Higher Degree Research (HDR)

STUDENT CONFERENCE
Showcasing the ground breaking research being undertaken at the University of Wollongong by our HDR students

ABSTRACT BOOKLET
Wednesday, 26 September 2007

CONFERENCE THEMES:
• Good Health • New Methods and Materials
• Our Social Fabric • Reflections on Society

http://www.uow.edu.au/research/rsc/hdrconference/index.html

University of Wollongong
Introduction by
Professor Joe Chicharo
Dean
Faculty of Informatics

The University of Wollongong has built its successful research base and reputation through a concerted strategy of focusing on our strengths. We have continued to expand and grow areas where we have traditionally had world leading research groups in, for example, information and communication technology (ICT), nanotechnology, engineering and materials science and in the molecular and environmental sciences more generally. More recently, our research effort has been growing in new areas such as archaeological methodology, statistical methods, health services and health communication research, studies in the Asia Pacific and international law and policy. I am confident the conference abstracts contained within this book will impart the depth and breadth of research in some of these and other emerging areas. An excellent cohort of over 1,000 higher degree research students provide much of the excitement of our research effort and are critical to our recent success.

The UOW research effort also has a number of other distinguishing characteristics. These include our capacity to establish effective partnerships, with industry, government bodies and with other research organizations, within Australia and internationally. We have a number of long standing relationships with steel makers, telecommunications carriers, and pharmaceutical companies and our researchers collaborate with many of the leading Universities worldwide. Another distinguishing feature of our research is we have been able to develop successful multidisciplinary research teams. Thus we are a University in which scientists talk to lawyers, IT professionals collaborate with creative artists and economists engage with public health practitioners. This is vital because it is research at such interfaces between disciplines that often results in quantum leaps in our understanding.

It is with great pleasure I commend to you these examples of the excellent research of our higher degree students.
Keynote Speaker

Associate Professor Marie Ranson

BSc (Hons, Biochemistry), PhD
VC’s Award for Excellence in Research Supervision recipient
Cancer Institute NSW Fellow
School of Biological Sciences
Faculty of Science, University of Wollongong

Marie Ranson established her cancer biology lab within the School of Biological Sciences since her academic appointment in 1999. She is currently a Cancer Institute NSW Fellow and has now established an international reputation for her work on the role of the urokinase plasminogen activation system in tumour invasion and metastasis.

An important application of her research is the development of a rational biological basis for the development of targeted anti-cancer drugs. In addition, she directs a locally based integrated cancer research program encompassing various research disciplines aimed at the identification and rapid assessment of potential new targets and therapy strategies.

In the last 4 years she has expanded her research activities to investigate the part played by the plasminogen activation system in streptococcal infection. Marie has published over 38 refereed papers, reviews and chapters, and is a significant inventor on four patents. She has had high national and international competitive grant successes winning over $2,500,000 in external grant funding.

Marie has supervised 9 PhD, 2 Masters, and 18 Honours research students to completion and is currently supervising 4 PhD and 4 Honours students. Several of her Ph.D. students have been awarded best poster prizes at both national and International meetings. One of her recently completed PhD students, David Croucher, won the Premiers Award for Cancer Institute NSW Outstanding Research Scholar for 2006. In April 2007 she was awarded the University of Wollongong Vice-Chancellor’s Award for Excellence in Research Supervision.
## CONTENTS

**INTRODUCTION**
Professor Joe Chicharo

**KEYNOTE SPEAKER**
Associate Professor Marie Ranson

**PRESENTATION PROGRAM**

**ORAL PRESENTATION LIST**

**ABSTRACTS**

- Good Health  
- New Methods and Materials  
- Our Social Fabric  
- Reflections on Society

**POSTER DISPLAY LIST**
**PROGRAM**

9.30 – 10.00  Registrations in Function Centre Foyer, Level 2, Building 11

10.00 – 10.10  Welcome by Professor Joe Chicharo, Dean, Faculty of Informatics

10.10 – 10.30  Keynote Speaker – Associate Professor Marie Ranson  BSc (Hons, Biochemistry), PhD, VC’s Award for Excellence in Research Supervision recipient, Cancer Institute NSW Fellow, School of Biological Sciences, Faculty of Science, University of Wollongong

<table>
<thead>
<tr>
<th>TIME</th>
<th>THEMES</th>
<th>KEMIRA ROOM 1</th>
<th>FUNCTION ROOM 2</th>
<th>FUNCTION ROOM 4</th>
<th>KEMIRA ROOM 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.30-10.45</td>
<td>Good Health</td>
<td>Arsenic Resistance - Sherin M Alex, Faculty of Science</td>
<td>Continuum description of the energetics of nanopeapods – Duangkamon Baowan, Faculty of Informatics</td>
<td>The Decision to Go Public: A Case Study of IPO's in Thailand – Jirapun Chorruk, Faculty of Commerce</td>
<td>Picture Perfect; problematizing discourses of the ‘ideal’ – Nicoli Barnes, Faculty of Education</td>
</tr>
<tr>
<td>10.45–10.50</td>
<td></td>
<td></td>
<td></td>
<td>Move to next presentation</td>
<td></td>
</tr>
<tr>
<td>10.50 – 11.05</td>
<td>New Methods and Materials</td>
<td>Understanding the molecular biology of PAI-2 – Blake Cochran, Faculty of Science</td>
<td>First Ever Production of Polypyrrole Fibres – Javad Foroughi, Faculty of Science/Engineering</td>
<td>Using design-based research methodology to examine ways that Primary Schools teachers provide authentic learning experiences for their students – Jessica Mantei, Faculty of Education</td>
<td>The Error of Blaming the Crowd After Crowd Related Disasters – Kylie Bourne, Faculty of Arts</td>
</tr>
<tr>
<td>11.05-11.10</td>
<td>Our Social Fabric</td>
<td>Do athletes with and without asymptomatic patellar tendon ultrasonographic abnormality differ in their landing technique? – Suzi Edwards, Faculty of Health &amp; Behavioural Sciences</td>
<td>Carbon nanotubes as nonocarriers for drug delivery – Tamsyn Hilder, Faculty of Informatics</td>
<td>Application of a Marketing Orientation within Non-Profit Charities – Paul A Chad, Graduate School of Business</td>
<td>Fact, Falsity, and Filth: a journalist and his story – Rowan J Cahill, Faculty of Arts</td>
</tr>
<tr>
<td>11.10-11.25</td>
<td>Reflections on Society</td>
<td>Fitness and activity levels of primary care patients with depression and/or anxiety – Adrienne Forsyth, Faculty of Health &amp; Behavioural Sciences</td>
<td>Effect of confinement shapes on the behaviour of Reinforced HSC beams – Ross Jeffrey, Faculty of Engineering</td>
<td>Power, Politics and Public Debate - The National Radioactive Waste Facility and implications of a unilateral govt approach – Kerryn Hopkins, Faculty of Arts</td>
<td>Optimal Experience and Sustainability in Australian Collaborative Independent Theatre, Jane E Kreis, Faculty of Creative Arts</td>
</tr>
<tr>
<td>11.25–11.30</td>
<td></td>
<td></td>
<td></td>
<td>Move to next presentation</td>
<td></td>
</tr>
<tr>
<td>11.30-11.45</td>
<td></td>
<td></td>
<td></td>
<td>Move to next presentation</td>
<td></td>
</tr>
<tr>
<td>11.45 – 12.05</td>
<td></td>
<td></td>
<td></td>
<td>Move to next presentation</td>
<td></td>
</tr>
</tbody>
</table>

Higher Degree Research Student Conference, 26 September 2007
<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.05 – 1.15</td>
<td>Lunch – Function Room Foyer</td>
<td>Poster Display Judging - Foyer</td>
</tr>
<tr>
<td>1.15 – 1.30</td>
<td>KEMIRA ROOM 1</td>
<td>Divide and Conquer; Adolescent Sun Protection Investigation – <strong>Melissa Lynch</strong>, Faculty of Health &amp; Behavioural Sciences</td>
</tr>
<tr>
<td></td>
<td>FUNCTION ROOM 2</td>
<td>A New Machine Learning Approach for Neural Networks – <strong>Giang H Nguyen</strong>, Faculty of Engineering</td>
</tr>
<tr>
<td></td>
<td>FUNCTION ROOM 4</td>
<td>Increasing accountability in the Agricultural Sector: Cases of Shifting power relations and dispossession in the Murrumbidgee Irrigation Area – <strong>Connie Spasich</strong>, Faculty of Commerce</td>
</tr>
<tr>
<td></td>
<td>KEMIRA ROOM 4</td>
<td>The Phenomenology of Emotion – <strong>Jane M Lymer</strong>, Faculty of Arts</td>
</tr>
<tr>
<td>1.30 – 1.35</td>
<td>Move to next presentation</td>
<td>Move to next presentation</td>
</tr>
<tr>
<td>1.35 – 1.50</td>
<td>Consumer responses to health claims in food advertisements using both 'lay' and 'scientific' terms – <strong>Anne McMahon</strong>, Faculty of Health &amp; Behavioural Sciences</td>
<td>Modification of Paint Surfaces for Contamination Resistance – <strong>Dylan Riessen</strong>, Faculty of Engineering</td>
</tr>
<tr>
<td></td>
<td>Move to next presentation</td>
<td>Move to next presentation</td>
</tr>
<tr>
<td>1.50 – 1.55</td>
<td>Move to next presentation</td>
<td>Move to next presentation</td>
</tr>
<tr>
<td>1.55 – 2.10</td>
<td>Soft tissue thickness, plantar sensation and foot pain: What is the effect of obesity on the older foot? – <strong>Karen Mickle</strong>, Faculty of Health &amp; Behavioural Sciences</td>
<td>Removal of trace organic contaminants by submerged membrane bioreactors – <strong>Nichanan Tadkaew</strong>, Faculty of Engineering</td>
</tr>
<tr>
<td></td>
<td>Move to next presentation</td>
<td>Move to next presentation</td>
</tr>
<tr>
<td>2.00 – 2.15</td>
<td>Correlates of Self-Harm Behaviour in Patients with Borderline Personality Disorder – <strong>Gina Parker</strong>, Faculty of Health &amp; Behavioural Sciences</td>
<td>Development of filtered-arc deposited titanium-nickel coating for cavitation erosion resistance in liquid environment – <strong>Limei Yang</strong>, Faculty of Engineering</td>
</tr>
<tr>
<td></td>
<td>Move to next presentation</td>
<td>Move to next presentation</td>
</tr>
<tr>
<td>2.15 – 2.30</td>
<td>Determining Evolutionary Relationships Using Mitochondrial Genetics – <strong>Angelique Riepsamen</strong>, Faculty of Science</td>
<td>Strengthening of Circular Reinforced Concrete Columns by External Fiber Reinforced Polymer (Frp) Wrapping – <strong>Veyssel Yazici</strong>, Faculty of Engineering</td>
</tr>
<tr>
<td></td>
<td>Move to next presentation</td>
<td>Move to next presentation</td>
</tr>
<tr>
<td>2.35 – 2.50</td>
<td>Move to foyer for Award Presentation</td>
<td>Move to foyer for Award Presentation</td>
</tr>
<tr>
<td>2.50 – 4.00</td>
<td>Afternoon Tea - Announcement of Winners and Final Thank You</td>
<td>Conference Concludes</td>
</tr>
<tr>
<td>4.00</td>
<td>Higher Degree Research Student Conference, 26 September 2007</td>
<td>5</td>
</tr>
</tbody>
</table>
## Oral Presentation List

<table>
<thead>
<tr>
<th>Presentation Title</th>
<th>Student Name &amp; Faculty</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Good Health</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arsenic Resistance</td>
<td>Alex, Sherin Mary Faculty of Science</td>
<td>13</td>
</tr>
<tr>
<td>Understanding the molecular biology of PAI-2</td>
<td>Cochran, Blake Faculty of Science</td>
<td>14</td>
</tr>
<tr>
<td>Do athletes with and without asymptomatic patellar tendon ultrasonographic abnormality differ in their landing technique?</td>
<td>Edwards, Suzi Faculty of Health and Behavioural Sciences</td>
<td>15</td>
</tr>
<tr>
<td>Fitness and activity levels of primary care patients with depression and/or anxiety</td>
<td>Forsyth, Adrien Faculty of Health and Behavioural Sciences</td>
<td>16</td>
</tr>
<tr>
<td>The effect of low dose tuna fish oil on cardiac hypertrophy and membrane fatty acid composition in the rat heart</td>
<td>Henry, Renee Faculty of Health and Behavioural Sciences</td>
<td>17</td>
</tr>
<tr>
<td>Divide and Conquer; Adolescent Sun Protection Investigation</td>
<td>Lynch, Melissa Faculty of Health and Behavioural Sciences</td>
<td>18</td>
</tr>
<tr>
<td>Consumer responses to health claims in food advertisements using both 'lay' and 'scientific' terms</td>
<td>McMahon, Anne Faculty of Health and Behavioural Sciences</td>
<td>19</td>
</tr>
<tr>
<td>Soft tissue thickness, plantar sensation and foot pain: What is the effect of obesity on the older foot?</td>
<td>Mickle, Karen Faculty of Health and Behavioural Sciences</td>
<td>20</td>
</tr>
<tr>
<td>Correlates of Self-Harm Behaviour in Patients with Borderline Personality Disorder</td>
<td>Parker, Gina Faculty of Health and Behavioural Sciences</td>
<td>21</td>
</tr>
<tr>
<td>Determining Evolutionary Relationships Using Mitochondrial Genetics</td>
<td>Riepsamen, Angelique Faculty of Science</td>
<td>22</td>
</tr>
<tr>
<td>The contribution of acceptance and commitment therapy to understanding mental health recovery</td>
<td>Siqueira, Vinicius R Faculty of Health and Behavioural Sciences</td>
<td>23</td>
</tr>
<tr>
<td><strong>New Methods and Materials</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuum description of the energetics of nanopeapods</td>
<td>Baowan, Duangkamon Faculty of Informatics</td>
<td>25</td>
</tr>
<tr>
<td>First Ever Production of Polypyrrole Fibres</td>
<td>Foroughi, Javad Faculty of Science/Engineering</td>
<td>26</td>
</tr>
<tr>
<td>Carbon nanotubes as noncarriers for drug delivery</td>
<td>Hilder, Tamsyn Faculty of Informatics</td>
<td>27</td>
</tr>
<tr>
<td>Effect of confinement shapes on the behaviour of Reinforced HSC beams</td>
<td>Jeffry, Ross Faculty of Engineering</td>
<td>28</td>
</tr>
<tr>
<td>Impact studies towards the development of a new design concept for railway concrete sleepers</td>
<td>Kaewunruen, Sakdirat Faculty of Engineering</td>
<td>29</td>
</tr>
<tr>
<td>A New Machine Learning Approach for Neural Networks</td>
<td>Nguyen, Giang Hoang Faculty of Engineering</td>
<td>30</td>
</tr>
<tr>
<td>Modification of Paint Surfaces for Contamination Resistance</td>
<td>Riessen, Dylan Faculty of Engineering</td>
<td>31</td>
</tr>
</tbody>
</table>
### New Methods and Materials (Continued)

