THIS ISSUE

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ITMS Graduates of Distinction

News and Views for Alumni
School of Information Technology and Mathematical Sciences

"ITMS making a difference whilst dancing with dragons"

An experienced person once said to me that in China everything is possible, but nothing is easy.

My experience tends to verify this assertion. Over a number of years ITMS has been initiating and developing relationships with universities across China. Recently Dr Liping Ma and I visited a number of Chinese institutions to continue this process. The ultimate aim is to benefit both the Chinese institution and UB in teaching and learning and research. We have a great deal to learn from each other.

Some years ago we visited Harbin Engineering University and this resulted in co-operation to the benefit of both. Earlier this year this School was the sponsor of a conference in Harbin which attracted international scholars. Last month I was delighted to meet with the very first recipient of the Alex Rubinov research scholarship. The scholarship went to Ms Liping Jin from Harbin Engineering University who is now doing a PhD with Dr Adil Bagirov in Ballarat. We also have in our School the first four undergraduate students from Harbin. Further an ITMS Lecturer Dr Long Jia is currently having a study leave in Harbin applying Artificial Intelligence techniques to Traditional Chinese Medicine.

In this latest visit, Dr Ma and I visited Bohai University where I gave a seminar to computing staff, a seminar to mathematics staff, and a presentation on studying at the University of Ballarat to undergraduate students. I must admit that I very much enjoy visiting Bohai University as I am treated not just as an honoured guest, but as a good friend and that is how I feel. A new contract with Bohai University was signed which should result in some Bohai undergraduate students studying in Ballarat and some Bohai staff visiting us to learn more about our teaching methods.

Talking about staff visiting China, it is with mixed feeling that we farewell our School staff member, Dr Allison Plant, who has taken a lectureship in Wuhan, China. We wish Allison well, but are sorry to lose her. In this visit to China, we also went for the first time to Shaoguang Normal University. There we were able to build upon a previous visit and contract signing by University of Ballarat Vice-President Rowena Coutts. It is hoped that students from that University will articulate into courses at UB.

A highlight of our visit to China was that to Beihang University in Beijing. Here I signed a Memorandum of Understanding to do joint research with them in the exciting area of internet commerce security. Our visit there will be followed up by visits by various staff from our Internet Commerce Security Laboratory.

Of course while in Beijing we took the opportunity of seeing the primary Beijing Olympic venue, and it was very impressive. There can be no doubt that the Chinese have done everything they can to have a truly memorable Olympics showcasing China at its best.

We returned to Ballarat feeling much had been accomplished and with new memories of this wonderful country and its warm and hospitable people.

Professor Sid Morris

Continuing Kazakhstan Connections

Visiting Academics

Professor Zoya Tuiebakhova, Vice-Rector (compares with an Australian Deputy Vice-Chancellor) visited ITMS in June from Kazakhstan, accompanied by IT colleague, **Dr Fuad Hajiyev**, Dean of Information Technology, who was visiting for a second time. The former Soviet Republic is located in Central Asia, northwest of China; just west of the Ural River in eastern-most Europe

Professor Tuiebakhova *enjoys the feel of Ballarat's gold*

These visitors come from the Kazakh British Technical University (KBTU) - a university created by the President of Kazakhstan and Prime Minister Blair of the UK. During their three day visit Professsor Tuiebakhova and Dr Hajiyev met with UB's executive staff as well as many key ITMS members to engage in helpful briefings and discussions (they were especially impressed with the *Virtual Reality Laboratory*). KBTU is funded partially by the Kazakhstan Government, but extensively by major corporations like Shell and Siemens. Because of longstanding academic and warm personal relationships with **Dr Zari Dzalilov** and **Dr Eldar Hajilarov**, the Kazakhstan visitors are very keen to work with UB to build a long-term collaboration.

KBTU's current co-operative partners include one of the finest institutions in the world, the London School of Economics. Other present partners for KBTU include the Western Polytechnic in Newcastle as well as prestigious USA universities. Whilst the traditional Kasak and Russian languages are spoken

at KBTU, increasingly internationally recognized English is the preferred language for teaching and research programs. Competition for local students to gain a place at KBTU is fierce with only one in three applicants being successful.

