



Research@Your UB

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Because this issue coincides with UB's Annual Research Conference we feature a number of stories that highlight the work of contributors to the conference. See Page 4.

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Designated Research Centres

- > Centre for Environmental Management (CEM)
- > Centre for Health Research and Practice (CHRP)
- > Centre for Informatics and Applied Optimization (CIAO)
- > Centre for Regional Innovation and Competitiveness (CRIC)

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Australian Security Laboratory to fight cybercrime

Internet fraud and the potential theft of identity have been increasing at an alarming rate. At the same time, the sophistication of this activity has been on the rise and there is an increase in the use of malicious software that is installed surreptitiously on personal computers to monitor individuals' private, commercial and financial identities. Now Government, academic and commercial collaboration will lead the next generation of security solutions.



Professor John Yearwood (left) and the Hon. Theo Theophanous, Victoria's Minister for Information and Communication Technology

UB, in collaboration with the Victorian State Government, Westpac Banking Corporation, and IBM Australia have agreed to join forces to forge a globally significant research alliance to tackle cybercrime. The alliance will fund and operate the Internet Commerce Security Laboratory (ICSL) to identify best practice processes and develop leading edge internet security solutions with the aim of staying one step ahead of the cybercrime associated with internet commerce. The projected budget for the ICSL in its first five years of operation is approximately \$4 million. The facility will be located within UB's Technology Park.

The new collaboration responds to rising incidents of cybercrime. A recent IBM report from the IBM Internet Security Systems (ISS) X-Force research and development team revealed that 2007 has been a record year for malware, signalling the need for businesses and consumers to remain vigilant against state of art cyber-criminals by implementing appropriate security measures.

The Laboratory will produce within Victoria an ongoing capability to tackle the problems of Internet fraud, Internet security and identity management. It will establish a reputation in providing cutting edge solutions in these areas. Research training for a significant number of highly skilled PhD students will be undertaken within the **Centre for Informatics and Applied Optimization**, and through Laboratory engagement. They will be industry ready for employment by banks, IBM and the financial and ICT sectors more broadly.

Retention of highly trained ICT graduates has been a concern for Australia and this alliance will provide a solution that closes this loop as well as acting as an attractor for the best in the world to join. Ballarat and Victoria will benefit through the strengthening of research links between the UB, Westpac Banking Corporation and IBM, an increased number of high-tech staff in the laboratory and an increased e-security capability.

PhD Scholarships valued at \$120K over three years are presently being offered to suitably qualified IT graduates who wish to undertake research involving this Internet security challenge.

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CENTRE FOR ENVIRONMENTAL MANAGEMENT (CEM)

The CEM, based in UB's School of Science and Engineering, has built a strong reputation for its research and consultancy partnerships with major environment and management agencies in Victoria and NSW.

CEM's work focuses on environmental assessment and improving management practices in forests, water catchments and national parks. It includes the evaluation of the impact and sustainability of different logging rates and harvesting regimes in state forests.

The Centre's researchers make extensive use of Geographical Information Systems through which computer analysis is linked to the mapping of satellite positioning systems.

Expertise in Botany, Zoology, Geology, Soil Science and Land Use Planning combines effectively with information technology in a broad range of environmental management issues.

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BREWING BETTER BEER



Garry Menz, Mehdi Zarei, Frank Vriesekoop and Peter Aldred from UB's School of Science and Engineering have collaborated to research the crucial commercial

issue of the survival of food-borne pathogens in beer.

Victorians have a growing appetite for micro-brewed (craft) beer, and rightly so. Microbreweries offer a wide range of full flavoured, full bodied beers to the consumer. To ensure maximum flavour, microbrewers do not pasteurise their products, nor do they add preservatives. However, this leaves the beer somewhat more susceptible to the growth of spoilage bacteria. These undesirable microbes can leave a sour taste on the beer lover's palate, and turbidity in the brewers accounts.

The team's research investigates the occurrence and survival of bacteria in beer, with a strong emphasis on those bacteria which may survive in micro-brewed (craft) beer. The team is investigating the effect of each beer component (hops, alcohol etc.) on the survival of these pathogens, to ensure that they cannot grow in beer. Whilst these pathogens show very poor survival in an 'average' beer, they are studying what needs to be done to prevent their growth in specialty products, such as alcohol-free beers.

Mapping the conservation status of Victorian flora

CEM and the Victorian Department of Sustainability and Environment (DSE) recently hosted a seminar led by **David Cameron** of the Arthur Rylar Institute of Environmental Research who addressed the topic of 'Conservation status of Victorian flora – the current review based on The World Conservation Union (IUCN) Red List categories.'

David, who for over a decade has acted as curator of Victoria's Flora Information System (database) which provides the floristic underpinning of the Ecological Vegetation delivered an informative talk which made the following points:

Since 1990 DSE or its predecessor agencies has maintained an authoritative or advisory list of rare or threatened plants indigenous to Victoria.

Victorian Rare or Threatened Species (VROTS) assist in determining conservation priorities at the taxon, community and landscape level and provide a guide to taxa worthy of nomination for listing under the *Victorian Flora and Fauna Guarantee Act 1988*. Until recently, the assessment of VROTS status relied largely on a ranking of taxa on the basis of authoritative perceptions of natural or anthropogenic rarity or perceived threats with only implicit reference to rates of decline or demographic thresholds.