<table>
<thead>
<tr>
<th>Presentation Title</th>
<th>Student Name &amp; Faculty</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removal of trace organic contaminants by submerged membrane bioreactors</td>
<td>Tadkaew, Nichanan, Faculty of Engineering</td>
<td>32</td>
</tr>
<tr>
<td>Development of filtered-arc deposited titanium-nickel coating for cavitation erosion resistance in liquid environment</td>
<td>Yang, Limei, Faculty of Engineering</td>
<td>33</td>
</tr>
<tr>
<td>Strengthening of Circular Reinforced Concrete Columns by External Fiber Reinforced Polymer (Frp) Wrapping</td>
<td>Yazici, Veysel, Faculty of Engineering</td>
<td>34</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Our Social Fabric</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The Decision to Go Public: A Case Study of IPO's in Thailand</td>
<td>Chorruk, Jirapun, Faculty of Commerce</td>
</tr>
<tr>
<td>Power, Politics and Public Debate - The National Radioactive Waste Facility and implications of a unilateral govt approach</td>
<td>Hopkins, Kerryn, Faculty of Arts</td>
</tr>
<tr>
<td>Application of a Marketing Orientation within Non-Profit Charities</td>
<td>Chad, Paul Anthony, Graduate School of Business</td>
</tr>
<tr>
<td>Using design-based research methodology to examine ways that Primary Schools teachers provide authentic learning experiences for their students</td>
<td>Mantei, Jessica, Faculty of Education</td>
</tr>
<tr>
<td>What about me? Children as co-researchers</td>
<td>Marr, Patricia Ann, Faculty of Education</td>
</tr>
<tr>
<td>The Social impacts of the Vietnam War on Australian and South Vietnamese Soldiers' wives.</td>
<td>Shoebridge, John F, Faculty of Arts</td>
</tr>
<tr>
<td>An Examination of Public and Private Organisations Business Strategies for Creating Maximum Business Value</td>
<td>Siddiqui, Aftab A, Faculty of Engineering</td>
</tr>
<tr>
<td>Increasing accountability in the Agricultural Sector: Cases of Shifting power relations and dispossession in the Murrumbidgee Irrigation Area</td>
<td>Spasic, Connie, Faculty of Commerce</td>
</tr>
<tr>
<td>Putting the community back into community standards for advertising</td>
<td>Van Putten, Katherine, Faculty of Health and Behavioural Sciences</td>
</tr>
<tr>
<td>The Convergence of IFRS in China</td>
<td>Zhang, Ying, Faculty of Commerce</td>
</tr>
</tbody>
</table>

### Reflections On Society

<table>
<thead>
<tr>
<th>Reflections On Society</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Picture Perfect: problematizing discourses of the 'ideal'</td>
<td>Barnes, Nicoli, Faculty of Education</td>
</tr>
<tr>
<td>The Error of Blaming the Crowd After Crowd Related Disasters</td>
<td>Bourne, Kylie, Faculty of Arts</td>
</tr>
<tr>
<td>Fact, Falsity, and Filth: a journalist and his story</td>
<td>Cahill, Rowan John, Faculty of Arts</td>
</tr>
<tr>
<td>Optimal Experience and Sustainability in Australian Collaborative Independent Theatre</td>
<td>Kreis, Jane Elizabeth, Faculty of Creative Arts</td>
</tr>
<tr>
<td>&quot;Houseboys&quot; as Homemakers in Colonial Darwin and Singapore, 1890-1920</td>
<td>Lowrie, Claire, Faculty of Arts</td>
</tr>
<tr>
<td>The Phenomenology of Emotion</td>
<td>Lymer, Jane Margaret, Faculty of Arts</td>
</tr>
<tr>
<td>Extensions of the koto tradition</td>
<td>Narushima, Terumi, Faculty of Creative Arts</td>
</tr>
<tr>
<td>Presentation Title</td>
<td>Student Name &amp; Faculty</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>The Popular Image of Japanese Femininity Within Shojo Culture and Superflat</td>
<td>Stockins, Jennifer M Faculty of Creative Arts</td>
</tr>
<tr>
<td>Beyond the Romance of the Orientalists Exploring Bicultural Paradigms in Australian Contemporary Art in the Twenty First Century</td>
<td>Tzavaras, Annette Faculty of Creative Arts</td>
</tr>
</tbody>
</table>
Good Health
Abstract
The mode of action of arsenic as a carcinogen or toxin is not well understood. Studies have yielded information about the reactants, products and enzymes involved in the arsenic metabolism, but the molecular mechanisms of these reactions are highly speculative. Recent scientific evidence highlights that mono-methylated arsenical, an intermediate in the biotransformation is more potent than inorganic arsenic. On the contrary, enzymatic detoxification of arsenic involving alternating steps of reduction and oxidative methylation leads to the conversion of inorganic arsenic to methylated products. These reactions are catalyzed by ‘arsenate reductase’ and ‘S-adenosyl L-Methionine (SAM) dependent arsenite methyltransferase’ respectively. The reduction of arsenate to arsenite produces the substrate for SAM-dependent arsenite methyltransferase, which then methylates inorganic arsenite to mono/di-methylarsinate. To date, arsenite methyltransferase genes have only been isolated in mammals (human and rat) and an archae bacterium. A striking sequence diversity in known arsenite methyltransferases raises a need to structurally characterize these enzymes. Bioinformatic approaches have identified putative arsenite methyltransferases. This project is an attempt to model putative arsenite methyltransferases (E.coli, Saccharomyces cerevisiae and Arabidopsis thaliana) against a known arsenite methyltransferase (Rattus norvegicus) to understand its structure, and binding properties to arsenic. The results showed structural variation in prokaryotes from eukaryotes. Deciphering a standard model for arsenite methyltransferases will not only help in identifying unknown arsenite methyltransferases with low sequence identity, but also provide an insight to other known arsenic binding proteins. The putative arsenite methyltransferases will be functionally characterized for verification.

Biography
I am a graduate in Bioinformatics (India). Presently doing Masters by Research at Zhang’s lab in “Arsenic Resistance in Microorganisms” using Bioinformatics and Molecular Biology techniques. My future research interests are Proteomics, Molecular Modeling and RNA interference.
Abstract
The human protein plasminogen activation inhibitor type-2 (PAI-2) is associated with good patient prognosis in a number of forms of cancer and has been suggested as a possible basis for future cancer therapies. However, the specific functions of PAI-2 remain poorly understood. The aim of this research is to relate the functionalities of PAI-2 to those of plasminogen activator inhibitor type-1 (PAI-1). Whilst both PAI-1 and PAI-2 appear to have similar basic functionalities in that they both inhibit plasminogen activators at the surface of cancer cells, PAI-1 has been identified as correlating to poor patient outcome in many cancer types. By substituting regions of PAI-2 with those of PAI-1 via a process known as site-directed mutagenesis and examining the effects of these substitutions on the interactions between these constructed proteins and receptors found on the surface of cancer cells, we hope to better understand the underlying reasons for the differences in function between PAI-2 and PAI-1. Our preliminary findings suggest that the functional differences between PAI-1 and PAI-2 are dependent on more than a single structural domain as hypothesised by previous studies. A more complete understanding of the biological roles of PAI-2 will provide important information relating to the function of the plasminogen activation system in cancer and may aid in the continuing development of highly specific and effective anti-cancer treatments.

Biography
Blake Cochran completed his Bachelor of Biotechnology (Honours)(Advanced) at the University of Wollongong in 2006 and is currently undertaking a PhD under the supervision of Assoc. Prof. Marie Ranson and Dr. David Croucher. Blake recently presented his work at the XIth International Workshop on Cellular & Molecular Biology of Plasminogen Activation held in Stockholm, Sweden.

Abstract

Although asymptomatic athletes with patellar tendon ultrasonographic abnormality have a high risk of developing patellar tendinopathy, the mechanism for this remains unclear. As a main risk factor for patellar tendinopathy is repetitive jumping, the purpose of this study was to identify whether asymptomatic athletes with and without a patellar tendon ultrasonographic abnormality differed in the technique they displayed during the landing phase of a stop-jump movement (SJ). Six soccer and basketball players with a patellar tendon abnormality detected by ultrasound in their dominant limb (PTA) were matched to six subjects for height, weight and limb dominance (CONTROLS). Three-dimensional kinematics, ground reaction forces and electromyographic data of six lower limb muscles were recorded while each subject performed a series of SJ. Independent t-tests indicated that, during the first landing phase, although the two subject groups displayed similar patellar tendon forces (PTA = 6.4 ± 1.7 BW; CONTROLS = 5.9 ± 1.4 BW; p = 0.572), PTA subjects displayed significantly (p < 0.05) different lower limb biomechanics, such as greater knee flexion (PTA = 70 ± 4°; CONTROLS = 61 ± 5°), less knee flexion velocity (PTA = 300 ± 120°/s; CONTROLS = 516 ± 124°/s) and greater hip extension velocity (PTA = -54 ± 52°; CONTROLS = 90 ± 139°) at the time of peak patellar tendon loading compared to the CONTROLS. It was concluded that, despite generating similar PT loads, asymptomatic athletes with a patellar tendon ultrasonographic abnormality display altered lower limb biomechanics, which might contributing to developing patellar tendinopathy.

Biography

PhD Candidate, Biomechanics Research Laboratory, School of Health Science (“Patellar tendon loading and the effects of fatigue during landing? Implications for patellar tendinopathy.”)
2002 Masters of Science (Research), University of Wollongong.
1999 Bachelor Applied Science (Exercise & Sport Science), University of Sydney.
Name | Adrienne Forsyth  
---|---  
Title of Work | Fitness and activity levels of primary care patients with depression and/or anxiety  
---|---  
Email Address | akl99@uow.edu.au  
---|---  
Supervisor | Assoc. Prof. Peter Williams and Prof. Frank Deane  
---|---  
Faculty & Academic Unit/School/Department | School of Health Sciences, Faculty of Health & Behavioural Sciences  
---|---

**Abstract**

There is considerable support for lifestyle interventions such as diet and exercise to manage both depression and anxiety. A study was conducted in the Illawarra to evaluate the feasibility and effectiveness of a series of individual consultations with a dietitian-exercise physiologist. An initial assessment measured anthropometry (weight, height, body mass index (BMI), waist circumference), fitness (YMCA step test for aerobic fitness, arm curl test and chair stand test for musculoskeletal fitness) and physical activity levels (self reported using the Active Australia Survey). Fitness tests were measured against population norms. The baseline fitness and activity levels of patients participating in the pilot project are reported here. Twenty-five patients with depression and/or anxiety were referred to the program by their GPs; 18 participated in the program. The pilot group included seven males and 11 females ranging in age from 19 to 73 years. Four participants were normal weight (BMI 20-25 kg·m⁻²), four were overweight (BMI 25-30 kg·m⁻²) and 10 were obese (BMI 30-39 kg·m⁻²). Mean BMI was 29.7 kg·m⁻². Waist circumference indicated excess abdominal adiposity for 12 out of 18 participants. Most participants (11 out of 18) ranked average or poorer on the aerobic fitness test. Scores were predominately average or poorer for both the upper body musculoskeletal fitness test (15 out of 18) and the lower body musculoskeletal test (17 out of 18). Half of the pilot group did not participate in enough physical activity to meet the guidelines for good health. This matches the level of physical activity in the general population. Patients participating in this pilot program participated in similar amounts of physical activity as the general population, but had poorer levels of fitness and a higher prevalence of overweight and obesity.