The co-operation between UB and KBTU could (and should) be at many levels in teaching and research and would be of great benefit to ITMS. This co-operation might include international undergraduates, Masters by Research and PhD students studying in Ballarat. In addition there could be study leave opportunities for ITMS staff, teaching by moderation, and joint research projects and consultancies with major corporations. It must be remembered that Kazakhstan's giant resource is extensive oil and gas reserves. (They also boast a whole range of other very valuable minerals – including uranium - over their vast steppes.) Dr Hajiyev has estimated however that there is presently a shortage of about 6,000 IT specialists in Kazakhstan which an ongoing collaboration with UB would help address.

ITMS also hosted lunches, afternoon teas and a dinner for these international guests to meet a broad range of staff, as well as arranging for a concluding visit to Ballarat's Sovereign Hill attraction which the visitors thoroughly enjoyed even getting into the 1850's picture.

Professor Tuiebakhova, Dr Hajiyev, Shannon Bell and Rebecca Davis enjoy the role playing at Sovereign Hill

Professor Sid Morris commented "I anticipate that the *Memorandum of Understanding* between our two universities that was signed during the visit of our colleagues will lead to many tangible outcomes as mutually beneficial academic arrangements between the partner universities are developed over the coming years".

Graduate Skills in Action
Kerry Howard
IT Skills Equals International Opportunities

Kerry enrolled in the ITMS Graduate Diploma in Information Technology at UB for three reasons. One was to make better use of the DOS based computer her family purchased in 1995. The second was to understand the language 'technical support' used at her secondary school. Kerry, a humanities teacher, believed that teachers were being kept in the dark about using Computer Technologies and told things were "impossible". The third reason was that as a teacher she was always looking for new things to learn.

The ITMS course introduced Kerry to a whole new world of learning. While the other IT teachers at her school were still engrossed in their in-depth discussion about floppy drives and hard drives, about mega RAMS and DOS overdrives, Kerry was discovering the beauty of HTML – here at least was something she 'almost' understood – in fact it seemed that she understood it better than the IT teachers at school – and HTML was to be the way of the future.

Kerry used her new skills to develop exciting ways of learning for students. Kerry's students soon developed skills in a range of software programs including Dreamweaver, Front Page, Photoshop, FTP in the service of curriculum. These students developed expertise in word processing, web-site establishment, local and global searching and email communication. They learned the value of collaboration as well as developing a high tolerance level for the emerging technologies that would inevitability fall over when least expected (or wanted!)

Kerry then worked with several Ballarat school groups on global projects and took on the role as a coach in the international *Thinkquest* educational web design competition. http://www.thinkquest.org/) This resulted in two trips to Los Angeles and one to Geneva. There were other successes in National competitions including *The Age* Net Challenge which resulted in one teacher colleague and student spending three days at the Sydney Olympic Games in 2000 as guests of IBM.

Over the years that followed, Kerry became involved in a number of programs for professional development of staff at both a local and state level aimed at enhancing the use of the Internet for learning as well as other digital technologies While she never become an "IT" teacher, the ITMS course had a huge influence in the way Kerry teaches in a range of subjects and in developing her capacity to enhance the skills of other teachers. Kerry's IT thirst will continue as she pursues new paths in her semi-retirement

Graduate in Action
Evan Dekker
– a (micro) chip off the old block?

Some 30 years ago Evan Dekker's parents both received their tertiary education at the famous Ballarat School of Mines (the precursor to UB) in applied physics degrees. In those days students used to write computer programs on punched cards and had them sent to a massive machine full of valves and other 'weird and wonderful workings' to be executed.

Both parents remember the lectures of an enthusiastic young academic - **Geoff Boyd**. Some 30 years later during Evan's Bachelor of Computing (B.Comp) degree, he was lectured in a programming unit by the selfsame Geoff Boyd, demonstrating UB's long term commitment to developing IT knowledge over generations of students.

Evan completed his B.Comp in 2002 with ITMS, going on to gain his Bachelor of Computing (Honours) in 2008. This fulfilled a lifelong passion for Evan who had been fascinated by computers since his high school days. This passion was brought out by an avid (Evan confesses perhaps a little too avid) time spent as a 'crash hot' computer game player during his adolescence, which fired up his interest.

Evan initially started 'Mechatronics' at Swinbourne University after his high school days, but found this was not to his liking. He then commenced the B.Comp at Ballarat and loved the contrasting social 'feel' of a regional university (in his region). Evan says that "*Tutors and Lecturers felt more like friends than distant educators*". He was employed to provide a small amount of Database tutoring during the later part of his undergraduate degree. He started working for CCeH after his course was completed and was introduced to many different computing technologies that fed his desire for more detailed computing knowledge, initially fostered through his ITMS studies.