This was consistent with the equally implicit and relative assessment criteria applied at the national level or Rare or Threatened Australian Plants (ROTAP) status. DSE however is presently reviewing the status of all Victorian plant taxa using

Meaningful OHS consultation in the construction industry.

Research work undertaken by VIOSH Australia encourages increased safety through improved design, worker participation and improved work practices.

The following contribution to UB's Annual Research Conference by **Gerard Ayers** (under the supervision of **Dennis Else**) canvasses the fundamental issues of trust, honesty, integrity, respect, support commitment, sincerity and inclusiveness that need to be recognised and implemented by all participants in the consultation process to achieve improved safety in the construction industry.

The construction industry is acknowledged as one of the most hazardous and dangerous industries in the world. These workers who are injured, maimed or killed are all members of our community; they are our fathers, our mothers, our brothers, our sisters, our neighbours, our colleagues. Any contribution to the reduction of injuries and fatalities in this industry will be welcomed as a positive contribution to the wellbeing and stability of our community.

This investigation focuses upon the opportunities that meaningful consultation between workers and management presents to the construction industry to eliminate, or at the very least mitigate, the potential for serious accidents and injuries to occur.

recognised categories and criteria with their greater emphasis on rates of decline and explicit demographic thresholds.

David's talk addressed the challenging issues encountered through the current review presenting a number of relevant case studies involving different habitats and landscapes.

Impacts of ground tank closure on diversity

A research team from CEM, led by Professor **Martin Westbrooke**, Dr **Simon Cook**, Dr **Patrick Graz**, and Dr **Singrayer Florentine** has been awarded an ARC Linkage Grant of \$210,000 over three years (commencing in 2008) to demonstrate the impacts of ground tank closure on biodiversity and landscape function in southeast Australian rangelands.

The project addresses the fact that despite incentives for improving diversity outcomes in pastoral landscapes, pastoralists are resistant to strategic tank closure. The proposed research will monitor the effects of total-closure, partial-closure and fencing of ground tanks on biodiversity. Results will be built into a model to assist land managers in decision making.

The research will be conducted in conjunction with land management authorities thus outcomes can be readily passed onto relevant user groups. This project will aid in the adoption of sustainable land management practices in relation to total grazing pressure and diversity. Research within arid woodland and shrubland communities is applicable to a large area of Australia's rangelands.

Professor John Yearwood CIAO's quiet achiever

John Yearwood, who was appointed Professor of Informatics at the University of Ballarat from 1 October 2007, has come a long way since he was born in Bridgetown Barbados and commenced his secondary education at Harrisons College.

He moved to Australia with his family in 1967 and settled in Melbourne where he completed his secondary education with HSC at Norwood High School. John completed his undergraduate Science Degree at Monash University in 1975 and went on to complete an Honours Degree in Pure Mathematics at Monash University. His Honours work was in Mathematical Logic and then he completed a Masters Degree at The University of Sydney with a thesis in Singularity Theory.

After graduating from the University of Sydney he worked at Swinburne as a Lecturer for 6 years and then at Beaufort Secondary College as a Teacher for 6 years before coming to UB. There he has been involved in teaching a wide range of subjects across Mathematics, Computing, Information Technology and Physics. Whilst working at UB John completed his PHD at RMIT University in Computer Science in the area of Information Retrieval and Artificial Intelligence. His PhD Thesis was entitled 'Case Base Reasoning from Text Cases.'

Since completing his PhD John has published over 120 Refereed Journal Articles and Conference Papers and Book Chapters.

His research work has been broadly in the area of Decision Sciences, particularly working in areas of Information Retrieval, Knowledge Based Systems and Data Mining. His main contributions have been in textual based case based reasoning, argument models for group decision making as well as new hybrid learning algorithms based on combinations of local and global optimization approaches.

In 2002 John was awarded a Queen Elizabeth II Fellowship through the Australian Research Council (ARC) Discovery Grant Scheme. This prestigious award allowed him to work on research into Argument and Narrative Models. In this research, mappings from models of reasoning using argument structures to narrative models were developed. This mapping has allowed the

A Humboldt for ITMS Researcher

Dr **Zhiyou Wu** was recently granted a Humboldt Scholarship which she will take up in mid 2008. The Alexander von Humboldt Foundation is a non-profit foundation re-established by the Federal Republic of Germany in 1953 for the promotion of international research co-operation. Its main program grants approximately 600 Humboldt Research Fellowships annually.

Highly qualified scholars spend extended periods (6-18 months) in Germany carrying out long-term research projects in cooperation with an academic host at a research institution in Germany.

Dr Zhiyou Wu will work in Karlsruhe University, Germany, with Professor Pallaschke as her host.

development of interactive narrative based decision support and training systems in various areas including health.

This current research has three main directions:

- > The development of the notion of **reasoning communities** and techniques for making these reasoning communities more effective in their reasoning and decision making.
- > The development of data and in particular **text mining** techniques for profiling groups through their emails and other communication traces. It is hoped that these techniques can be used in the identification and detection of fraudulent phishing activities.
- > The third area of research involves **text categorization** and text clustering approaches. Some of these approaches are in the area of not static data, but dynamically changing data streams.