**Biography**

Adrienne Forsyth is a PhD candidate at the Illawarra Institute for Mental Health. She is investigating the feasibility and effectiveness of individual diet and exercise counselling on mental health outcomes.
Abstract
Omega 3 polyunsaturated fatty acids (PUFA) have been associated with reduced mortality from cardiovascular disease. Epidemiology suggests that omega 3 PUFA may be a factor for reducing the incidence of heart failure, a fatal condition that is one aspect of cardiovascular disease on the increase. Heart failure comprises: enlargement of the heart (hypertrophy); changes in structure; and reduced pumping function. Having established a role of omega 3 PUFA in reducing functional failure and arrhythmias, we aimed to examine the effects it might have on the size and structural changes that precede overt failure. Heart size was assessed 5wk after aortic banding surgery to induce heart failure in rats fed a diet consisting of either 10% olive oil (control diet) or 0.3% fish oil (FO). Fish oil diet was introduced either before or after the surgery. Aortic banding surgery resulted in a 20% increase in the ratio of heart weight to tibia bone length (a measure of hypertrophy) in control rats. Significant hypertrophy occurred when FO feeding was delayed until after surgery (15%) but not in rats fed FO prior to banding. The results show that dietary omega 3 PUFA prevented heart enlargement when given prior to the hypertrophic stimulus but not after. This study is the first to show that very low doses of omega 3 PUFA (achievable in the human diet, equivalent to 2 meals/w of salmon) can protect the heart in the early stages of heart failure and that these effects are achievable in animal models at much lower doses than are generally used.

Biography
I am a second year PhD student studying membrane fatty acid composition and skeletal muscle fatigue in heart failure. I am the School of Health Sciences postgraduate representative & also the student representative on the School OHS & the Faculty of Health and Behavioural Science Workplace Advisory Committees.
Abstract
The sun protection practices of Australian adolescents are not only shown to be consistently inadequate, but even the low levels of positive behaviours are on the decline (Fritschi, et al., 1992; Summerville & Watt, 2003). This is despite adequate knowledge levels, and numerous previous educational and mass media campaigns/interventions. A more comprehensive understanding of adolescent attitudes to sun protection, and potentially a social marketing intervention, is thus required.

This research project, conducted in conjunction with The Cancer Council NSW, consists of several major research stages; which included different data types and collection tools. Stage one, uses focus groups to gather insights into adolescent attitudes and behaviours regarding sun protection, this includes product, cost and branding analyses. Stage Two uses a quantitiave survey to determine the size and scope of behaviour groups. Thus, rather than targeting adolescents as a whole, segmentation can be used to determine which particular behaviour groups are most amenable to change, and a more successful intervention can be established. Stages Four and Five will again use focus groups to both design and test an effective intervention with the chosen adolescent segment.

Results thus far indicate a number of interesting behaviour and attitude characteristics displayed in regards to adolescent sun protection as a whole, for example; the desire to distance themselves from ‘childhood’, the desire for ‘invisible’ sun protection and the impact of peer influence. A number of Brand Loyalty segments were also identified during this stage; based on product usage, attitudes and behaviours. Thus revealing that attitudes and behaviours amongst adolescents are not homogenous, instead, there are in fact specific groups with differing and unique perspectives, requiring tailored intervention strategies. This of course is unlike previous campaign/interventions which have targeted adolescents as a whole, rather than acknowledging attitudinal and behavioural differences within the cohort.

References

Biography
Melissa Lynch is currently completing a PhD for the Centre for Health Initiatives, as a part of the Health and Behavioural Science department. Melissa has an ARC scholarship with industry partner The Cancer Council NSW.
Abstract

Wellbeing and wellness are conceptual terms often used interchangeably to describe human capacity and are found ubiquitously within health literature and practice. In nutrition communications these terms are often found correlated with disease biomarkers, and food intake relationships. Healthy food choices linked to these concepts have been embraced by health authorities/professionals and food industry through health promotion programs and functional foods. Different foci and conceptual dimensions underpinning nutrition communications based on these terms by different stakeholders are likely to propagate diverse meanings and cause confusion. A review was conducted adapting methods from a previous study looking at qualitative/quantitative dimensions of these concepts within various disciplines. Over 280 articles were included which specifically incorporated the concepts as keywords or in the title. Articles were categorised by discipline and summarised on utility of wellbeing and wellness in practice. Key findings included a number of dimensions were common in different disciplines (public health, psychology) related to physical and mental health. Disciplines such as economics utilised more quantitative than qualitative dimensions. ‘Wellness’ and ‘wellbeing’ were found in public health literature relating to determinants of health incorporating social, occupational, spiritual, physical, intellectual and emotional dimensions. Within biomedical literature there was a mixture of this multi-dimensional approach, and a more uni-dimensional approach based on biomarker outcomes. Understanding how these concepts are being used by stakeholders in the food system may enable more and coherent consistent nutrition messages to be developed.

*Published in Nutrition and Dietetics Journal of the Dietitians Association of Australia 2007

Biography

M.Nutr.Diet., APD, AIFST, is a lecturer in HBS Faculty and the Education/Marketing Manager, Smart Foods Centre at UOW. Anne has broad experience in nutrition marketing and clinical dietetics. Anne is a PhD candidate focussed on consumer response to terminology used in health/nutrition claims and impact on health behaviour.
**Abstract**

The purpose of this study was to determine the effects of obesity on the soft tissue thickness, plantar sensation and foot pain in older adults. Three-hundred and twelve older men and women aged between 60-90 years were randomly recruited, using the electoral roll, from the Sydney and Illawarra regions, to participate in the study. A portable ultrasound system was used to measure the thickness of the plantar soft tissue at the 1st and 5th metatarsals, midfoot and heel. Plantar sensation was measured using 5 monofilaments at the heel, midfoot, 1st and 5th metatarsals, hallux and lateral malleolus. Each subject was also asked, whether they suffered from foot pain. From the larger sample, 106 individuals (34%) were identified as obese (Body Mass Index (BMI) >30) while 79 individuals (25%) were classified as normal weight (BMI <25) for comparison to the obese adults. The obese adults displayed significantly thicker soft tissue at the heel, midfoot and 5th metatarsal head compared to their normal weight counterparts. The obese individuals were also more insensate at the heel ($p <= 0.001$) and midfoot ($p <0.007$) regions of the foot. Furthermore, 63.4% of the obese older adults suffered from foot pain, which was significantly higher than the 39.2% of normal weight adults who reported foot pain ($\chi^2 =10.4; p =0.001$). Given that foot pain has been shown to impair balance and functional ability in older people and may deter older individuals from being physically active, the high incidence of foot pain in the obese participants is of concern. Footwear interventions that can protect the older obese older foot and reduce foot pain are recommended, so they can become more physically active, which may in turn reduce the incidence of obesity.

**Biography**

Karen Mickle (BSc(Hon)) is a PhD candidate within the Biomechanics Research Laboratory, headed by Professor Julie Steele. Karen’s PhD is aiming to characterise foot structure and function and shoe wearing habits in the elderly, and to determine the influence of these factors on falls risk.
Abstract
The clinical phenomenon of self-harm is frequently recognized as a behavior attributed to patients with borderline personality disorder (BPD). Self-harm has been found to occur in anywhere from 50 to 80% of BPD patients. This study used an attachment-trauma perspective to compare BPD patients who self-harm with those who do not to determine if there is a possible profile for BPD patients who self-harm. Such a finding could assist towards understanding the role of self-harm in BPD patients and aid in developing the appropriate approach to treatment. Method: Study 1 (quantitative, N=69) investigated 58 BPD patients who self-harm compared with 11 BPD patients who do not self-harm. The measures investigated attachment/interpersonal problems, co-morbidity, trauma history, dissociation and impulsivity. Study 2 (qualitative, N=2 BPD self-harm patients) explored the function of self-harm behaviours through an in-depth interview analysed using interpretative phenomenological analysis. Results: Study 1 found that BPD patients who self-harmed were more likely to have a fearful attachment style, fear abandonment and have higher levels of dissociation. Increased frequency of self-harm behaviours was found in those with numerous interpersonal problems, a generalized anxiety disorder diagnosis, low global assessment of relational functioning score and an intrusive or domineering interpersonal style. Unlike other studies, no link was found between self-harm in BPD patients and co-morbidity, childhood sexual abuse history and impulsivity. Study 1 findings matched the results in Study 2. Seven themes found in Study 2 provided insight into some of the functions of self-harm for BPD patients. Conclusion: The results of this current study imply that insecure-fearful attachment, fears of abandonment, dissociation and interpersonal functioning may be important aspects to assess and concentrate on in the treatment of BPD patients who self-harm. Addressing interpersonal anxieties and emotional functioning for BPD patients who self-harm appears essential.

Biography
Gina Parker is a Doctor of Psychology (Clinical) Candidate. The Doctorate year of the degree focused on advanced training in the treatment of personality disorders, in particular borderline personality disorder. This area was of particular interest and formed the basis of her research.
Abstract
Each cell in the body can contain hundreds of mitochondria; specialised organelles necessary for generating energy. Within each mitochondrion there are multiple identical copies of that organism’s mitochondrial DNA (mt-DNA), containing the genes that regulate energy production. mt-DNA is an important tool in forensics, maternity testing, and for evolutionary geneticists as comparisons between the mt-DNA of different species are used to determine evolutionary relationships. Mitochondrial DNA is of particular use in these instances as, unlike nuclear DNA, it is solely maternally inherited, thus only one evolutionary lineage needs to be traced; it is small and simple in organisation, being only 16 kilo base-pairs (human nuclear DNA is 3000 000 kilo base-pairs); it accumulates discrete mutations rapidly that allow the mt-DNA of closely related species to be discerned, and it has a highly conserved gene organisation between related species. Currently, over 800 animal mt-DNAs have been sequenced, with all but a handful displaying the same structure and similar gene organisation to one another. However, recently our research group in collaboration with the Scottish Crop Research Institute characterised the mt-DNA of a group of worm-like parasites, identifying several unusual mt-DNA features. Dramatic variations in mt-DNA structure, gene organisation and mechanism of gene expression were observed, unprecedented in other animal mitochondrial genomes. Further research is currently involved in determining the prevalence of these unusual mt-DNA features, how long ago these phenomena arose, the physiological reasons behind why they arose, as well as the implications this will have for evolutionary studies of these organisms that utilize mt-DNA.

Biography
I completed my Bachelor of Biotechnology (Advanced) degree at the University of Wollongong in 2006 with first class honours. My research and thesis on mitochondrial genetics was awarded with the Ross Lilley Honours Prize for best honours student, and my postgraduate degree has continued with this research, for which I recently received the Sid James Award for best student poster at the Australasian Genetics Conference.
Abstract
The recovery movement in mental health has had a pervasive effect on the policy and research within the area of serious mental illness. This movement champions the subjective experience of living with mental illness- in contrast to medical conceptualization and treatment. The majority of consumer and psychological conceptualizations of recovery give primacy to “hope”- whilst ACT would question the basis of this foundation without reference to values. Tracing parallels between the recovery movement and the acceptance and commitment therapy (ACT) models, this study seeks to provide a different understanding of recovery by utilizing ACT philosophical and its theoretical foundations from Relational Frame Theory (RFT). This research will examine interview narratives and published narratives of mental health consumers who are experiencing severe and enduring mental illness, and interpret these narratives from an ACT/RFT perspective. To date, no other study has been directly examined the conceptual convergence of these two areas.

References

Biography:
OADES, LINDSEY. G. B.A.(Hons) Adel, PhD (Woll), MBA with Distinction (Wollongong) - Senior Lecturer (Clinical Psychology) University of Wollongong.
New Methods and Materials
Abstract

Worldwide nanotechnology is a major focus in science and technology, and research in this area usually attracts significant funding. Most research in nanotechnology deals with chemical, physical and biological issues or a combination of these areas, but very little work has been undertaken on mathematical modelling which can reduce the time consumed in trial and error process which in turn decreases the research cost. Rather than employing large-scale computation using molecular dynamics simulation, here, we utilize elementary mechanical principles and classical modelling procedures to investigate the packing of C_{60} fullerene chains inside a single-walled carbon nanotube by utilizing the Lennard–Jones potential function and the continuum approximation. Such assemblies are often referred to as nanopeapods. We examine both zigzag and spiral chain configurations inside (10, 10), (16, 16) and (20, 20) carbon nanotubes and we obtain analytical expressions in terms of hypergeometric functions for the potential energy for such configurations. We find that for a (10, 10) tube, the C_{60} fullerene chain is formed linearly along the tube axis. In the case of both (16, 16) and (20, 20) tubes, both zigzag and spiral configurations are more clearly evident along the tube. In particular, the resulting pattern obtained for the zigzag chain is entirely consistent with a specific angular spacing for the spiral pattern.

Biography

My name is Duangkamon Baowan. I finished my Bachelor’s degree in 2005 from Mahidol University, Thailand, in Mathematics with the First Class Honours. I started my PhD in July 2005 in School of Mathematics and Applied Statistic at the University of Wollongong with the thesis topic is “Modelling multi-walled carbon nanotubes as transversely isotropic elastic solids”.