The UB policy of encouraging staff development gave Evan the opportunity to complete his Honours year part time whilst being employed in ITMS. His present duties include Technical Officer CCeH and Webmaster ITMS, and give Evan much professional satisfaction. However he realises that this is but the beginning of his IT journey.

A New Initiative for ITMS
Schools Program Reaches Out

The start of 2008 marked the beginning of a new initiative for ITMS which targeted regional secondary schools and their students.

A part time staff member, Alan Kealy, was appointed to contact regional secondary school students and their teachers to encourage students in years 9-11 to consider IT, Maths, and Statistics as an option for university study. Alan has recently moved on to other (ad)ventures, but the groundwork that he laid, and the volunteer staff members that have committed time to the project have created a viable and exciting secondary school engagement project for ITMS.

Several ITMS staff members, including **Dr Allison Plant, Ms Marijke Groothius, Ms Sandra Herbert, Dr Jason Giri, Ms Kathleen Keogh, Mr Troy Helend and Dr Charlynn Miller**, have contributed time and ideas to the program.

Many ITMS students have also given time to provide support in the evening programs to run the Games Laboratory. The current initiative is three-tiered: visits to classes by local students, visits to regional schools by ITMS staff, and evening lectures and demonstrations at the Mt Helen Campus that regional students, school staff, and parents are invited to attend.

Graduate in Action

Dr Allison Plant has visited schools in the area and worked with groups of students in the mathematics area. In addition, there have been a number of visits from local school students to lectures in maths with Allison Plant and Jason Giri, and workshop-like lectures in Digital Image Manipulation with Marijke Groothius. Two evening lectures have been conducted at Mt Helen, one in April by Charlynn Miller in "*Emerging Technologies*", and one in May by Allison Plant in "*Mathematics in the Media*". Both lectures received great feedback from school staff, students, and parents. Many ITMS staff have brought their children to these lectures as well.

This exciting project is a great way to have contact with the regional schools in the area, and has proved to be a wonderful opportunity for staff and students to engage with the community. Plans for the next six months include at least two more evening lectures, more contact with other regional schools, more school visits by ITMS staff and students, and more structured daytime activities at the Mt Helen Campus for school students.

Alumni are particularly welcome to participate in the program. Anyone who is interested in taking part in the program, please contact: Dr Charlynn Miller 03 5327 9545, c.miller@ballarat.edu.au

Graduate in Action

***Priscilla Clark*, Project Officer/Quality Manager CCeH**
Priscilla is also an ITMS graduate who has been working with CCEH the Collaborative Centre for eHealth (CCeH) since 2006. As a Project Officer she has been actively involved in several key projects. Priscilla is also the Quality Manager of AHML and ensures the standards of quality are met and delivered.

Prior to working at CCeH, Priscilla was a Senior Technical Consultant with the IBM Helpdesk. This position has allowed her to develop and demonstrate her communication skills and ability to adapt to many situations. Her challenges there included dealing with a multitude of national and international clients on complex problems whilst meeting high service level agreements. Priscilla conducts ongoing technical training and for new staff.

CIAO CHAT

News from the Centre for Informatics and Applied Optimization

Prolific Professor Rubinov

The late Prof. Alex Rubinov - Founding Director of CIAO, authored the following papers which were published in 2007, forming an impressive testament to his outstanding research outputs including:

