinants for the intention to use wireless handheld technology in healthcare environment: an Indian case study. In: 16th European Conference on Information Systems (ECIS 2008), 9-11 June 2008, Galway, Ireland.

Hafeez-Baig, Abdul and **Gururajan, Raj** (2008) Time management, improved patient expectations and added value contributing to the perceived acceptance of using wireless hand held devices in the Indian healthcare. In: ACIS 2008 19th Australasian Conference on Information Systems: Creating the Future: Transforming Research into Practice, 03-05 Dec 2008, Christchurch, New Zealand.

Huang, Xiaodi and **Yong, Jianming** and Li, Jiuyong (2008) Prediction of Student actions using Weighted Markov Models, ITME 2008. IEEE International Symposium on IT in Medicine and Education, 12-14 Dec. 2008, Xiamen, China.

Li, Min and Wang, Hua and Plank, Ashley and **Yong, Jianming** (2008) Advanced permission-role relationship in role-based access control. In: 13th Australasian Conference on Information Security and Privacy (ACISP 2008), 7-9 July 2008, Wollongong, Australia.

Soar, Jeffrey (2008) Information management in healthcare – gaps and opportunities. In: 9th International Business Information Management Association Conference, 4-6 Jan 2008, Marrakesh, Morocco.

Wang, Hua and **Yong, Jianming** and Li, Jiuyong and Pen, Min (2008) Authorization approaches for advanced permission-role assignments. In: 12th International Conference on Computer Supported Cooperative Work in Design (CSCWD 2008), 16-18 April 2998, Xi'an, China.

Yong, Jianming (2008) Enhancing the privacy of e-learning systems with alias and anonymity. In: 11th International Conference on Computer Supported Cooperative Work in Design, 26-28 April 2007, Melbourne, Australia.

Yong, Jianming and Li, Jiuyong and Wang, Hua (2008) Portable devices of security and privacy preservation for e-learning. In: 12th International Conference on Computer Supported Cooperative Work in Design (CSCWD 2008), 16-18 April 2998, Xi'an, China.

Other publications

Cater-Steel, Aileen and **Tan, Wui-Gee** and **Toleman, Mark** (2008) itSMF Australia 2007 Conference: summary of ITSM standards and frameworks survey responses. Project Report. University of Southern Queensland, Toowoomba, Australia.

de Raadt, Michael (2008) Teaching programming strategies explicitly to novice programmers. Thesis (PhD/Research) (Unpublished)

Mombourquette, Peter (2008) e-Commerce use in Atlantic Canada. Thesis (DBA/Research) (Unpublished)

Sparling, Lynn (2008) Adoption of e-Commerce by SMEs in the Central Okanagan Region of Canada. Thesis (DBA/Research) (Unpublished)

Valverde, Raul (2008) The ontological evaluation of the requirements model when shifting from a traditional to a component-based paradigm in information systems re-engineering. Thesis (DBA/Research) (Unpublished)

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