John has an excellent record of winning research grants including ARC Discovery and Linkage Grants as well as others. The total dollar value of these grants is close to \$1million. He has also played a significant part in and leads many large commercial projects. For example, he is the leader of the UB phase of the ADF Project on developing a digital anthropometry capability for recruitment in the Australian Defence Forces. This is a \$3.7million project with the University of South Australia, Sinclair Knight Merz and the UB.

While John has a proven theoretical background in mathematics and computer science his research interests have in recent times been more focused on applications of this knowledge to 'real world' problem areas.

John also enjoys science, art, music, bushwalking and the beach. Over the recent school holidays he walked part of the Great Ocean Walk with his daughter who is currently studying a Combined Arts/Science Degree at Melbourne University.

CENTRE FOR INFORMATICS AND APPLIED OPTIMIZATION (CIAO)



CIAO integrates key fields of research in mathematics and information technology. It is a nationally recognised research

Centre, undertaking basic and applied research in informatics and optimization, and delivering cutting edge technologies for application in industry and government.

Contact Director, Associate Professor **John Yearwood**, Phone 03 5327 9925, email j.yearwood@ballarat.edu.au

INDIVIDUAL AND COMMUNITY NARRATIVE

Alyx MacFadyen in association with Professor **John Yearwood** and Dr **Andrew Stranieri** have investigated the dramatic flow in interactive 3D narrative, which forms the basis of Alyx's presentation to UB's Research Conference.

Alyx argues that narrative is important for communicating knowledge, ideas and information. People think in terms of stories, the world is understood in terms of stories, and we approach problem solving and new ideas by referencing stories we already understand.

However unless a narrative is engaging, it cannot be an effective or amenable way for people to make sense of complex abstract ideas or even become involved in a simple story.

This research examines drama for narratives in 3D environments. In these highly interactive environments the decisions that a participant makes drives the direction of the story and the narrative is often fragmented.

The research goal is to design a cohesive dramatic flow model for a participant's experience so that regardless of which actions are taken, and regardless of changes across narratives, the experience can be engaging and potentially an educationally interesting experience.

The advantage of this approach is that the dramatic level of any interaction can be calculated and given a value that is understood and supported by other modules within a system at all points of execution. This has application in computational narrative models and individual or shared/community narratives.

Ballarat and the Goldfields have strong stories. Building these essentially dramatic stories interactively enables individuals to strongly engage with the environment of the narrative, choose the stories they want to explore and ultimately build their own stories from the experience.

RESEARCH AND ITS RELEVANCE TO OUR REGION AND THE WORLD

This Spring Edition, coinciding with UB's Annual Research Conference, that will feature presentations by over 80 research higher degree students and early career researchers, provides a ringing response to the need for and relevance of ground-breaking work being undertaken by future leaders of regional research and innovation. The topics that are canvassed throughout this issue by PhD candidates are comprehensive, diverse and simply fascinating. The Conference keynote speakers are profiled opposite. May their contributions energise a coming cohort of researchers with regional relevance and rigor. - Ed

Continued from page 1...

The Laboratory when operational, will focus on solving practical Internet commerce security problems that impact on Australian businesses and consumers. It will pursue the following priority areas: Phishing; Threat profiling; Forensic imaging; Public key infrastructure improvement; Malware profiling; Fraud detection systems; Identity theft advisory; Recovery services; and End-user communication and awareness.

The establishment of the ICSL will create a unique and exciting venture, which will have practical benefits for all Australians by:

- > Addressing commercially-relevant security issues affecting the continued uptake of Internet commerce;
- > Focusing on research into fraud and associated illegal activity in the Internet commerce sector;
- > Enhancing the knowledge and tools available for the development of simple, safe and secure environments to support the continued uptake of Internet commerce and identity management; and
- > Building a state and National capability to tackle security problems in Internet commerce.

The project was jointly launched in October 2007 by UB's Vice-Chancellor, Professor **David Battersby**, The Honourable **Theo Theophanous**, Victoria's Minister for Information and Communication Technology, Mr **David Backley**, Chief Technology Officer, Westpac Banking Corporation and Mr **Peter Campbell**, General Manager, IBM Global Technology Services.

Conference keynote speaker profiles



Professor **John Smyth**, Research Professor of Education in UB's School of Education.

John grew up in Ballarat and went to Macarthur Street Primary School and Ballarat High School. He was a high school teacher and taught at Edenhope and Maryborough high schools prior to taking up his first university position in Papua New Guinea in 1973.

He holds degrees from University of Melbourne (Bachelor of Commerce), Monash University (Diploma of Education), University of Queensland (Bachelor of Education), University of New England (Master of Educational Administration), LaTrobe University (Master of Policy & Law), and completed his PhD at University of Alberta, Canada.

John has recently been appointed the Simon Visiting Professor at University of Manchester where he is working on developing an international collaboration with the University of Ballarat.