1) Burachik, Regina Sandra, Rubinov, Alex, Abstract convexity and augmented Lagrangians, SIAM J. Optim. 18 (2007), no. 2, 413-436 (electronic);
2) Wu, Z.Y., Jeyakumar, V., Rubinov, A.M., Sufficient conditions for global optimality of bivalent nonconvex quadratic programs with inequality constraints. Journal of Optimization Theory and Applications, 133(2007), no. 1, 123-130;
3) Jeyakumar, V., Rubinov, A.M., Wu, Z.Y. Generalized Fenchel's conjugation formulas and duality for abstract convex functions. Journal of Optimization Theory and Applications, 132(2007), no. 3, 441-458;
4) Ugon, J., Kouhbor, S., Mammadov, M., Rubinov, A., Kruger, A., Facility location via continuous optimization with discontinuous objective functions, ANZIAM J. 48 (2007), no. 3, 315-325;
5) Jeyakumar, V., Rubinov, A.M., Wu, Z.Y., Non-convex quadratic minimization problems with quadratic constraints: global optimality conditions, Math. Program., 110(2007), no. 3, Ser. A, 521-541;
6) Crespi, Giovanni P., Ginchev, Ivan, Rocca, Matteo, Rubinov, Alexander, Convex along lines functions and abstract convexity. I. J. Convex Anal., 14(2007), no. 1, 185-204;
7) Rubinov, A. M.; Shveidel, A. P. Radiant and starshaped functions. Pacific J. Optimization, 3(2007), no.1, 192-212;
8) Rubinov, A. M.; Sharikov, E. V. Sub-differentials of convex-along-rays functions, Optimization 56(2007), no. 1-2, 61-72;
9) Mammadov, M. A., Rubinov, A. M., Yearwood, J. The study of drug-reaction relationships using global optimization techniques. Optimization Methods and Software, 22(2007), no. 1, 99-126; and
10) Generalized convexity and related topics. Papers from the 8th International Symposium on Generalized Convexity and Monotonicity held in Varese, July 4-8, 2005. Edited by Igor V. Konnov, Dinh The Luc and Alexander M. Rubinov. Lecture Notes in Economics and Mathematical Systems, 583. *Springer-Verlag, Berlin,* 2007. x+469 pp. ISBN: 978-3-540-37006-2; 3-540- 37006-4.

(*Source: CIAO Autumn 2008 Newsletter - Ed*)

The CIAO Newsletter is always very informative and can be accessed electronically via its Editor Elizabeth Matuschka- Telephone 03 5327 9949, Email: e.matuschka@ballarat.edu.au or Web site: http://www.ballarat.edu.au/ard/itms/publications/CIAONewsletters.shtml

Staff Profile
***Con Nikakis* - Business Development Manager**
Con joins ITMS with a background in ICT disciplines and a research interest in Industry Certification Models. Con has had an extensive career in the Tertiary and Secondary Education sectors with a smattering of experience in commercial IT environments.

His experience includes:

- the management of the School of Information Systems, Faculty of Business & Law at Victoria University. Developing, implementing, growing strategic and functional operations for a large academic department ($8 million budget);
- Honeywell/Telecom Systems Engineer (DCRIS project pre-ERP System);
- managing overseas relationships;
- Campus Manager Faculty of Business & Law;
- Diverse teaching, administrative and management responsibilities;

Research Publications include articles that have centred on the 'Digital Divide' and its Effect on New Technology Acceptance as well as co-authorship of a number of books with *Prentice-Ha*ll on the use of Microsoft PC Applications. Con has also been responsible for gaining approximately $200,000 of grant income.

Con is a member of the Australian Computer Society Board (Victorian Branch) and the Victorian Information Technology Teachers' Association. His qualifications include B.Sc. & M.Ed. (Melb.), Grad. Dip. Bus. Sci (Victoria University). He is currently pursuing a doctorate in education by research at Melbourne University.

Con's creative hobbies include: AFL football, touring, travel (Asia, Africa, Middle East, Europe, Canada), films, recreational computing, photography and relaxed lunches with friends (advocating the slow eating philosophy). Seeing Con dancing with Masii Warriors Tanzania (above) in 2005 may suggest his management style – but does he *give the job a real shake or approach tasks with a big stick?*

Comings, Goings and Doings

Staff Profile - Ahmed Bani-Mustafa
To a Jordanian Statistician "*it all adds up*"

Ahmed Mustafa has most recently spent three years as a Lecturer in Statistics and Actuarial Sciences at Al Al-Bayt University in Jordan. Prior to that, Ahmed taught statistics in Australia at the University of Western Sydney, IIBIT Sydney and the Meridian International School.

Currently Ahmed is teaching statistics for ITMS (and consulting with CIAO) where he is presently responsible for data analysis associated with the key 'Solar Cities' project.

At Yarmouk University in Jordan Ahmed was ranked the top student in a Masters program when he graduated from his Masters Degree in Statistics. He was awarded his PhD from the University of Western Sydney in Australia and received the Postgraduate Excellence Award for his PhD research and thesis entitled "*Recursive Residuals for Linear Mixed Models*".

Ahmed's research interests include Recursive Residuals, Linear Mixed Models, Generalised Linear Mixed Models as well as checking the adequacy and validity of these models and their applications.