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<td>Email Address</td>
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<td>Prof. James M. Hill</td>
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<tr>
<td>Faculty &amp; Academic Unit/School/Department</td>
<td>School of Mathematics and Applied Statistics, Faculty of Informatics</td>
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Abstract
Polypyrrole is a type of conducting polymer that is useful for a range of applications including batteries, sensors and actuators. Conducting polymer fibres are likely to be important for electronic textile applications. However, the production of continuous conducting polymer fibres has proved difficult due to their intractable nature. In the present research, a soluble, doped polypyrrole was synthesized using di-(2-ethylhexyl) sulfosuccinate as the dopant anion. The resultant polymer was soluble to levels as high as 100 g/l in common solvents such as dimethyl propylene urea (DMPU), dimethylformamide (DMF) and dichloroacetic acid (DCAA). The solutions were amenable to a wet-spinning process that for the first time produced continuous, doped polypyrrole fibres. Robust and electrically conducting polypyrrole fibre, polypyrrole-CNT and polypyrrole-Alginate composite fibers of several meters in length were produced. The polypyrrole-CNT composite fibres exhibit a conductivity of 160 S/cm and are shown to be electrochemically active. The successful development of these fibres provides the basis for further work.

Biography
Javad Foroughi is a PhD Candidate at the Intelligent Polymer Research Institute (IPRI), University of Wollongong. His Research Project is titled Development of Actuators by use of Polypyrrole and Polyaniline Fibres and his supervisors are Prof. Geoffrey Spinks and Prof. Gordon Wallace. He has had his papers published at 6 domestic conferences, 5 International conferences and in 3 Journal papers.
Abstract
The proposed use of nanocapsules as drug delivery vehicles promises many advantages over current procedures. The major advantage is the potential for patients to have reduced side effects from taking the drug, especially for highly toxic drugs such as those used for cancer treatments. Nanotubes have been suggested as one such carrier to deliver a drug to a specific site, giving rise to the notion of the “magic bullet” proposed by Paul Ehrlich at the turn of the 20th century. The question arises as to whether a nanotube drug carrier could be engineered so that it is energetically favourable for the drug molecule to be encapsulated, and then once inside the cell, it may be engineered so that it becomes energetically favourable to be ejected from the nanotube as a result of changed environmental conditions in the proximity of the target area. In other words, we need to understand and predict the suction and expulsion capacity of a particular carbon nanotube in association with the molecules of a particular drug. This presentation examines whether a particular nanotube would accept a particular drug, and establishes the radius of the nanotube that provides the maximum uptake of the drug molecule. In particular, this presentation examines the drug cisplatin, a platinum-based anticancer drug widely used in the treatment of tumours. It is shown that for cisplatin to be accepted into the carbon nanotube, it must have a radius of more than 4.74 Å and that the maximum suction energy occurs when the carbon nanotube radius is 5.27 Å. Here, we present for the first time a calculation of this nature, and although the model represents a first approximation, it constitutes a necessary preliminary calculation which might provide medical scientists with some overall guidelines.

Biography
Tamsyn completed a Bachelor of Engineering Science with First Class Honours at Auckland University, New Zealand in 2001. She then worked as a Finite Element Analyst in Australia and New Zealand for 3 years, with the main areas of focus being the automotive, rail and marine industries. Tamsyn began her PhD in July 2005 in the School of Mathematics and Applied Statistics at the University of Wollongong in the topic of “Mathematical modelling of carbon nanotubes and related structures”.

<table>
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<td>Faculty &amp; Academic Unit/School/Department</td>
<td>School of Mathematics and Applied Statistics, Faculty of Informatics</td>
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Abstract
High strength concrete (HSC) provides high strength but lower ductility than normal strength concrete. This low ductility limits the benefit of using HSC in building safe structures. On the other hand, when designing reinforced concrete beams, designers have to limit the amount of tensile reinforcement to prevent the brittle failure of concrete. Therefore the full potential of the use of steel reinforcement can not be achieved. This paper presents a proposal of confining concrete in the compression zone so that the HSC will be in a state of triaxial compression, which leads to improvements in strength and ductility. Five beams made of HSC were cast and tested. The cross sections of the beams was 200×300 mm, with a length of 4 m and a clear span of 3.6 m subjected to four-point loading, with emphasis placed on the midspan deflection. The first beam served as a reference beam. The remaining beams had different tensile reinforcement and the confinement shapes were changed to gauge their effectiveness in improving the strength and ductility of the beams. The compressive strength of the concrete was 85 MPa and the tensile strength of the steel was 500 MPa and for the stirrups was 250 MPa. Results of testing the five beams proved that placing helixes in the compression zone of reinforced concrete beams improve their strength and ductility.

Biography
The PhD topic of Ross Jeffry is examining the effect of confinement on the behaviour of high strength concrete beams. He has some 10 years experience in the filed of civil/structural engineering where he was working as a site engineer in Sydney and Canberra. Ross holds two Masters degrees in structural engineering and engineering management.
Abstract
Interactions between the wheel of rolling stocks and the rail often generate interfacial impact forces to railway tracks (see Fig. 1). The dynamic impact loads are of very high magnitude but short duration, and are caused by either wheel or rail abnormalities such as flat wheels, dipped rails, etc. Although the possibility of the large impact loading to cause an extreme failure to an in-situ concrete sleeper could be very low about once or twice in the design life cycle, the damage of track components especially for the concrete sleepers is often observed. The railway sleeper is a major component of railway tracks. Its role is to distribute the load from the rails to the underlying ballast bed. Cracks in concrete sleepers due to a moderate impact load can lead to the costly maintenance and renewal of several track components. The structural condition of the cracked sleepers is however under suspicion. Also, there is a widespread notion based on general industry experience that the concrete railway sleepers have reserves of untapped strengths. The current design concept of concrete sleepers has been guided by experience – with little science or theory to back it up. It relies mostly on the quasi-static behaviour on the basis of simplification. This has resulted in an overestimation of strength requirement, and a consequent high cost for their extensive use in the railway track construction and maintenance.

Limit states design concept thus provides more logical entity for a new design approach associated with the actual behaviours of concrete sleepers under the impact loading condition. The new design concept will bring out the ultimate capacity of concrete sleeper for exploitation. Up to the current knowledge, the behaviour of the in-situ prestressed concrete sleepers under the ultimate impact loading has not yet been comprehended. In order to evaluate the resistance of railway concrete sleepers to impact loads, a high-capacity drop-weight impact testing machine was thus constructed at the University of Wollongong. It is currently the largest one in Australia with the maximum drop height of 6m. This presentation demonstrates the experimental and analytical investigations, in order to evaluate the impact behaviour of railway concrete sleepers. The impact tests were carried out using the prestressed concrete sleepers manufactured in Australia. This study enables and enhances the methodology to analyse and design for the prestressed concrete sleepers at ultimate limit states.

Biography
Sakdirat is a PhD candidate in Structural Engineering at Faculty of Engineering. His PhD research project, under the supervision of Dr Alex Remennikov, is supported by the CRC for Railway Engineering and Technologies.
**Abstract**

In the field of intelligent computing, there is an ongoing interest in machine learning techniques that enable computers to extract decision rules from real-world data. Such techniques have been successfully applied to a wide spectrum of applications including natural language processing, visual pattern recognition, speech recognition, medical diagnosis, data mining, and gene classification. Despite recent progress in machine learning, developing efficient algorithms for learning complex tasks from large data sets in high-dimensional spaces remains a challenging problem. In this presentation, we propose a new machine learning approach that combines supervised and unsupervised learning paradigms. The new learning approach enables the classifiers to be trained more efficiently and rapidly. Based on the proposed learning approach, we implement a series of machine learning algorithms, and apply them to the detection of skin in colour images. Experimental results show that, compared to the standard training approach, the proposed approach is simple to implement, robust and computationally efficient.

**Biography**

Giang H. Nguyen received a Bachelor of Engineering degree in Telecommunications Engineering from the University of Wollongong, Australia in 2005. She is currently pursuing a Ph.D. degree in the School of Electrical, Computer and Telecommunications Engineering, University of Wollongong.
Name | Dylan Riessen  
--- | ---  
Title of Work | Modification of Paint Surfaces for Contamination Resistance  
Email Address | dmr873@uow.edu.au  
Supervisor | Prof. Hugh Brown, Dr. Chris Lukey  
Faculty & Academic Unit/School/Department | Faculty of Engineering  

**Abstract**

Coatings that include additives that migrate to the surface forming thin layers allow for several property advancements including; modification to adhesion properties, selective penetration into porous substrates and improved surface properties such as wear resistance, higher gloss, surface slip, durability, light and weather resistance (1). One advantage surface stratifying layers provide is that complex coatings can be applied with a single coating application.

The properties we desire for our surfaces have, as yet, been unable to be achieved by surface stratifying layers alone; therefore surface modifying treatments after the coating has cured have been required to give the desired surface properties, in order to reduce the adhesion of particulate and contaminating species to the surface.

The focus of this work is on the modification of diffuse silicone layers formed on the surface of the coating from complex formulations. These surfaces were subjected to radio frequency oxygen plasma to make the surface of the coating easier to wet, as shown by the spread of water on the surface. The resulting surfaces were characterised with respect to water contact angle and surface energy. The adhesion of small micrometer sized particles was also measured in order to determine adhesion of particles and contaminants to these modified surfaces.

**Reference:**

(1) Verkhologiste, V.; Flavian, M. Progress in Organic Coatings 1996, 29, 239-246

**Biography**

I am undertaking a PhD in Materials Engineering on the Nanoscale Modification of Paint Surfaces for Improved Contamination Resistance. I have obtained a Bachelor of Technology (Forensic and Analytical Chemistry) and a Bachelor of Science (Honours) majoring in Physical Organic Chemistry from Flinders University of South Australia, and worked several years for SOLA International (now Zeiss Optical) in their Research and Development department before starting my PhD here at the University of Wollongong.
Abstract:
The presence of emerging contaminants in wastewater effluent has become a great concern. Some of these contaminants have been shown to affect aquatic organisms at trace concentration (i.e., ng/L). Membrane bioreactors (MBRs) have gained significant popularity as an advanced wastewater treatment technology and might be effective in removing such organic contaminants. However, available information on the performance of MBRs regarding removal of trace organic contaminants is currently limited. This study investigated the ability of submerged membrane bioreactors (SMBRs) to remove trace organic contaminants in laboratory-scale spiking experiments with synthetic wastewater. The two model organic contaminants representing a group of endocrine disrupting compounds (bisphenol A) and pharmaceuticals (sulfamethoxadole) were examined. The experimental data showed a higher removal rate of bisphenol A up to 90% in comparison to the sulfamethoxadole removal rate of about 50%. This indicated SMBR performance was dependent on their physicochemical properties as a result of different mechanisms of removal. Bisphenol A, which is a relatively hydrophobic organic compound, was removed by biodegradation and adsorption to the sludge whereas only biodegradation mechanism was presented in removal process of sulfamethoxadole as this compound is rather hydrophilic. Findings confirm that SMBR treatment could have high potential in the removal of trace organic contaminants in domestic wastewater.

Biography:
Ms Nichanan Tadkaew is a Ph.D. student at the School of Civil, Mining and Environmental Engineering of the University of Wollongong, Australia. She studies the removal of trace organics using membrane bioreactors for wastewater treatment and reuse.
Abstract

TiNi thin film has attracted intensive interest recently not only as the same excellent properties as TiNi alloy, such as shape memory effect and pseudoelasticity, but also as the promising application of thin film in MEMS. In recent research, TiNi thin film has also demonstrated high corrosion resistance under corrosion environment, such as cavitation erosion resistance.

In this study, Ti-49.5%Ni thin film coating is produced by filtered arc deposition system (FADS) on silicon wafer and stainless steel substrate using a Ti-50%Ni alloy as a target. FADS has been proved to be an advanced technology to produce thin films with non-porous, microparticles-free and dense microstructure. The effect of coating parameters (such as arc current, target composition, substrate temperature and bias) on the formation of TiNi thin film properties has been investigated. The coating’s microstructure and mechanical properties were characterized by XRD, OM, SEM, EDS and DSC. The cavitation erosion resistance of TiNi thin film has been tested using an ultrasonic probe in the ultrasonic bath.

Biography

Limei Yang is a PhD student in Faculty of Engineering. She started her PhD in 2006 after finishing her Master study in Northeastern University, China. Prof. Kiet. Tieu is her principle supervisor and Her research topic is “Development of filtered-arc deposited titanium-nickel coating for cavitation erosion resistance in liquid environment”.
Name | Veysel Yazici  
---|---  
**Title of Work** | Strengthening of Circular Reinforced Concrete Columns by External Fiber Reinforced Polymer (Frp) Wrapping  
---|---  
**Email Address** | vy210@uow.edu.au  
---|---  
**Supervisor** | Associate Professor Muhammad Hadi  
---|---  
**Faculty & Academic Unit/School/Department** | School of Civil and Mining Engineering, Faculty of Engineering  
---|---

**Abstract**

Strengthening a reinforced concrete column using steel or Fiber Reinforced Polymer (FRP) jacketing is based on the fact that lateral confinement of concrete can substantially enhance its axial compressive strength and ductility. Previous studies on column strengthening by FRP wrapping were generally done on solid columns which provided a triaxial confinement of the concrete and resulted in a good increase in the strength and ductility of columns. A hollow reinforced concrete column is generally preferred to decrease the cost and weight of members such as bridge columns and piles and spun concrete tubes for power poles and posts. If the member is likely to be subjected to seismic or lateral forces, hollow columns are required to be ductile enough to dissipate energy by forming ductile plastic hinges. In the case of a circular hollow column, strengthening the column with FRP wrapping provides only a biaxial confinement which leads to a need of redefining the effect of FRP wrapping on the strength and ductility increase of the biaxially confined concrete and, in turn, on the hollow reinforced concrete columns. In this study, the effects of thickness and angle of external FRP wrapping under concentric, eccentric and pure flexural loading conditions on the strength and ductility of reinforced circular hollow columns are investigated.