He is a former Senior Fulbright Research Scholar, and in 1992 was awarded the Palmer Johnston award for outstanding research from the American Educational Research Association. He is author/ editor of 15 books the latest (with McInerney)

entitled *Teachers in the Middle: Reclaiming the Wasteland of the Adolescent Years of Schooling* (New York: Peter Lang Publishing, 2007) —a report of how some schools keep young people engaged in and connected to schooling. He recently completed the largest study of its kind undertaken in Australia that accessed the voices of students around early school leaving in a reported entitled *'Dropping Out' Drifting Off, Being Excluded: Becoming Somebody Without School*. (New York: Peter Lang Publishing, 2004) (with Hattam and others).

John is currently involved in two major research projects funded by the Australian Research Council — one is investigating the conditions that support and sustain students in disadvantaged high schools towards completing their schooling, and the second is exploring school and community forms of capacity building that assists school reform in schools working in challenging circumstances. His research interests include: policy ethnographies of schooling, issues of social justice, community renewal, and policy sociology of students' lives and teachers' work.



Dr **Angela Murphy** 'From Academic Trekking to the Practice Reality'

The focus of Angela's PhD research was, in essence, all about the difference between how academics and policy makers believe things should be done and the reality of how they are done in the practice setting.

Her thesis was in fact called *'From Urban Policy to Rural Practice'* and the findings of this research played a large role in cementing her belief that there is a vast divide between how ideas are shaped in isolation and how they are played out in the reality of the practice context.

The practice context (some sadly call it 'the real world') is one in which knowledge, science, best practice and best case scenarios do battle with belief systems, power structures, people's insecurities, imbedded belief systems and heavy workloads. She walked the journey from urban policy to rural practice at a variety of paces. A pleasant stroll at the start, a few exhausting sprints, when milestones came up and then a slightly faster jog that eventually became a long, steep and tough trek to the amazing end.

Angela said "It was a great trip that only began to look like fun when it was over and I had the time

to think about what worked, what didn't and how I had slowly but irrevocably changed over the course of the journey. All standard stuff really.

"What I was less prepared for was the fact that my PhD meant that I really did look at things differently now. So, as I moved away from my academic trek and began to reintegrate myself into the practice reality that had been my home for so many years, I realised that my thesis had been my very own urban policy and that it provided a new way to shape my own practice reality."

The subsequent three years have been about applying what Angela has learnt and using it to support a change process within the practice environment. It has enabled her to walk hand in hand with the major evidence-based legislative changes that are transforming the child welfare sector. It has been instrumental in supporting a proactive evidence-based prevention science approach to drug and alcohol use among young people in Ballarat and district.

Most importantly of all, it has provided Angela with real insight into how a PhD is much more than an academic exercise — it is a trek that can shape your practice reality in significant and unique ways.

Higher degree completions

UB's most recent higher degree theses again show the depth and diversity of the research being undertaken by post graduate students. The following successful candidates illustrate this wide spread of interest. Many have been assisted in their research through past presentations at UB's Annual Research Conference. Some graduates will choose to continue their research interests through ongoing academic careers, whereas others will pursue profitable careers in industry and business. In both cases, the benefits that result will flow on to regional communities.

- > **Monica Maud**, Doctor of Psychology, BSSH — *An Investigation into the Specific Associations Between Anger, Early Maladaptive Schema and Parenting* — Principal Supervisor: Dr Angus McLachlan.
- > **Chris Nelson**, Master of Arts, Arts Academy — *Spiritual Arts: Evoking the Numinous using a 3D Computer Game Engine* — Principal Supervisor: Associate Professor Allan Mann.
- > **Kelly McNiece**, Master of Arts, Arts Academy — *Window on an Era* (A historical conversation in art, analysing a group of artists who debate the significance of industrial decay — in relation to various Geelong sites — and its inspirational relevance to art) - Principal Supervisor: Ms Anne Saunders.
- > **John O'Loughlan**, Master of Arts, Arts Academy — *Vessels of Miracles: a tangible expression of an unwillingness to disallow belief* — Principal Supervisor: Associate Professor Allan Mann.
- > **Wei Xie**, Master of Computing, ITMS — *Classification of HTML Documents* (Research into ways of using extra information, in particular, hyperlink information provided by HTML documents — web pages to improve the effectiveness of web classification) — Principal Supervisor: Dr Musa Mammadov.
- > **Vivek Mishra**, Master of Information Technology, ITMS — *The Use of Knowledge Based Systems for Preserving the Security and Privacy of Statistical Databases* — Principal Supervisor: Dr Andrew Stranieri.
- > **Fernando Marmolejo-Ramos**, Master of Applied Science, School of Science and Engineering — *The comprehension of emotions in narrative texts. The role of embodied knowledge* — Principal Supervisor: Professor Rosalyn Shute.
- > **Gary Saunders** (see following)
- > **Chandramali Jayawardana** (see adjacent)

Drugs and decision making

Dr **Gary Saunders** has recently completed his Doctor of Philosophy in the School of Information Technology and Mathematical Sciences (ITMS) examining the value of disproportionality analysis signal detection methods, the development and testing of covariability techniques, and the importance of ontology. His PhD was supervised by Professor **John Yearwood**.