Apart from his work with ITMS and CIAO he is currently also involved in applying a Linear Mixed Model on ground conditions and sports injury rates in conjunction with Professor Caroline Finch in the school of HMSS and conducting analysis on a data set concerning Sleep Disorders and Diabetes in a collaboration with Swinburne University.

Ahmed has three young children and enjoys weekend outings with his family, gardening, jogging, and watching movies and TV. He looks forward to many more productive years working with UB in ITMS and CIAO.

Staff Profile – David Gillam
"*I think that I shall never see a mathematician as lovely as a tree...*"

David Gillam has also recently been appointed as a Lecturer in mathematics in ITMS. He started working sessionally with the School in 2007 while at the same time continuing to work at Swinburne University, where he has worked in a similar position for the last ten years.

Over the last three years David has been working, very much as a junior partner, with mentor Professor Gurarii, on asymptotic expansions. For David this work began with a desire to begin doing research again, followed by a walk down the corridor, a knock on Professor Gurarii's door and a question: "*Can you tell me about your research?*"

David originally studied pure mathematics, together with probability and statistics, at Monash University, and after graduation he started a PhD in logic (model theory). Later, after a couple of years teaching at the University of Melbourne, he moved to Rockhampton and a position as a Lecturer at the Capricornia Institute of Advanced Education (now the University of Central Queensland).

In the 80s David moved back to Melbourne and began studying theology at the United Faculty of Theology. This lead David to pursue a degree in Theology and then work at a community centre in Fitzroy. Towards the end of the 80's David returned again to teaching mathematics, with positions at Footscray Institute of Technology, LaTrobe University, a private college in Melbourne, sessional work at RMIT, and then a position as lecturer and Swinburne University.

David has commented about his UB experience:

"*I am enjoying teaching at UB, I love the fresh air, much better than Bacchus Marsh – which is better again than Forest Hill where we used to live. I think the magnificent, massive centrally located Tasmanian blue gum- which Sid Morris has named the 'Tree of Knowledge', is superb. When I first started at UB I was teaching over in the food technology area – during our break I would go out and just stand and look at that tree.*

With encouragement from UB I am looking forward to continuing my collaboration with Professor Gurarii. My current research is concerned with Watson's theory of asymptotic expansions and their application to the solution of differential equations and to the explanation of Stokes phenomenon."

David has two older boys, one of whom is in Japan, teaching English and learning Japanese, and the other of whom has a postdoctoral position in physics at Monash.

David is married to Lynn; together they have two children.

David - pictured with fellow hikers Mark (13) and Catriona (7) in the bush near Avoca.

Staff Profile – Grant Meredith
From the Fashion Game to 'Games'

Grant Meredith is a new addition to the ITMS team and is excited about the gaming industry boom. Prior to joining ITMS Grant was educated at and worked as a teacher for UB's TAFE campus where he helped to design the Certificate 4 and Diploma of Applied Design. While there he taught multimedia subjects and for two years focused mainly on games design theory and creation using such tools as the HAMMER SDK and *Game Maker* platforms. He has also worked as an adviser for various multimedia and web-based projects. Grant completed both a BIT (with Distinction) in 2005 and a Bachelor of Computing (1st Class Honours) in 2006 at ITMS.

Prior to this Grant worked variously in fashion sales, floristry wholesales, as a stunt person for live performances and as a sales representative for a laundry company. Grant has also been involved in the short film industry for over 10 years with some local and international success. He is listed in the prestigious list of Melbourne independent filmmakers and provides advice to independent projects on economical special effects solutions.

Currently Grant is engaged in PhD studies with UB's School of Education. His study will focus on the Australian university experience for a student who is vocally impaired. Even although this study is in its very early stages, it has the backing of major organizations from Australia and abroad. In March 2008 in Adelaide Grant presented his study idea to a panel of experts at the 12th Australia Speak Easy Convention. This was well received, sparking discussion and encouraging Grant to pursue this research direction.

Grant is passionate about the rise of the games industry in Australia and about encouraging students to pursue careers in the games and multimedia fields. Grant continues to keep up with industry trends and needs by attending presentations by industry leaders and by continuing to have solid industry contacts. During 2008 he is supervising a third year project team which is designing a prototype game for Melbourne based Infinite Interactive. This is an exciting project and will no doubt boost the prospects of employment for the students involved. As a bonus it will enhance the nation-wide reputation of ITMS in the eyes of games designers.