**Biography**

Veysel YAZICI is currently a Master by Research Student in Civil Engineering at the University of Wollongong, his research subject is the strengthening of concrete columns using Fiber Reinforced Polymer (FRP) materials.
Our Social Fabric
Abstract
The decision whether to ‘go public’ is an important process in the company life cycle. By making an initial public offering (IPO) of company shares when companies go public, they can raise external equity finance. Therefore, the efficiency of the IPO process and the performance of companies that have gone public has been a long stand focus in academic research and a concern for practitioners. This paper reviews the theory and evidence on the issuing activity of IPOs on the Stock Exchange of Thailand (SET). It is performed by examining factors that lead to the decision issue new common stock. The study compares the characteristics of companies that remained private with those companies that chose to go public by using alternative approach. The relevant variables associated with future investment and growth such as cash, inventory, total assets, capital expenditure, and R&D are adopted to verify the case study. The results of this study will contribute to a greater level of understanding of the factors which influence companies to raise capital for investment. They will therefore benefit entrepreneurs issuing capital, auditors, attorneys, underwriters, regulators and policy makers.

References

Biography
Jirapun Chorruk received a B.Acc. (Auditing) (NU) and M.B.A. (Finance) (NIDA) degree from Thailand. She worked in auditing and investment banking in Bangkok before embarking upon her academic career in 2006 at the Department of Finance, Faculty of Accountancy and Management, Mahasarakham University, Thailand. She is currently a PhD candidate in the School of Accounting and Finance, University of Wollongong. Her research interests include initial public offerings, mergers and acquisitions and behavioral finance.
<table>
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<td><strong>Email Address</strong></td>
<td><a href="mailto:keh76@uow.edu.au">keh76@uow.edu.au</a></td>
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<td>School of Social Sciences, Media and Communication Faculty of Arts</td>
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**Abstract**
In May 2007, the Australian government announced the site for the establishment of a National Radioactive Waste Facility (NRWF) in the Northern Territory. This announcement followed on from a unilateral decision in 2005 to create a centralised facility for the storage of radioactive waste, and is the result of a series of legislative changes that worked to override the powers of state and territory governments. Considering the inherent risks to public and environmental safety associated with radioactive waste facilities, the NRWF decision has been the subject of little public discussion.

The measures taken by the federal government to restrict consultative and consensual processes with the states and territories, have also resulted in limited levels of public information and assent. By tracing the legislative and political background of the NRWF decision, this paper identifies key discourses underpinning the arguments presented by both the government and those opposing the decision, and shows how specific strategies are used to legitimize the NRWF.

This analysis suggests that the decision to establish the NRWF has broader implications for the expansion of Australia’s role in the global nuclear industry, together with repercussions for the future shape of public nuclear debate in Australia in terms of levels of government transparency, public information, consultation and assent.

**Biography**
Kerryn Hopkins is a Ph.D. candidate in the School of Social Sciences, Media and Communication, Faculty of Arts, University of Wollongong. In her dissertation project she engages with the politics of nuclear energy, focussing on the various discursive constructions within the public nuclear debate.
Abstract
Strong competition is occurring amongst charities to obtain donations from a limited pool of existing and potential donors. Increased usage of modern marketing techniques can assist charities to successfully achieve donation targets. The need for charities to then use the obtained resources to effectively deliver a range of services (often using volunteer staff) to clients requires a high level of services marketing know-how.

There is currently a considerable amount of marketing concept and market orientation knowledge developed in the for-profit sector (e.g. Kohli & Jaworski 1990; Narver & Slater 1990), but little relating specifically to the non-profit context. The knowledge developed over the years in the for-profit sector cannot simply be transferred directly to the non-profit sector as there are ‘critical differences between the two’ and managers ‘all too often … underestimate the unique challenges of managing nonprofit organizations’ (Silverman & Taliento 2006, p. 37).

Using a services marketing emphasis, current marketing models originating and proven in the for-profit sector are to be assessed in this research and modified accordingly via case studies of four local charities to development appropriate market orientation frameworks specifically tailored for the non-profit charity sector.

The research will fill existing gaps in academic literature by advancing the development of non-profit charity market orientation frameworks and also offer practitioners within the non-profit sector (particularly charities) with resultant frameworks to guide managerial action enabling achievement of a high level market orientation and improved business performance. More effective operation of charities will also benefit donors (both individual community members as well as businesses) via more efficient usage of donations. Clients and their carers will also benefit by improved and more customised services.

References

Biography
Paul Chad has over 25 years experience in senior marketing roles in a range of private and public sector organisations operating in local, national and international markets. Paul currently operates a marketing consultancy, is an Adjunct Associate Lecturer at UOW and is studying for a Doctor of Business Administration.
Abstract
A design-based research approach allows researchers to examine complex issues in the real life contexts where they occur, within a theoretical framework that supports the philosophical viewpoint of the researcher. The design-based research methodology is made up of four phases, within which are iterative cycles (REF). Design-based research requires a researcher to design solutions to problems in collaboration with practitioners, through ‘rigorous and reflective inquiry’, achieved through these iterative cycles, in an effort to identify and design new principles of learning (Herrington, McKenny, Reeves & Oliver, in press). It is this scientific approach to doctoral studies that Herrington, et al (in press) argue will better prepare students for the demands that an educational researcher is expected to meet.

This presentation will describe the usefulness of the design-based research approach to completing higher degree research, both in organising the study and in preparing the student for the rigours of future research. The phases of design-based research methodology fit comfortably with the stages higher degree research students engage with in completing their study. This fit will be demonstrated within the context of my own study; an investigation of the ways that teachers in primary schools make their programmed learning experiences relevant to and reflective of the demands of the broader community.

References


Biography
Jessica Mantei completed her Masters in Education (Research) in 2006 and is currently enrolled in the first year of a Doctor of Philosophy. Her current research investigates how Primary School teachers plan for and facilitate classroom learning experiences that are a reflection of the needs of the broader community.
Name | Patricia Ann Marr
Title of Work | What about me? Children as co-researchers
Email Address | pmarr@uow.edu.au
Supervisor | Dr. Karen Malone and Dr. Jillian Trezise
Faculty & Academic Unit/School/Department | Faculty of Education

Abstract
The way adults consciously or subconsciously construct children and their capabilities can directly affect the way adults build relationships and share power and resources with, or over them. For example, if we view children as in need of adult ‘protection’ then consequently we take a dominant role in controlling and managing their world but if we view them as competent and active agents in their own right, then our focus would be on building bridges between our world and theirs. How we position children within research has changed almost concurrently with the development of these different constructs of childhood. In the seventies and eighties research was predominantly focused on children, in the late eighties and early nineties fuelled by the child’s rights movement focus of research was with children, and now we see a shift towards research by children. In this paper my aim is to demonstrate this paradigm shift by unpacking a child-centred research project and analysing how as the adult researcher I have attempted to create a research design that supports the opportunity and choice in how children take up the role as authentic co-researchers.

Biography
Patricia Marr is an Associate Lecturer in the Faculty of Education and is a second year doctoral candidate. Applying her 17 years primary school teaching experience she is currently co-researching with children on the relevance and impact of schooling on their lifeworlds.
<table>
<thead>
<tr>
<th>Name</th>
<th>John Francis Shoebridge</th>
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<tbody>
<tr>
<td>Title of Work</td>
<td>The social impacts of the Vietnam War on Australian and South Vietnamese Soldiers’ wives.</td>
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<tr>
<td>Email Address</td>
<td><a href="mailto:Jfs998@uow.edu.au">Jfs998@uow.edu.au</a></td>
</tr>
<tr>
<td>Supervisor</td>
<td>Associate Professor John McQuilton and Dr Kristy Muir</td>
</tr>
<tr>
<td>Faculty &amp; Academic Unit/School/Department</td>
<td>School of History and Politics, Faculty of Arts</td>
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**Abstract**

The social impacts of the Vietnam War on many Australian and South Vietnamese soldiers’ wives are profound and permanent. They remain a hidden cost of the war. Social histories have largely neglected these impacts. They have focused on the impacts of the war on Australian male Vietnam veterans. This paper argues that the impacts on Australian and South Vietnamese soldiers’ wives should be recognised as a cost of the war and that soldiers’ wives from both countries deserve a place in history. To support this argument, this paper uses oral histories with Australian and South Vietnamese soldiers’ wives. It also uses information from letters, diaries and poetry from veterans and veterans’ wives. This paper will explore the findings that come out of these sources: the impacts of loss, grief and trauma for many wives resulting from the death of their husband during the war and the effects of living with a veteran returned from the war. The latter compares and contrasts the experiences of wives of Australian Vietnam veterans changed by war with the experiences of wives of South Vietnamese soldiers affected by war and imprisonment.

**Biography**

John Shoebridge is in his second year of a Masters Research Degree in the School of History and Politics in the Faculty of Arts. John is researching the topic: The Social Impacts of the Vietnam War on Australian and South Vietnamese Soldiers’ Wives.
Abstract
This study examines the conceptual frameworks of collaborative work between public and private sector organisations. The research is a case study of NSW Government and Private Business Sectors' joint programs for community infrastructure assets and service delivery being delivered through Public Private Partnership (PPP). This work examines current public-private sector organisational collaboration strategies in place to address complex community infrastructure assets and services delivery issues. Fundamental strategic misunderstanding of PPP and how their business implementation strategy and expectations can be shaped in a deep and far-reaching manner are considered with a view to proposing strategies that offer maximum possible value for both private and the public partners.

This research will present the conceptual frameworks that form the basis for study; a typology of definitions; categorisation of collaboration strategies research and theory; a review of relevant literature; an examination of the strategies developed by public and private partners, strategic fit relating to the dynamics of the market and other potential opportunities for research. The work is in its early stages and exact investigative techniques have not yet been finalised but initial work is developing grounded theory by qualitative analysis of public-private sector organisational collaboration strategies that provide a basis for investigations into public-private sector organisational collaboration strategy development. Several key research studies and organisational theories on inter-sectoral and cross-sectoral organisational collaboration will provide the foundation for the design and analysis of the study (Jones 1995, Brouthers & Wilkinson 1995, Doz 1992, Johnson 2002, Allen 2002, Saverese 2002, Lewin 1993).

One of the principal findings (and unique aspects of this work) will be the explicit exploration of the impact of cross sectoral implementation strategies on collaborative business values, objectives and goals. The symbiotic and competitive relationships between the public and private sector organisations correlate with the shaping of their implementation strategy and expectations. The development of an effective strategic approach offers the potential to deliver maximum possible value for private businesses and the public. Consequently focussed PPP strategic models will be different to generic models of strategic partnership. In conclusion, this research will identify the most persistent and stubborn problems of strategically aligning the investments in assets and services and alignment with PPP business strategy.

Biography
Aftab A. Siddiqui is a PhD research scholar at the University of Wollongong. He is employed with NSW Rail Corporation in their Major Projects Division as Project Manager for Northern Region Level Crossing Projects. He specialises in construction engineering and management from University of New South Wales in 1997. He has written an article for international symposium titled: “Aligning construction industry initiatives and investments with business strategies for competitive advantage,” which stands peer reviewed but unpublished and un-presented.
Abstract
The last 50 years have witnessed a spate of regulation affecting primary production industries. This era has also been marked by increasing corporatisation of the sector, shrinking markets for its produce as the large supermarkets take over from owner-operated greengrocer outlets, and increased environmental awareness in society including the environmental effects of farming practices.

Regulation, whether imposed by participants in the industry or interest groups outside the industry, is validated by reference to eventual benefits to members of society. However, in many cases, this validation masks the true motives of the instigators of the regulation and the assumptions that have been made in determining the eventual costs and benefits of the new regulations. Regulation in the form of quality assurance in relation to farm produce and the rights to water for irrigation have been among the major regulatory impacts on the agricultural sector in recent years.

The quality assurance and water rights regulatory frameworks within the agricultural sector have been imposed by government agencies. However in the case of fruit and vegetables, quality assurance has been eagerly supported by and interpreted by those acting on behalf of the large supermarket outlets to enhance their power and control over the growers without necessarily delivering enhanced quality produce to the ultimate consumers. The growing environmental voice together with protracted drought conditions have also led to farmers being denied rights to irrigate their land and the assumption that, in spite of worldwide food shortages, that Australia will always be in a favourable position to import food.

The research will focus on the idea that the regulatory regimes described above lead to increased accountability, costs and shifts of power away from farmers which contribute to the demise of rural communities without necessarily resulting in the benefits of higher quality food products and our overall environment. The research adopts Michel Focault’s theoretical framework of power relations.

Biography
Connie Spasich has been a lecturer with the School of Accounting and Finance since 1991 and teaches over a range of Accounting and Finance subjects. Prior to becoming a lecturer, Connie’s background included taxation consultancy and management accounting.