The cost of adverse drug reactions to society in the form of deaths, chronic illness, fetal malformation, and many other effects is quite significant. For example, in the United States of America, adverse reactions to prescribed drugs is around the fourth leading cause of death. The reporting of adverse drug reactions in Australia however, is spontaneous and voluntary.

Many methods that have been used for the analysis of adverse drug reaction data, mostly using a statistical approach. This thesis examines new approaches that may be used in the analysis of drug safety data. These methods differ significantly from the statistical methods in that they utilize covariability methods of association to define drug-reaction relationships.

Covariability algorithms were developed in collaboration with Dr **Musa Mammadov** to discover drugs associated with adverse reactions and possible drug-drug interactions. This method uses the System Organ Class (SOC) classification in the Australian Adverse Drug Reaction Advisory Committee (ADRAC) data to stratify reactions. The text categorization algorithm BoosTexter was

found to work with the same drug safety data and its performance and modus operandi was compared to our algorithms.

These alternative methods were compared to standard disproportionality analysis methods for signal detection in drug safety data including the Bayesian Mult-item Gamma Poisson Shrinker, which was found to have a problem with similar reaction terms in a report and innocent bystander drugs.

A classification of drug terms was made using the Anatomical Therapeutic-chemical Classification (ATC) codes. This reduced the number of drug variables from 5081 drug terms to 14 main drug classes. The ATC classification is structured into a hierarchy of five levels. Exploitation of the ATC hierarchy allows the drug safety data to be stratified in such a way as to make them accessible to powerful existing tools.

A data mining method that uses association rules, which groups them on the basis of content, was used as a basis for applying the ATC and SOC ontologies to ADRAC data. This allows different views of these associations (even very rare ones). A signal detection method was developed using these association rules, which also incorporates critical reaction terms.

The significance of this work relates to the development for more rigorous and reliable reporting systems for adverse drug reactions with benefits flowing on to many consumers.

WILLOWS BY THE WATERS



Ms **Chandramali Jayawardana** has recently obtained her Doctor of Philosophy through the School of Science and Engineering by investigating littoral

stream macroinvertebrates in relation to native and exotic riparian vegetation in central Victorian streams. Her PhD was supervised by Professor **Martin Westbrooke**.

Exotic willows (*Salix spp.*) are widespread riparian tree species of streams in temperate Australia and New Zealand. In Australia most willow species are declared Weeds of National Significance, yet little is known about the novel habitats they create and the impact on aquatic biota of vegetation change following willow management programmes.

Reeds (*Phragmites australis*) and shrubs (*Leptospermum spp.* and *Callistemon spp.*) are common taxa in the riparian zone of Victorian streams. They are considered suitable for planting along channels in revegetation programmes following willow removal. Macroinvertebrate fauna in willow, *Phragmites australis*, *Leptospermum/Callistemon* and bare bank habitats were examined in three central Victorian streams to understand the effect of such littoral habitats on macroinvertebrates species richness, abundance, biomass, community composition and functional feeding groups.

A preliminary analysis of data was conducted using a partially nested ANOVA model with season, stream and habitat as main effects with other techniques used to further explore data. Decomposition rates and macro-invertebrate colonisation were also estimated for willow, *Leptospermum*, *Callistemon*, *Phragmites*, *Eucalyptus* leaves and willow roots to explore their contribution to stream macroinvertebrate communities.

Overall it could be postulated that a riparian vegetation transition from willows to bare banks would result in a decline in macroinvertebrate numbers, species richness, biomass and changes in community composition and functional feeding composition. A transition from willows to *Phragmites* reeds may result in relatively little change in species richness, abundance and composition differences.

Interestingly, a transition from willows to *Leptospermum/Callistemon* might show a decline in species richness and abundance similar to a transition to bare banks, particularly in seasons with high flow. It appears that a transition from willows to bare banks or shrubs alone would be potentially more disruptive to macroinvertebrate communities than a transition from willows to a combination of littoral reeds and native riparian vegetation.

Exploration of techniques to guide a transition from willow to native littoral and riparian vegetation without a disruptive clearing phase is therefore desirable.

CENTRE FOR REGIONAL INNOVATION AND COMPETITIVENESS (CRIC)



CRIC, based in UB's School of Business, explores the development of enterprise, business and community in a regional context, working with public and private interests to influence measures that contribute to the growth and sustainability of regional Australia.

CRIC's research has a broad scope. It includes SME development, clustering, the use of ICT by regional enterprise, demand management in the water industry, skills management and shortages, community growth and capacity building and public policy evaluation.

CRIC's approach is characterised by innovative and interdisciplinary methodologies; collaboration; a strategic perspective; the use of 'futures' scenarios; state of the art survey facilities; rigorous and detailed measurement of performance; and practical and action-oriented outcomes.

Contact Director, Professor **Julian Lowe** (pictured above) on 03 5327 9400 or email: j.lowe@ballarat.edu.au

UB AWARDED GREEN FUNDING

MySmartGreen is an entrepreneurial approach to greening small business that develops a comprehensive program of entrepreneurial training and mentoring to increase supply side capability.