Grant lives with his family in Sebastopol where he enjoys spending time with his kids, correcting their homework and telling them to read more books

Australian Games Development Industry
Get into Games Event

Over the last 20 years the electronic games industry has grown significantly in both size and maturity. Games today are large-scale software engineering projects, with budgets in the millions of dollars. In the last few years the turnover of the global games industry has expanded past that of Hollywood! Australian games are now attracting positive attention from Government and interested industries.

In a 2006 survey conducted by the Games Development Association of Australia, shortage of skilled staff was identified as the major constraint to continue growth by Australian games companies. As a result of this shortage, and the creative nature of games industry careers, interest has grown over this time in the games technology units and courses offered by ITMS. Nowhere was this more evident than at the recent Ballarat *Get into Games* (GiG) EXPO, where the staff and students at the ITMS stand were swamped by enquiries from hundreds of high-school students from around Victoria.

ITMS involvement in the May GiG event began with a presentation to ITMS students by Morten Brodersen, CEO of Melbourne-based *Third Wave Games*. Morten's presentation gave a valuable insight into the workings of the games industry (and particularly how best to secure a starting position), and was well-received by the students in attendance. The main GiG event took place at the Ballarat Mining Exchange with presentations by several Melbourne development companies, and some ITMS graduates now working in the industry with *Transmission Games* and *Blue Tongue*.

Current ITMS students were able to make contacts with industry representatives, and showed off the games they currently have under development for their 3rd year group project unit. **Steve Fawkner**, CEO of *Infinite Interactive*, gave great presentations to both students and staff. He was clearly impressed with ITMS, its students and the organisation of the GiG event generally. This was reflected in his personal blog posting **http://forums.infinite-interactive.com/blog.php?b=30**

From Math Teacher to Manager International Programs

Brian Firth reminisces with pleasure on his long term career relationship with ITMS and its various predecessors and ponders how he has ended up as ITMS Manager International Programs many decades later. Brian writes:

"As long as I can remember I wanted to become a Maths and Science teacher. The University of Melbourne was the only university in Victoria at the time I completed year 12. My first taste of computing came as an 8 hour segment of my third year. Laboratory work was with CSIRAC, Australia's first electronic computer. In that time we managed to program the product of two large numbers. I don't even know if we got the right answer!

"In 1979, I was Acting Principal of a small, remote, country High School. The Victorian Education Department had set up a project team visiting schools to demonstrate the Apple II personal computer – 64K of RAM! Word processing, spread-sheeting and programming in BASIC were all the rage. One of the teaching staff lamented that it was all too late, computing had passed us by.

"However, by the mid-80s my family and I had moved into the Ballarat area and I had a B.App.Sci. degree in computing, statistics and electronics, at the Ballarat College of Advanced Education (later UB with the support of my Alma Mater and with my first physics lecturer, Professor David Caro, as Chancellor). In 1989, I left secondary teaching to join the Department of Mathematics, the forerunner of ITMS. One of the highlights for me has been the number of my former students who have joined the staff of the school. Another highlight was graduating on the eve of my 55th birthday with a Monash M.Comp. Morning tea the next day was one of the rare occasions when champagne was consumed in the staffroom during working hours!

"My first responsibility in the area of international education was in the mid-90s when we had a handful of new students coming to UB from overseas and for whom I was to provide a 'fatherly eye'. It was a pleasure to meet some of the families of these students when I visited India in 1997.

"How do you get to be Manager International Programs? In my case it meant the combined experiences of being the liaison between ITMS and the forerunner of IIBIT in Sydney, the collector and guardian of the teaching and learning materials for our off-campus students together with responsibility for quality assurance, the Academic Coordinator of an off-campus partner, the relieving Manager on more than one occasion and in more than one school, a moderator, a pre-checker and soon to be a Location Unit Coordinator, the newly empowered moderator.

"In one of the units in the Diploma of International Education that I am currently enrolled in, the question was asked, 'How can you be sure that you are prepared for your next job in international education?' The answer, of course, is you can never be sure. But there comes a time when you have to 'have a go'. When my 'retirement' was taken 10 years ago, there wasn't a lot of time left for any further preparation. "

Below: *The futurologists vision for a' home computer' when Brian was commencing his career!*

Breaking News – **Marjory Milner College**, located in Geelong – is a partner site for ITMS courses. MMC attracts under-graduate students. The initial cohort of these students that have completed their first year in the Indian sub-continent, are eligible to graduate from MMC. MMC enjoys strong links with its Indian 'feeder colleges. Diplomates from these colleges get credit towards an undergraduate degree which they complete in Geelong over 4 terms.