Connie completed her Bachelor of Business majoring in Accounting at the University of Technology before undertaking an Honours Masters with the School of Accounting and Finance at the University of Wollongong.
<table>
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<tr>
<th>Name</th>
<th>Katherine van Putten</th>
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<tr>
<td>Title of Work</td>
<td>Putting the community back into community standards for advertising.</td>
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<tr>
<td>Email Address</td>
<td><a href="mailto:kh13@uow.edu.au">kh13@uow.edu.au</a></td>
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<td>Supervisor</td>
<td>Prof Sandra Jones, Dr David Neil</td>
</tr>
<tr>
<td>Faculty &amp; Academic Unit/School/Department</td>
<td>School of Health Sciences, Faculty of Health &amp; Behavioural Sciences</td>
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**Abstract**

In Australia, advertising complaints are adjudicated by the Advertising Standards Bureau (ASB) against what are referred to as ‘prevailing community standards’. This term is used throughout the academic literature on advertising ethics and has a central place within the existing regulatory framework in Australia. Despite its normative importance, there is no formal definition of the term ‘community standards’ and there is no apparent consistency in the use of this term in ASB decisions. Currently, the majority of complaints made against advertisements in Australia are dismissed by the ASB as they are judged not to be contrary to ‘prevailing community standards’ in relation to the current AANA Code of Ethics. This research however suggests that the existing Code employed by the ASB to adjudicate these complaints does not represent the views of the Australian public. There appears to be large gaps within the current Code where issues that are relevant to the general community are either inadequately addressed or, in some cases, not addressed at all. This research has been able to demonstrate that there is a need to develop a framework of evidence based community standards for ethics in advertising to ensure that the real views of the Australian public are applied when adjudicating advertising complaints against community standards, which would enable a more accurate and fair determination process.

**Biography**

Katherine is currently studying her PhD and her project is examining *Evidence-Based Community Standards for Ethics in Advertising*. Katherine’s other research interests include media influences on young people, sexuality education, protective behaviour programs and harm minimization programs for drug and alcohol use.
**Abstract**
Since 1 January 2007, all listed companies in China have to adopt a new set of Chinese Accounting Standards. The new standards cover nearly all topics under the current International Financial Report Standard (IFRS) literature. The convergence has been viewed as one of successful initiatives undertaken by the PRC government over the past decades to integrate China into the global economy. The paper investigates the reasons and the effects of such a change from evaluating the dominate ‘discourse’ on IFRS adoption in China and those stories which have been un-told or sidelined.

A historical perspective lens may be useful to help people understand the world of accounting and accounting research. Some believe that the role that accounting plays in current society could be better understood by reviewing its historical association with the institutionalization development within which it operates. Accounting as it is practiced in capitalist system has been predominately viewed as a technical and context-free activity. If a meta-level concern addressing broad structural and institutional environment from which accounting emanated is absent, then there must be doubt that the conventional accounting can claim to be comprehensible and to contain true information. The paper examines the development of IFRS in a different social context. It reveals the challenges of converging Chinese Accounting Standards with IFRS in an environment where most of the fundamentals of a well-functioning economic market, such as well-defined legal system, efficient regulatory agencies, rigorous law enforcement, were not in place. Accounting system is not a presumed ‘science’ but is held to be reshaping its institutional structure and vice versa.

**Biography**
During the nine years I worked in the logistic industry, I became interested in the importance of accounting procedure to commercial success. I came to Australia to further my interest in accounting with a postgraduate degree in Master of Professional Accounting which I have completed by the end of 2006. Currently I’m a postgraduate research student in the school of accounting and finance.
Reflections On Society
Abstract:
Discourses of exceptionality are becoming increasingly commonplace in contemporary education in Australia. Concern regarding this phenomenon has largely focussed on questions such as the provision of gifted education to ‘gifted’ students, yet little attention has been paid to the effects of this increasing attention on the ‘non-gifted’. The aim of this paper is to consider one issue of consequence: how this shift in focus to exceptionality may inadvertently create new notions of the ideal student, and correspondingly, new notions of the non-ideal student. The presentation draws on research from a forthcoming book chapter in the *International Handbook of Disability Studies*.

Biography
Nicoli is a PhD student in the Education Faculty of UOW. She has background in secondary education and a particular interest in middle schooling and young people's relationship to their education. Her PhD studies take up a Foucaultian framework in questioning notions around young peoples displacement from and (re)engagement with their schooling.
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<tr>
<th>Name</th>
<th>Kylie Bourne</th>
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<tr>
<td>Title of Work</td>
<td>The Error of Morally Blaming the Crowd After Crowd Related Disasters</td>
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<tr>
<td>Email Address</td>
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**Abstract**

In May 50 people were injured, two seriously, in a crowd crush that occurred when fans attending a soccer game at Jerusalem’s Teddy Kollek Stadium tried to invade the pitch after the match. As regularly happens after this kind of crowd incident, the crowd itself was blamed for the disaster and was criticised by authorities for behaving irrationally and irresponsibly. However, a closer ethical analysis of the event shows that these assessments may be in error. Event managers, authorities and the popular press regularly use normatively loaded language to describe the role of a crowd in crowd disasters. In so doing they not only imply that the crowd is morally to blame for the event, but they also make claims about the moral status of crowds that are either mistaken or insufficiently explored or supported. This paper examines the crowd incident in Jerusalem’s Teddy Kollak Stadium as well as other crowd related incidents and considers the extent to which the crowd can bear moral blame or moral responsibility for the related disaster.

There has been little consideration of the moral status of crowds in the applied ethics literature. Consequently, it is not clear whether, or to what extent, crowds act with intention or agency, and it is not clear whether we can coherently say that crowds even act at all, especially in disaster scenarios. Current approaches to crowd management and the prevention of crowd disasters that turn on accounts of crowd agency that are themselves driven by mistaken or unsupported notions of agency, may be in error. Therefore, approaches based on them may be ineffective in the prevention of future crowd related disasters. Crowd and event managers have a moral obligation to correct mistaken or unsupported notions of crowd agency in an attempt to prevent crowd related disasters.

**Biography**

Kylie Bourne is a Masters of Arts (Research) student with the Philosophy Program of the Faculty of Arts, where she using ethical analysis to explore the moral responsibilities of crowd members. In 2006 she completed a Master of Applied Ethics with a thesis titled *Crowd Theory: Correcting Mistaken Assumptions*. 
Abstract
When Canberra based Soviet diplomat and spy Vladimir Petrov defected to Australia in April 1954, he handed to Australian security authorities materials from his safe, including a 37-page report written by Australian journalist Rupert Lockwood. During the subsequent Royal Commission on Espionage (Petrov Commission), May 1954-March 1955, this report was designated Exhibit J, and popularly as ‘Document J’. It controversially drew lawyer and ALP leader Dr. H. V. Evatt before the Commission when he decided to act as counsel for members of his parliamentary staff named in the document, an intervention which contributed significantly to the ALP Split of 1954-57. At the time, the full contents of ‘Document J’ were not made public; it was characterized by counsel assisting the Commission as a “farrago of fact, falsity, and filth”, and suppressed. This view was uncritically disseminated by the mass media of the time; in 1984 when ‘Document J’ officially entered the public domain, Prime Minister Bob Hawke described it as “a shabby document”. This paper will look at the origins and contents of ‘Document J’, its serious comments on aspects of Australian public life, and examine the credentials of the author who was, at the time, and who still tends to be, characterized simply and dismissively as “the communist journalist Rupert Lockwood”.

Biography
Rowan Cahill is a graduate of the universities of Sydney and New England. He has variously worked as a teacher, journalist, historian, and more recently as an agricultural labourer. His most recent publication is A Turbulent Decade: Social Protest Movements and the Labour Movement, 1965-1975, co-edited with Beverley
### Abstract

Innovative. Influential. Creative. These are key terms used to describe the Australian independent theatre from both within the sector and outside it. Yet this diverse sector also experiences a high turnover of companies and practitioners and is widely recognised as being under supported and underpaid. Facing a wane in subsidy culture and an increase in entrepreneurial, often globalised, culture how can the independent sector sustain its companies and practitioners into the long term when in such a constant state of flux?

This presentation applies Flow theory (Csikszentmihalyi, 1992; Csikszentmihalyi, 1996; Csikszentmihalyi, 1990) to independent theatre practice for the first time as an overarching method to develop long-term sustainability of both creative and business practice. The research focuses particularly on independent practitioners and companies that collaboratively devise their own product/s with an aim to create live performance.

Flow theory has been used to improve organisational management and staff motivation in fields such as business and science as well as to increase well being in daily life. However its focus on creating balance between challenge and skill has not yet been applied to the Australian independent theatre sector where the challenge of surviving is constantly juxtaposed with the high level of creative skill and vision inherent in the sector. Indeed, the sector's central issue of financial and creative sustainability can be well-served by the flow's principles of harnessing attention, motivation and situation to create a smoother, more productive state. Furthermore this concept is not only applicable to the independent theatre sector but to a multitude of creative and more traditional fields.

This presentation uses personal interviews and sector reports to outline the diverse day to day issues facing the sector. It then describes the key principles of optimal energy and their suitability as an overarching way of improving sustainability. In particular this research focuses on a holistic and interactive energy, often referred to as flow, as a method to sustain personal or company careers.

### Biography

Jane Kreis is a doctoral student with the Faculty of Creative Arts at the University of Wollongong. She lives in Moreton Island National Park off the coast of Brisbane with her husband and two young children. Prior to this ‘island escape’, she worked as theatre actor while she wrote her QUT Masters thesis: ‘The Actor’s Journey: Key Principles of Performance Presence’. She has also worked as a publicist, editor, and arts manager.

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<tr>
<th>Name</th>
<th>Jane Elizabeth Kreis</th>
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</thead>
<tbody>
<tr>
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<td>Optimal Experience and Sustainability in Australian Collaborative Independent Theatre</td>
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<td>Ms Janys Hayes</td>
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<td>Faculty of Creative Arts</td>
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</table>
Name | Claire Lowrie
---|---
Title of Work | “Houseboys” as Homemakers in Colonial Darwin and Singapore, 1890 - 1920
Email Address | ckl09@uow.edu.au
Supervisor | Lenore Lyons and Julia Martinez
Faculty & Academic Unit/School/Department | School of History and Politics, Faculty of Arts

**Abstract**

In the British colonial sites of Darwin and Singapore, Asian male servants were regarded as essential for the comfort, survival and prestige of European colonial masters. So-called “houseboys” were a prominent feature of home life. Despite this, they have been largely ignored by postcolonial historians. Indeed, the immense body of scholarly work on domestic service, both contemporary and historical, focuses on women as servants. This state of affairs is in part a consequence of the scarcity of primary source material on Asian male servants. The neglect of male servitude also results from and reinforces the view of female servitude in the home as a natural state of affairs rather than an historical development. In this paper I historicise male servitude in Darwin and Singapore to address a significant gap in the literature on domestic servants. By dealing with questions of masculinity and male servitude in the home, this paper seeks to complicate and contribute to the theoretical approach to domestic service and its relationship to colonialism.

**Biography**

Claire Lowrie is enrolled in the School of History and Politics, and a member of the Centre for Asia Pacific Social Transformation Studies (CAPSTRANS). Her PhD research explores the historical and colonial connections between Northern Australia and Southeast Asia. Her thesis is a history of domestic service in Darwin and Singapore.
Abstract
The central question of philosophy is ‘How shall one live?’ and in one way or another, at some time or another, that question has to say something about emotion. It is perhaps no more than commonsense to suggest that a guide to how one should live is at least in part a guide to how one should live emotionally. Yet historically, moral philosophers have often taken this to mean that we must learn control. Fail to do so, and one falls to the mercy of what is fickle and irrational and is thus unable to exercise any control over one's life, let alone live a ‘good’ one. It is a corollary of such a view that the emotions as such do not contribute to the moral worth of a person, and in consequence the role they play in our moral outlook and assessment has largely escaped philosophical scrutiny.

This view that the highest virtue is for the capable few who seem to be simply born in such a way as to be able to maintain such autonomy, is logically connected with the subordination of ethics to politics. Without a person’s contextual situation being available to account his emotional balance, the State does not have to be concerned for the welfare of those who are less. Their capacity to be ‘good’ is not relevant to matters of State, and any emotional display or outrage at their improvisation only furthers their construction as problematic and in need of governing. Much oppression has and continues to occur under this guise.

This presentation will take dispute with this position and argue that emotion is fundamentally an intersubjective phenomenon that is foundational to our moral development as healthy human persons. As such, more responsibility for situated emotional experiences need to be taken at State levels.

Biography
Jane Lymer is in her second year of study toward a PhD in Philosophy and her area of research is emotion. Her Philosophy honours research examined the ethics of public breastfeeding. Jane’s undergraduate degree majored in Philosophy and Communications and Cultural studies and was at UOW.
Abstract
Composers are often tempted to exploit the ‘exotic’ new sounds of non-western instruments such as the Japanese koto, but what are the effects of taking such an instrument away from its traditional context and placing it in a western musical setting? This paper will discuss the extent to which the tuning of the koto contributes to its idiomatic sound and the significance of traditional performance gestures in conveying the distinctive character of the instrument. Traditionally the 13-stringed koto is tuned to a pentatonic scale but its moveable bridges lend themselves to experimentation with alternative tunings. Does retuning the instrument compromise its identity? How can non-traditional playing techniques, including the use of electronics, be applied appropriately to a traditional instrument such as the koto? These extensions of the musical capabilities of the instrument are discussed in relation to composition for film music using retuned koto as well as a semi-improvised performance using live electronics.