A reaction of governments to environmental problems is to regulate and legislate to control emissions, reduce waste and encourage recycling. For this to happen, a suitably skilled environmental services industry is required. The UB's CRIC and National Centre for Sustainability (NCS) have been awarded \$307,437 in AusIndustry funding to support entrepreneurship in green business services. The City of Ballarat and the Committee for Ballarat are valued partners in this project.

This program helps companies understand what their environmental footprint is and how to reduce it. It also stimulates a group of firms to supply the services to help small businesses be green.

Bringing leading edge users and suppliers together will form the basis of developing a dynamic green cluster in Ballarat. This is an opportunity for the City to take a leadership role in this rapidly growing industry. CRIC deputy director and project manager **Dr Patrice Braun** indicated that businesses would benefit financially by putting their hand up to be involved in the project. Companies often underestimate the financial and economic benefits of environmental responsibility.

For program participation or more information contact: Dr Patrice Braun, p.braun@ballarat.edu.au

UB partners in clever health program

Dr **Patrice Braun's** initial involvement in an e-learning feasibility study involving health professionals in the Grampians region ultimately led to the preparation of a successful funding proposal and today's ongoing program.

In August 2007, as part of the Clever Networks initiative, the Department of Communications, Information Technology and the Arts (DCITA) awarded \$3.385 million in funding to the Grampians Rural Health Alliance Network (GRHANet) for Clever Health, a project that will revolutionise the delivery of emergency and maternity healthcare in the region.

Access to quality and timely healthcare is a concern for people in the Ballarat and Western Victorian region. The region has an ageing workforce and attraction of younger health professionals to the area can be problematical.

The Clever Health program involves the delivery of video conference units that will be used to enable rapid treatment and peer support in the diagnosis of patients in rural and remote areas. Health care services will be linked to the Emergency/Urgent Care and Maternity patients in the region with high-quality expertise via wireless and video conference technology and associated specialist equipment.

These video conference units will enable rapid treatment and peer support in the diagnosis of patients, which will reduce the need to move patients between agencies. This innovative use of broadband technology will bring doctors, other medical personnel and patients together in a way which will see benefits not only to individuals, but also to the region as a whole. Thus Clever Health is designed to promote up-to-date standardised

practices throughout the region, improve patient care and reduce the risks faced by both patients and health care providers.

Thanks to wireless technology, Clever Health will be able to deliver up-to-date professional development and implementation of both clinical and non-clinical information and blended learning programs. By developing collaborative and innovative ways of providing flexible learning, peer support and advice mechanisms, Clever Health aims to augment the retention and attraction of health professionals to the region. Increased capability also means decreased patient risk.

To deliver Clever Health, GRHANet, has partnered with the Grampians Health Information and Communications Technology Alliance, UB, the Victorian Department of Human Services and the 12 primary health agencies that form part of the Grampians Health Alliance Network. Dimension Data, Telstra and Integrated Vision are also contributing to the project. With the link to UB, employers and employees in the Grampians region will benefit from increased access to appropriate and relevant training and learning.

CRIC has been appointed to undertake the Clever Health program evaluation, which will involve tracking program progress and evaluating the extent to which the project changes the way health services are delivered in the region and health issues of concern to the community are being addressed.

What's in a name?: A PhD topic and UN trip!

Laura Kostanski has recently returned to her PhD study desk after spending two weeks as an official Australian Delegate to the United Nations headquarters in New York. Five years ago when travelling home from the Murray River she became fascinated by the names of the towns she was travelling through. Being a history student Laura was eager to research the backgrounds of the names, and would never have believed then that her research would take her to such an international stage so quickly.

Since that initial undergraduate research into the history of Murray River place names, Laura's PhD research has developed to focus on uncovering the cultural and historical identity of place names with a particular emphasis on and exploration of the Indigenous place names restoration program for the Grampians (Gariwerd) National Park which commenced in 1989 with strong community reactions.

Toponyms (place names) are not common conversation topics when people discuss the issues that affect their lives. Hot topics of debate are usually in areas deemed to be controversial. Indeed, the three topics Australians are often told to avoid at polite dinner parties are politics,

religion and sex! So, to focus a thesis on the implications of toponyms in the daily lives of people is often met with an incredulous raising of the eyebrows, and a question of 'why?'

In having attended the 9th UN Conference on the Standardisation of Geographical Names and the meeting of the United Nations Group of Experts on Geographical Names (UNGEGN) Laura can now confirm the particular interest in the cultural heritage of place names and Indigenous toponym restoration projects. She has found that there's a world of interest out there. A summary of Laura's paper was translated into the other five official UN languages, and they along with the full paper are available at <http://unstats.un.org/unsd/geoinfo/9th-UNCSGN-Docs/E-CONF-98-41-Add1.pdf>

In addition to the UN work on indigenous toponym restoration projects Laura was able to contribute to discussions on the cultural heritage of toponyms and now has been invited to work with delegates from Australia, New Zealand, France, Canada, Norway and the Netherlands to collaborate with UNESCO and develop a register for culturally significant placenames.

Resilience in farming families affected by drought

Kirra Caldwell who is undertaking a postgraduate Diploma of Psychology, as part of CHRP's Rural Adolescent Mental Health Group, supervised by Dr **Candice Boyd**, is also presenting to UB's Research Conference. Her topic is of significance to contemporary rural Australia.