This pathway is so well established that MMC are able to give ITMS months ahead very reliable estimates of the number of students they will enrol in any particular teaching period. First MMC students arrived in October '06 and 48 of them are now eligible to graduate. One of the features that MMC prides itself on is the sense of 'family' engendered amongst students well before they arrive in Geelong.

Please, may we borrow your story?
ITMS Graduates… would you like to tell the story of your career achievements since you completed your ITMS course. Please email 200-300 words, to the Editor for publication in a future edition. Editor:-*ITMS Graduates of Distinction* **T Eugene Kneebone**
Telephone: 61 3 5327 9776
Email: e.kneebone@ballarat.edu.au

New Appointment
Paul Watters Takes on ICSL

Associate Professor Paul Watters joined ITMS in April this year, coming from a stint at the Medical Research Council's (MRC) pathfinder Data Access Project in London, where he was the project manager. Working with various stakeholders within MRC, and associated organisations such as the British Library, Paul was responsible for planning the implementation of a prototype system based on the NESSTAR metadata management system, which is supported by the UK Data Archive. Paul's experience in working with highly sensitive data to ensure privacy of individuals but to maximise potential for secondary usage was a great challenge but very satisfying to see the system making a difference for science.

Paul was educated at the Universities of Newcastle, Tasmania, Cambridge and Macquarie, in the areas of computer science and experimental psychology. It's then no surprise that his current work in security is focused on how people work securely (or less securely!) with systems, including the need to create passwords that are easy to remember but hard to guess. Paul has worked as an academic at Macquarie University and the University of Sydney, but has also worked extensively in industry as a consultant in the web technology, middleware and systems administration areas.

Having decided to come back to Australia with his family, Paul applied for the Research Director role in the new Internet Commerce Security Laboratory, and the Associate Professor in Information Security role within ITMS. Paul was attracted by two things: firstly, the unique partnership behind the laboratory – government, industry, IT vendor and UB – is unique in the cybercrime and information security area; secondly, Ballarat – with its Technology Park, proximity to Melbourne, and one of the largest IT schools in Australia – is set to become a new "Silicon Valley", with the same sort of relationship that the "Valley" has with San Francisco.

Indeed, Paul believes that there is something of a "perfect storm" brewing for IT R&D in Ballarat, making it particularly attractive for IT security companies and specialists – the low cost of housing and living, and the quality of schools, combined with an extremely talented and educated skill-base, will not pass the notice of high-tech companies looking to expand their Australian operations.
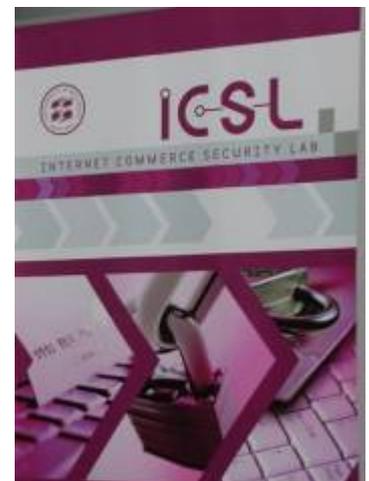
Paul attended the opening of the ICSL, which included some very high profile guest speakers, including the **Hon Theo Theophanous**, Minister for Information Technology, Westpac CTO **David Backly**, **Peter Campbell**, General Manager, IBM Australia's Global Technology Services, and UB's Vice-Chancellor, **Professor David Battersby**. As Minister Theophanous remarked on the day, "*Confidence and security remain the key concerns among those Australians who are reluctant to adopt online banking*", and the primary goal of the lab is to ensure that we have the "*best brains in the country*" working on practical solutions, as David Backly pointed out.

***Minister Theo Theophanous** Launches ICSL at the Greenhill Centre with in UB's Technology Park*

The laboratory is now focused on "*getting down to business*" – six new research students have been recruited into the laboratory, and they will work on developing new technologies to improve the security of online banking and e-commerce, as well as working on forensic aspects of existing attacks against the banking infrastructure, by using data mining algorithms developed in ITMS.