Biography
Terumi Narushima is a PhD candidate in the Faculty of Creative Arts, University of Wollongong. She is researching the use of alternative tuning systems in music composition under the supervision of Associate Professor Greg Schiemer.
Abstract
My research will examine women as artists and consumers of Japanese popular culture. This investigation will study the position of women in Japan as well as women in Australia who are involved in these areas of Japanese culture. The Australian participants of this study are all involved in the Sydney Manga and Anime scene. The research into the Sydney Manga scene involves field research conducted through Anime clubs and conventions as well as interviews via internet forums.

Manga (Japanese comic books), Anime (Japanese animation) and Superflat (the contemporary art movement created by artist Takashi Murakami) all share a common history in the woodblock prints of the Edo period which were once mass produced as a form of entertainment. Part of this research will be to trace images of the ‘feminine’ during the early establishment of Manga as a medium as it developed through the Edo and Postwar periods. Western fascination with the Japanese femininity began with the graceful Geisha figure of the early woodblock prints. Today the West has shifted its focus to the Shojo girl an ultra cute schoolgirl figure who like the Geisha has become a focus for male desire.

Shojo culture in Japan affects all levels of society. In men’s Manga and Anime the Shojo is an image of sexual fantasy. For housewives it is a topic for debate regarding censorship due to its association with child pornography. The younger generations of Japanese women adopt the Shojo look and mannerisms in their street fashion. In Australia however the Shojo culture appears to only infiltrate young adults as older elements of Australian society view consuming of this type of culture as childish. Japan’s wider acceptance of Manga comic books across a wide variety of age groups means that the Shojo image has been accepted in art practice and exemplified in movements such as Superflat.

Biography
Graduated from Wollongong University with a Bachelor of Creative Arts (Hons) in 2002. My creative work was exhibited in the National Graduate Show at PICA in 2003. My work is also a part of University art collection due to its selection in the 2002 Unicentre Acquisitive Art Award.
Abstract
There are two major purchases in the Art Gallery of New South Wales permanent collection that substantiate the intrigue and the romance of an epoch in time when artists were driven by a curious kind of historical imagination towards Islamic culture.

The Snake Charmer painted in Algeria by the French Orientalist, Etienne Dinet in 1889, was purchased in 1890 by the then National Art Gallery of New South Wales. Dinet’s painting has inspired many Australians with his genuine study of human emotion as he learned about the ancient Arab legends of heroism and love. The second is The Visit Of The Queen Of Sheba To King Solomon 1890 by Edward Poynter seen as an eclectic mix of art and archaeology, constructing a striking characteristic of an alien civilization.¹

In the twenty first century Australians are still prone to ethnocentrism, today cultural difference is seen through the prism of faith, the romance of last century is sharply contrasted by ‘the terror wars’. Coinciding with this situation Islamic Australian artists from Iraq, Pakistan and Lebanon as well as an Indigenous Australian exhibited together at the FCA Gallery in February 2007 as a case study for my degree. This in turn resulted in part of the exhibition being exhibited in the Empty Quarter gallery, University of Wollongong Dubai, in the United Arab Emirates during June 2007.

My own creative work address notions of Modernism and Post Modernism, elements of Abstract Expressionism fused with Islamic geometric pattern, creating unification of past and present civilizations. The challenge for cultural collaboration is possibly more vital now than at any other time in our history. Like Dinet I seek to illustrate a theoretical and moral approach to Islamic culture rather that the mystical and romanticised perceptions of the late nineteenth century.

Biography
My artwork is an autobiography that investigates the juxtaposition of cultures in today’s contemporary art and society. I relate into the immigrant experience as compared with actual immigration. My understanding of Islamic culture transpires through family and personal associations as well as observation as both artist and viewer, consequently this determines such compare and contrasts.

¹ Roger Benjamin, Orientalism Delacroix to Klee 1997
POSTER

DISPLAY

ABSTRACTS
<table>
<thead>
<tr>
<th>Poster Title</th>
<th>Student Name &amp; Faculty</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prediction of Putative SAM-dependent Arsenite Methyltransferases in Micro-organisms and Plants by Computer Modeling and Functional Characterization of the Putatives</td>
<td>Sherin M Alex</td>
<td>60</td>
</tr>
<tr>
<td>Mindfulness-based Emotional Intelligence Training: Evaluating its Efficacy and Mechanisms for Change</td>
<td>Linda Bilich</td>
<td>61</td>
</tr>
<tr>
<td>Listeriosis in pregnancy: better safe than sorry</td>
<td>Dolly Bondarianzadeh</td>
<td>62</td>
</tr>
<tr>
<td>Coke dissolution in liquid iron – The effect of coke mineral matter</td>
<td>Michael Chapman</td>
<td>63</td>
</tr>
<tr>
<td>Understanding the molecular biology of PAI-2</td>
<td>Blake Cochran</td>
<td>64</td>
</tr>
<tr>
<td>Optimising Treatment Response for Depressive Disorders: A Clinical Model</td>
<td>Andreas Comninos</td>
<td>65</td>
</tr>
<tr>
<td>The Acquisition and Distribution of Synergistic Reactive Control Skills</td>
<td>Matthew Field</td>
<td>66</td>
</tr>
<tr>
<td>Electrospray ionisation mass spectrometry of higher order structures of DNA</td>
<td>Karina C Gornall</td>
<td>67</td>
</tr>
<tr>
<td>Australian Consumer Responses to Pharmaceutical Company Sponsored Advertising</td>
<td>Danika Hall</td>
<td>68</td>
</tr>
<tr>
<td>Validated DEM Computer Simulation of Particle Flows and Mechanisms</td>
<td>David Hastie</td>
<td>69</td>
</tr>
<tr>
<td>The effects of message framing and incentives on enrolment rates in a disease management program</td>
<td>Christina Hoang</td>
<td>70</td>
</tr>
<tr>
<td>Energy Efficiency of Pure and Slotted Aloha based RFID Anti-collision Protocols</td>
<td>Deereaj K Klair</td>
<td>71</td>
</tr>
<tr>
<td>Can Tumour Associated Macrophages be Targeted by PAI-2 Based Therapeutics?</td>
<td>Jodi A Lee</td>
<td>72</td>
</tr>
<tr>
<td>Control System for an Autonomous Blimp</td>
<td>Yiwei Liu</td>
<td>73</td>
</tr>
<tr>
<td>Divide and Conquer; Adolescent sun protection and Social Marketing</td>
<td>Melissa Lynch</td>
<td>74</td>
</tr>
<tr>
<td>Pressure Drop Modelling for Fluidised Dense-Phase Pneumatic Conveying of Powders</td>
<td>Soumya S Mallick</td>
<td>75</td>
</tr>
<tr>
<td>5,7-Dibromoisatin Derivatives as Novel Anti-cancer Agents</td>
<td>Lidia Matesic</td>
<td>76</td>
</tr>
<tr>
<td>POSTER BOARD #</td>
<td>Poster Title</td>
<td>Student Name &amp; Faculty</td>
</tr>
<tr>
<td>----------------</td>
<td>------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 18             | Wellbeing and wellness ‘new age’ or old ‘truths’? Implications of these concepts for practice | Anne McMahon  
Faculty of Health & Behavioural Sciences                      | 77   |
| 19             | Using COI barcodes to identify forensically and medically important blowflies | Leigh Nelson  
Faculty of Science                                           | 78   |
| 20             | Functionalised Carbon Nanotubes for Sensing Applications                     | Suriya Ounnunkad  
Faculty of Science                                           | 79   |
| 21             | Are the feet of obese children fat or flat?                                 | Diane Riddiford-Harland  
Faculty of Health & Behavioural Sciences                      | 80   |
| 22             | The Social Impact of Using Auto-Identification Technologies and Location-Based Services in National Security – Privacy, Security and Liberty | Holly Tootell  
Faculty of Informatics                                 | 81   |
| 23             | Putting the ‘community’ back into community standards for advertising       | Katherine Van Putten  
Faculty of Health & Behavioural Sciences                      | 82   |
| 24             | A volunteer feeding assistance program improves dietary intake of elderly patients | Karen L Walton  
Faculty of Health & Behavioural Sciences                      | 83   |
| 25             | The effects of the atypical antipsychotic drug olanzapine on central cannabinoid receptors and peripheral satiety hormones: Mechanisms for the side-effect of weight gain | Katrina Green  
Faculty of Health & Behavioural Sciences                      | 84   |
| 26             | How Do Changes in Vertical Descent Velocity Affect Performance of the Parachute Landing Fall Technique? | John Whitting  
Faculty of Health & Behavioural Sciences                      | 85   |
| 27             | The Quality Indicators of E-learning Delivery for Nursing Education        | Zhenyu Zhang  
Faculty of Informatics                                 | 86   |
**Abstract**

The mode of action of arsenic as a carcinogen or toxin is not well understood. Studies have yielded information about the reactants, products and enzymes involved in the arsenic metabolism, but the molecular mechanisms of these reactions are highly speculative. Recent scientific evidence highlights that mono-methylated arsenical, an intermediate in the biotransformation is more potent than inorganic arsenic. On the contrary, enzymatic detoxification of arsenic involving alternating steps of reduction and oxidative methylation leads to the conversion of inorganic arsenic to methylated products. These reactions are enzymatically catalyzed by ‘arsenate reductase’ and ‘S-adenosyl L-Methionine (SAM) dependent arsenite methyltransferase’ respectively. The reduction of arsenate to arsenite produces the substrate for SAM-dependent arsenite methyltransferase, which then methylates inorganic arsenite to mono/di-methylarsinate. To date, arsenite methyltransferase genes have only been isolated in mammals (human and rat) and an archae bacterium. A striking sequence diversity in known arsenite methyltransferases raises a need to structurally characterize these enzymes. Bioinformatic approaches have identified putative arsenite methyltransferases. This project is an attempt to model putative arsenite methyltransferases (*E.coli, Saccharomyces cerevisiae* and *Arabidopsis thaliana*) against a known arsenite methyltransferase (*Rattus norvegicus*) to understand its structure, and binding properties to arsenic. The results showed structural variation in prokaryotes from eukaryotes. Deciphering a standard model for arsenite methyltransferases will not only help in identifying unknown arsenite methyltransferases with low sequence identity, but also provide an insight to other known arsenic binding proteins. The putative arsenite methyltransferases will be functionally characterized for verification.

**Biography**

I am a graduate in Bioinformatics (India). Presently doing Masters by Research at Ren’s lab in “Arsenic Resistance in Microorganisms” using Bioinformatics and Molecular Biology techniques. My future research interests are RNAi, Proteomics and Molecular Modeling.
**Name**  
Linda Bilich

**Title of Work**  
Mindfulness-based Emotional Intelligence Training: Evaluating its Efficacy and Mechanisms for Change

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**Supervisor(s)**  
Ciarocchi J and Deane F

**Faculty & Academic Unit/School/Department**  
Department of Biological Sciences, Faculty of Science

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**Abstract**

Recent research has revealed that police officers experience a high level of stress that appears to relate to administrative and organisational pressure rather than from operational work experiences (Hart and Cotton, 2002). The aim of this study is to investigate the efficacy of a Mindfulness-based Emotional Intelligence Training (MBEIT) intervention that is designed to promote emotional well-being and workplace effectiveness amongst NSW police officers. The intervention is heavily based on Acceptance and Commitment Therapy (ACT) (Hayes, Strosahl and Wilson, 1999). ACT promotes emotionally intelligent behaviour in line with meaningful values by increasing people’s ability to utilise emotions as information, and to act effectively in the context of emotions and emotionally charged thoughts through mechanisms such as acceptance and defusion. 123 police officers volunteered to participate in the study, and were assigned to either the ‘intervention’ or the ‘control’ condition. Preliminary analysis suggests that over the course of the intervention police officers general mental health improved significantly in comparison to the control group. In addition, success with family values increased over time. Acting consistently with one’s values is proposed to be essential for the improvement in mental health and well-being. It is expected that the project will benefit the NSW police directly in the prevention of stress and sickness, and improvement in workplace effectiveness.

**References**


**Biography**

Linda Bilich is a Clinical Psychologist and is currently a doctoral candidate at the University of Wollongong. Her research involves using Acceptance and Commitment Therapy (ACT) with the New South Wales Police to promote their well-being, resilience and vitality. Linda’s professional interests include organisational psychology, working with families and adolescents, substance use disorders, and co-morbid mental health issues. Linda is also very interested in Acceptance and Commitment Therapy and its application in these areas.
Abstract

Objectives: Pregnant women have an increased risk of contracting Listeriosis because of the down-regulation of their immune system by high levels of progesterone. As a result they need to take special precautions by avoiding a range of high risk foods that are generally considered safe for other healthy adults. This study aims to provide a better understanding of risk communication on food safety issues during pregnancy by exploring the factors that underpin and shape pregnant women’s perceptions of food-related risks.

Methods: ‘Issue focused’ semi-structured in-depth interviews were carried out with pregnant women in New South Wales, Australia.

Results: Early outcomes from thematic analysis of the interviews suggest that women generally perceive food safety as common sense and food-related risk is not a concern for most of them. Communication about ‘Listeria’ risk is limited to some written materials provided by health professionals early in pregnancy with no follow-up. Women generally seek information through other channels and feel they have a good knowledge of high risk foods and the necessary skills to have enough ‘control’ over the food-related risks. ‘Fear’ of negatively affecting their unborn child together with the notion of ‘responsible mother’ has made them alert and responsive to relevant communications.