Few past studies have examined the mental health and well-being of Australian farming families. This present study has examined the issues faced by rural farming families in rural New South Wales and explored the coping mechanisms that contribute to resilience and optimism in adverse drought conditions.

This qualitative research provided participants from rural Australia with the opportunity to share their experiences, and the impact of drought on family life, marital relationships, business relationships, and the community as a whole.

General practitioners' treatment of eating disorder patients

Lisa Harvie, Master of Psychology candidate under the supervision of Dr **Candice Boyd** is located in CHRP's Rural Adolescent Mental Health Group and will be sharing her research approach at UB's November Research Conference.

Previous research has revealed that 51.4% of GPs in the Ballarat and District Division of General Practice treated patients with eating disorders within their own practices in preference to referring the patients to other services. When hospital admission was required, the study indicated that GPs were more likely to refer eating disorder patients to metropolitan specialist services than to the local hospitals.

These past results have suggested that the referral rate of eating disorder patients by GPs in the Ballarat and District Division of General Practice in regional Victoria is higher than those from other countries, suggesting that GPs in regional Australia are more likely to treat patients suffering from an eating disorder in their practice then referring them to a specialist service.

Pathways to Mental Health

This project is assisting the implementation of the new Better Access to Mental Health Care program within the Ballarat region by developing, piloting and launching an on-line GP Mental Health Care Plan support tool. This support tool assists GP's decision making in the treatment, management and referral process for patients presenting with mental health issues.

Two key tasks associated with this project have been the collation of relevant mental health content and the construction of a local, on-line resource for GPs hosted through the Ballarat and District Division of General Practice (BDDGP) website. The support tool contains detailed information about the Better Access to Mental Health Care program and provides GPs access to a service directory of local psychiatrists and allied mental health care professionals from across the region. Another unique feature of this on-line resource has been the development of the actual decision support component of the tool. This provides GPs with the option of accessing a

sequential, seven-step support tool that can assist them in making decisions and accessing appropriate resources and assessment procedures in the early intervention and management of patients with a mental health disorder.

Participants identified key factors that contributed to their ability to cope and these included support from the community, government assistance, optimism and diversity. Participants suggested that increased understanding from non-rural areas is needed in order to develop appropriate services for rural areas in need. The study aimed to provide insight into the experiences of rural Australians affected by drought, and give a voice to these families – the findings serve to highlight their extraordinary resilience in a time of extreme hardship.

As the closest specialist service for eating disorders to Ballarat is the Royal Melbourne Hospital, the lack of local specialist services for eating disorders may be a possible explanation for these GPs preferring to treat eating disorder patients in their practice. Therefore, the objective of this study is to gain a more in-depth understanding of the treatment practices of GPs in rural areas in the current context.

Through a series of semi-structured interviews, this study aims to discover the work GPs do to manage patients with eating disorders in a regional setting in the absence of locally-based specialist services. Furthermore, the study aims to explore the GPs perceptions of their role in mental health care with respect to patients suffering from an eating disorder.

It is also anticipated the study will highlight the current problematic issues surrounding the treatment of eating disorders in regional settings from the perspective of primary care.

This project has provided an opportunity to work closely with the BDDGP, as well as across Centre's, within the UB. Centre for Electronic Commerce and Communication (CeCC) has also been closely involved in this project and has provided considerable expertise and support with all aspects of the on-line resource, including the support tool and service directory.

Construction of the new on-line resource is now complete. GPs are freely navigating the on-line resource. The feedback from GPs was very positive, and importantly, provided the project team (comprising Associate Professor John McDonald, Director, and Alison Ollerenshaw, Research Officer with CHRP, and Andrew MacLeod, CeCC) with valuable feedback about the convenience and 'user-friendliness' of the resource.

CENTRE FOR HEALTH RESEARCH AND PRACTICE (CHRP)



CHRP provides quality research, postgraduate education and community development focusing on health and well-being of people.

In particular, CHRP has a strong commitment to working with local communities and with health and welfare agencies to enhance the wellbeing of people in the region. The Centre has two interdependent research units:

- > **Research and Capacity Building Services** provides a range of research services to assist organisations and communities to successfully undertake contracted research; and
- > **Priority Driven Research** comprising three newly-formed research groups ("Resilience: Measurement, Predictors, Processes & Intervention", "Research to Enhance Health and Welfare Service Systems" and "Preparing Health Professionals for Practice: Pedagogical Innovation") consisting of researchers from the School of Behavioural and Social Sciences and Humanities and the School of Nursing who have research expertise in these nominated fields. Groups are closely aligned with the national Research Quality Framework (RQF).

Contact: Director Associate Professor **John McDonald** (pictured above) email: jmcdonald@ballarat.edu.au or **Ms Alison Ollerenshaw**, Research Officer, phone 03 5327 9629, email: a.ollerenshaw@ballarat.edu.au

Preventing injuries to junior players

The prevention of injuries to children during sport has been identified as a national priority.

HMSS has recently received funding from the Commonwealth Department of Health and Aging, Sport and Recreation Victoria, and SMARTPLAY to conduct research in the area of injury prevention in junior cricket and netball players at the community level. Professor **Caroline Finch** is the Principle Investigator for both projects, while Dr **Peta White** is Project Manager for both studies, with the specific role of conducting the cricket research, and **Maria Romiti** is conducting the netball research.