Being able to leverage the practical experience of the Westpac and IBM teams in emergency response, as well as the mathematical and statistical expertise within ITMS, makes the facility an ideal nexus for generating research outcomes that will have a very positive impact on the life of all Australians.

Watch this space for further developments – Ed.
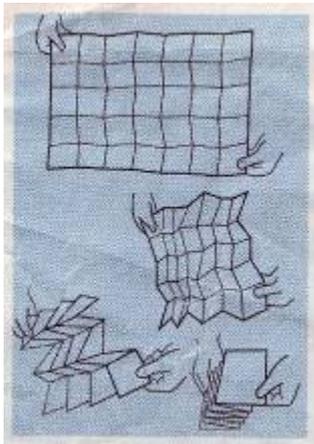
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First Rubinov Scholarship Recipient

Professor Sid Morris recently announced that the first recipient of the **Alex Rubinov PhD Scholarship** has arrived in Australia. The scholarship winner is **Ms Liping Jin** of Harbin Engineering University, China. Liping will be doing a PhD under the supervision of **Dr Adil Bagirov**.

Professor Morris said "*I am very pleased that this scholarship goes to such a high calibre student. I am also pleased that Liping comes from Harbin Engineering University with whom we have a close research relationship. I take this opportunity of thanking Dr Long Jia again for providing the introduction to Harbin Engineering University.*"

Just a Mathematical Problem in 3D

Origami which has traditionally challenged creative souls with an oriental orientation is now inspiring engineers and IT professionals it seems.

Professor Hagiwara Ichiro, of Kyoto University set up a research group called Mathematics of Origami Engineering some five years ago. The fruits of their experiments are now being revealed through innovative satellite design. *Miura-ori* is a method of folding up satellite antennas before they are launched.

By pulling on opposite corners, like a classic origami flower, the antenna is unfolded in space. Usually this is a complex procedure but with origami-inspired folding, it becomes simpler and less prone to failure. Professor Ichiro compares it to viewing a mathematical problem in three dimensions. We're likely to see in the future more origami-based solutions in furniture, car design and architecture - so get folding folks.

National ICT Careers Week

Ballarat ICT was recently involved in National ICT Careers Week when ICT companies, professional associations, women in ICT groups, educational institutions and government agencies combined to show opportunities for young people in ICT careers. Continuing information can be found on the website http://www.aiia.com.au

Advanced VTOL Technologies Wins Contract

Based at UB's Technology Park, Advanced VTOL Technologies has won a significant contract with the Department of Defence. The enterprise was one of 12 companies selected from 116 Australian companies and universities to share $21.5 million in Round 12 of Defence's Capability and Technology Demonstrator Program.

David Howe, Director of Advanced VTOL Technologies, was the guest speaker for the July UBTP breakfast briefing. David has a Bachelor and Masters Degree in Aerospace Engineering. For the last 14 years he has provided support to clients such as: ASTA Aircraft Services; Qantas; and Defence Science and Technology Organisation (DSTO) Air Operation Division (Rotary Wing Operations Group) and Airframes and Engines Division (Masters).

During this time, David has been engaged in: aerodynamic loads estimation and optimization; air combat simulation; helicopter-ship dynamic interface simulation; and helicopter simulation fidelity and handling qualities assessment. The focus of this presentation was the new maritime helicopter aid for the DSTO. Further details on this can be found at www.dsto.defence.gov.au/collaboration/3743/ or www.avtolt.com

(The next Breakfast Briefing will be held on Tuesday, August 19th at 7.45 am with **Dr Hugh Bradlow**, Chief Technology Officer, *Telstra Corporation* as the speaker.)

Time to Get from 'Geek to Chic'

"…*Perhaps it is time to find innovative ways to bring this thirst for mathematical stories and games from the adult playground into the classroom and transform mathematics from geek to chic.*"

This is the concluding quote in the leading article "*Without the big maths stories our numbers are plummeting*" in *The Times* (UK) by **Marcus du Sautoy**, Professor of Mathematics at Wadham College, Oxford.

Happily this type of approach is already happening in ITMS, which offers innovative units including:

- ➢ Upon the Shoulders of Giants;
- ➢ Profit, Loss and Gambling;
- ➢ Secrets of the Matrix; and
- ➢ Puzzles, Patterns and Proofs

For more information on these units or the Bachelor of Mathematical Sciences course visit the ITMS website:

www.ballarat.edu.au/ard/itms/courses/courses