Cricket and netball were chosen as the focus sports for this study because of their popularity among junior males and females respectively in our regional community. Both the junior netball and cricket studies will involve collecting data on the types and causes of injuries sustained by junior players in the U/12, U/14, and U/16 age groups. Participation data will also be collected to determine the amount of cricket and netball being played by juniors in these age groups and the amount of time missed due to injuries sustained while playing these sports at the community level.

Comparisons will be made across the age groups as a means of exploring how the rate of injury

varies across player age groups and game development stages. It is intended for this information to direct future injury prevention efforts, as well as enable cricket and netball to be promoted as safe sport choices for juniors in our community, and to ultimately increase the participation in and enjoyment of cricket and netball at the junior level in the regional community of Ballarat.

In recent times, an issue of concern for the Central Highlands Region has been the ground conditions of sporting fields. Over the 2007/08 cricket season, ground condition measurements will be taken and analysed to describe the relationship between direct ground condition measurements and injury in junior, community level football.

Similarly to the AFL ground conditions study conducted by HMSS researchers over the winter, it is intended that the results of this study will guide ground-management decisions in the future by ensuring that decisions to close grounds due to drought conditions are well-informed in terms of balancing the need to prevent ground-condition-related injuries to junior players in our region with the need to provide juniors in our community with the opportunity to play a much-loved regional community summer sport.

Mini Bytes

A new laboratory has formed in CIAO called the Health Informatics Laboratory (HIL). This lab incorporates the commercial initiatives at the Collaborative Centre for eHealth (CCeH) with health related research projects. <http://demo.justsys.com.au/stranieriWiki/index.php/HIL>.

The NHMRC have advised that Information and documentation for the new **Australia-China Exchange Fellowship** will be on the NHMRC website www.nhmrc.gov.au/fellows/apply/granttype/training/index.htm as of 18 October 2007.

The UB Library is establishing a **Digital Repository** which will underpin the Research Quality Framework to be formally introduced in 2008. The facility will include the digital repository and archiving of university research publications, building on the work already completed to provide access to UB theses. For further information contact **Carolyn Bray** at c.bray@ballarat.edu.au Telephone 03 5327 9590

Why should we research art?

Arts Academy student **Ursula Calderone** seeks to grapple with a common dilemma though her presentation to UB's Research Conference by reference to past great thinkers.

"My research concerns the making of Art; I believe that research about art is relevant to the community. Leo Tolstoy found art to be a vital 'means of communication and therefore of the progress of humanity towards perfection'. Tolstoy believed that the 'purpose of art is to ensure that

feelings less kind and less needful for the wellbeing of mankind are replaced by others kinder and more needful.' If art can do this, it is surely not irrelevant to the community.

Walter Pater saw art as 'proposing frankly to give nothing but the highest quality to your moments as they pass.' In a world where dumbing down is common, seeking in art for the highest quality would seem to be very relevant to any people.

I believe that there is much wisdom in the philosopher Marcuse's idea of looking for 'an

aesthetically informed sensation [that] would respect humans and nature rather than destroying them.' This would be an aesthetic solution. Marcuse argues that 'these images of harmony preserved in the imaginary world of art... would serve as criteria for judging everyday objects and activities.'

If art can work towards any harmonious solutions to the planet's problems, then I believe writing about and researching art and attempting to make art cannot be irrelevant."

Motivational interviewing based health coaching (MIHC)

Dr **Mirella Di Benedetto** together with co-investigators: Drs **Helen Aucote** (UB) and **Helen Lindner** (APS) have recently received a **beyondblue: the national depression initiative research grant of \$134,817**.

The grant is targeted at the early intervention for the prevention of depression in type II diabetes in an Australian regional and rural population.

The study will examine the effectiveness of a phone-based MIHC intervention on depression, in those with Type II diabetes living in a rural area, and will also examine the possible underlying psychological mechanisms associated with MIHC.

It will utilise a protocol adapted from the Health Psychology Model of HC, an Australian model,

which incorporates evidence-based behavioural strategies such as: readiness to change; motivational interviewing; solution-focused counselling; agreed behaviour change priority; decisional balancing; self-efficacy; self-monitoring, devising an action plan for change; and addressing relapse prevention.

These are aimed at addressing resistance, ambivalence, and psychosocial barriers to change. The AHC model is individually tailored to suit the unique needs of the client. An important aspect of the AHC model is that it incorporates MI, an effective psychological intervention that enhances intrinsic motivation towards positive behaviour change: an imperative component of successful health behaviour change. It is hypothesised that

MIHC will have a positive impact on factors that are typically associated with depression: namely, trait anxiety, coping, resilience and social cognitive variables.

No studies have investigated the relationship between MIHC and the above psychological factors; therefore, the findings may provide insight into the psychological mechanisms affected by MIHC in chronic illness populations. The findings of the study could also have major implications for the future cost-effective prevention of depression associated with Type II diabetes and more broadly other chronic illnesses. They could also be used to reduce the risk of depression and chronic illnesses in the general population.