Conclusion: Pregnant women do not receive enough education regarding ‘Listeria’ from health professionals. However, as they are highly motivated and receptive to health messages dealing with their food, they should be targeted for communication on food-related risks, bringing about behaviour change that is effective and long lasting.

Biography

Dolly Bondarianzadeh has a BSc. and an MSc. in Nutrition and Dietetics from her home country, Iran. She is a senior researcher at the National Nutrition and Food Technology Research Institute of Shahid Beheshti University of Medical Sciences, Iran and is currently doing her PhD in Public Health Nutrition at the School of Health Sciences, Smart Food Centre, University of Wollongong.
Name | Michael Chapman  
---|---  
Title of Work | Coke dissolution in liquid iron – The effect of coke mineral matter  
---|---  
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Supervisor | Dr Brian Monaghan / A/Prof Sharon Nightingale  
---|---  
Faculty & Academic Unit/School/Department | Materials / MMM / Faculty of Engineering  
---|---

Abstract
Metallurgical coke, the primary fuel of the ironmaking blast furnace contains approximately 10-15% mineral matter and carbon. During the dissolution of carbon from coke into liquid iron, the mineral matter has been found to form a solid layer of calcium aluminates at the coke / metal interface. The composition and morphology of these calcium aluminates was observed to change over time, changing from an open acicular structure to a dense structure. The changes in the composition and morphology of the calcium aluminates was also observed to have a significant role in the determination of the kinetics of the coke(carbon) dissolution reaction. The changes observed in the kinetics of the coke dissolution reaction can be directly attributed to the formation of the CaO.Al₂O₃ phase, densification of the mineral matter layer and the ability of this layer to be an effective barrier to iron’s contact with the coke. In the ironmaking blast furnace this densification of a mineral matter layer will reduce the efficiency of the ironmaking process by prohibiting the dissolution of coke. By understanding this process ironmakers can optimise coke usage in the blast furnace, reducing coke consumption, operating costs and emissions of CO₂.

Biography
Michael is working on an ARC Linkage project focused on determining the fundamental nature of the kinetics of coke (carbon) dissolution in liquid iron. This is an experimental study relating to the ironmaking blast furnace, the single largest contributor to greenhouse gas emissions from a steel plant. The outputs from the study will enable better optimization of the blast furnace in a steel plant and will inform coke utilization based greenhouse gas reduction strategies for the blast furnace. Michael has over 15 year's industrial experience at BlueScope Steel, working in both production and research and development areas. Michael is currently on a leave of absence from BlueScope Steel to undertake studies towards the award of a PhD.

This is a Pyrometallurgical Group project with academic supervisors Dr Brian Monaghan and Associate Professor Sharon Nightingale.
Abstract
The human protein plasminogen activation inhibitor type-2 (PAI-2) is associated with good patient prognosis in a number of forms of cancer and has been suggested as a possible basis for future cancer therapies. However, the specific functions of PAI-2 remain poorly understood. The aim of this research is to relate the functionalities of PAI-2 to those of plasminogen activator inhibitor type-1 (PAI-1). Whilst both PAI-1 and PAI-2 appear to have similar basic functionalities in that they both inhibit plasminogen activators at the surface of cancer cells, PAI-1 has been identified as correlating to poor patient outcome in many cancer types. By substituting regions of PAI-2 with those of PAI-1 via a process known as site-directed mutagenesis and examining the effects of these substitutions on the interactions between these constructed proteins and receptors found on the surface of cancer cells, we hope to better understand the underlying reasons for the differences in function between PAI-2 and PAI-1. Our preliminary findings suggest that the functional differences between PAI-1 and PAI-2 are dependant on more than a single structural domain as hypothesised by previous studies. A more complete understanding of the biological roles of PAI-2 will provide important information relating to the function of the plasminogen activation system in cancer and may aid in the continuing development of highly specific and effective anti-cancer treatments.

Biography
Blake Cochran completed his Bachelor of Biotechnology (Honours)(Advanced) at the University of Wollongong in 2006 and is currently undertaking a PhD under the supervision of Assoc. Prof. Marie Ranson and Dr. David Croucher. Blake recently presented his work at the XIth International Workshop on Cellular & Molecular Biology of Plasminogen Activation held in Stockholm, Sweden.

References
Abstract
It has recently been established that certain clients respond remarkably well to psychotherapy, experiencing most of their treatment gains within the first 6 sessions, while others (who respond more gradually), require up to 20 sessions to achieve the same results. This phenomenon has been found to occur in adolescent and adult populations, across a range of empirically supported psychotherapies. Yet, researchers remain unable to explain why this phenomenon occurs. With the Australian Government’s recent introduction of a Medicare rebate scheme, which provides eligible Australians with rebates for up to 12 sessions of psychotherapy per calendar year, there has not been a more eminent time to maximize therapy’s effectiveness by understanding this phenomenon.

Previous work (Comninos & Grenyer, 2007) examined the preconditions of an early response to weekly psychotherapy for depression, in 62 adults. One third (n=23) experienced an early response (ERR), defined as a reduction of at least 50% of their intake Beck Depression Inventory score by week 6. ERR patients were 5 times more likely to recover. Pre-therapy characteristics of non-ERR patients included having lower interpersonal mastery, a more domineering interpersonal style, and greater social isolation and attachment fears concerning intimacy. As a whole, these findings suggest ERR / non-ERR patients present with dissimilar interpersonal patterns, requiring different psychotherapeutic approaches. To add support to this explanation, therapy transcripts of patients’ treatment sessions will be rated with the Psychotherapy Process Q-Set (PQS; Jones, 2000). The PQS is a method of systematically characterising therapist-patient interactions, which provides a meaningful index of process that can be used in comparative analyses and in relation to pre- and post-therapy assessments. It is anticipated that interpersonal differences between ERR / non-ERR patients will be reflected by differences in psychotherapy process, and this will provide a platform for tailoring future therapy to cases where it is failing.

References

Biography
Andreas Comninos is a final year Intern Clinical Psychologist. His degree (Clinical PhD) involves a combination of coursework, research, and supervised clinical practice. This research builds on earlier work, presented at the 35th Annual Meeting of the Society for Psychotherapy Research, and published in *Psychotherapy Research*, a peer-reviewed international journal.
Abstract
This project explores the synthesis and deployment of heuristic skills in autonomous systems through a detailed study of gait control in humans. It is proposed that human motion can be modelled by a complex hierarchy of skills manipulated for a context specific task. An explicit skill structure allows new motions to be synthesised and with a heuristic control scheme, can animate human-like gait control in a bipedal robot. Many previous studies and successful bipedal gaits have relied on the solution of complex dynamic mathematical models. This project will explore techniques blending a range of disciplines, such as traditional control, artificial intelligence and cognitive science. The experimental rig consists of inertial motion capture equipment with seven embedded Micro-electromechanical Systems (MEMS) sensors and a number of humanoid robotics frames currently under development in the Centre of Intelligent Mechatronics Research. In the initial stages of this project, a set of motion capture sequences were recorded with a volunteer. An intrinsic classification system called Minimum Message Length encoding (MML) was used to segment human postures based on euler angles and describe motion stages. The centre of mass and zero moment point were both tracked on a scaled ground support plane to investigate stability criteria for the gait cycle and a suitable control method.

Biography
Matthew is a PhD candidate at UoW and commenced study in March 2007. He studied B. Electrical Engineering at UoW and graduated in December 2006. He has worked on related topics during a summer scholarship and the honours final project. He has side interests which include hiking, soccer and tennis.
Electrospray ionization mass spectrometry (ESI-MS) is a valuable tool for investigating non-covalent binding (e.g. protein-protein, protein-DNA, protein-ligand, DNA-ligand). There are a multitude of reports concerning the use of ESI-MS for analyzing interactions between double-stranded (ds) DNA and drugs. Higher order structures of DNA such as quadruplexes have now also been identified as potential therapeutic targets. Quadruplex DNAs occur at the ends of telomeres, which are vital for preserving chromosomal integrity in the cell. The binding of ligands to these structures may stabilize them and inhibit the action of telomerase. Significant levels of telomerase exist in many cancer cell lines making this a target for cancer therapy. Additionally, telomerase is expressed at all stages of intraerythrocyte development of the parasite Plasmodium falciparum, which is responsible for the most severe form of malaria in humans. Recently we have determined conditions for the ESI-MS analysis of quadruplex DNA structures and their complexes with potential therapeutic agents. It has been shown that cations such as Mg$^{2+}$ and Li$^+$ stabilize quadruplex DNA. Our spectra show that NH$_4^+$ is an intrinsic part of the quadruplex structure, stabilizing it against dissociation in the gas phase without the addition of other cations. Further, we have identified potential therapeutics which showed pronounced selectivity for binding quadruplex DNA compared to dsDNA. This work provides a method for screening the binding affinity of potential therapeutic agents for higher order structures of DNA using ESI-MS. 


Biography
Karina Gornall completed a B. Med Chem.(Adv) degree at the University of Wollongong, where she was awarded first class Honours and the Johnson & Johnson Research Prize for best performance in a 4th year Medicinal Chemistry Research Project (2005). She is currently undertaking PhD research in the Department of Chemistry.
Abstract

There is considerable argument regarding the risks and benefits of Direct to Consumer Advertising (DTCA) of prescription medicines in the countries that currently allow for it (New Zealand and the United States) as well as countries considering its potential adoption including Australia, Canada and the European Union (Coney 2002; Lexchin and Mintzes 2002; Auton 2004). While DTCA is currently not allowed in Australia there are instances of un-named product advertisements for prescription products as well as pharmaceutical company sponsored disease awareness campaigns. The current study aimed to elicit and compare Australian consumer responses towards Australian and New Zealand (NZ) pharmaceutical company-sponsored advertisements.

Survey questionnaires with one of four conditions were mailed to a random sample of residents in the Wollongong area. The conditions included a NZ DTCA for a weight loss product, a matched Australian unnamed product ad, a NZ DTCA for a product to treat Alzheimer’s disease and a matched Australian disease awareness ad.

A total of 413 responses were analysed and it was found that participants were not likely to ask for a prescription from their doctor as a result of seeing any of the advertisements in the study. The Australian disease awareness advertisement for Alzheimer’s disease was perceived as more valuable compared with NZ DTCA or the Australian un-named product advertisement. Respondents were more likely to correctly identify the advertiser for the disease awareness advertisement, perceived the advertiser to be more reliable, and were less likely to believe it was trying to sell a product or treatment. Overall, respondents found it easier to make sense of the more informational style advertisements, and felt that there was insufficient information regarding the condition and treatments in the more emotive and transformational advertisements.

References:

Biography
Danika is currently undertaking a PhD in Public Health with the Centre for Health Initiatives (CHI). Her research is investigating Australian consumer responses to advertising that creates awareness about diseases and health conditions including pharmaceutical company sponsored advertising.
Distinct Element Modelling (DEM) is a relatively new simulation/modelling method, originally to solve soil mechanics problems. DEM has now been adapted to many 2-D and 3-D granular applications, including: mixing; particle segregation; hopper flow; pneumatic conveying; flow through conveyor transfers; particle packing in pharmaceuticals and fluidised beds. Particle shape is predominantly chosen as circular for 2-D and spherical for 3-D simulations due to the relative simplicity of the Newtonian equations needed to solve the various contact forces. In recent years with the increases in processing power, there has been a move away from spherical particles to more complex shapes such as ellipsoids, spherocylinders and superquadrics, which allow for more realistic simulations. However, they can also dramatically increase processing times. There are many DEM software packages, from commercially available to those developed by research groups for specific applications, usually not available to others. 2-D and 3-D representations of a given problem can be first developed within a CAD package or within the DEM software itself. One area of particular interest to the authors are the particle flow mechanisms through conveyor transfers. Unique components of this flow include material trajectory, particle-particle and particle-wall interactions (e.g. impact, sliding) and free-fall. Each of these components can be analysed analytically, however this is generally achieved by analysing the path of a continuum or a group of single and independent particles. This approach ignores the effect of important particle interactions and corresponding mechanisms, such as segregation. With DEM comes the ability to simulate many thousands of particles over extremely small time intervals with realistic outcomes. Whether it is the DEM simulation of a tumbling mill, a Jenike shear tester, dense-phase pneumatic conveying or a conveyor transfer, there is always the need for experimental validation to prove its accuracy. The focus of current research is the establishment of a conveyor transfer research facility allowing the development of an extensive database containing such information as belt speed, solids feed rate, material properties and conveyor transfer chute geometry. This database will provide all the data required for the successful validation of the corresponding DEM simulations of particle flows and mechanisms.

David Hastie has a BE (Hons) and ME (Hons) from the University of Wollongong and since 1997 has been employed by the Centre for Bulk Solids and Particulate Technologies at UoW as the primary researcher on numerous competitive grants. He is currently the Research Associate on a 3 year ARC Linkage Project on which his part-time PhD is based. Areas of interest include pneumatic conveying, rotary valve air leakage, particle segregation and conveyor transfers. He is the author of 9 journal articles and 18 conference papers. David is also a Member of the Institution of Engineers Australia and the Australian Society for Bulk Solids Handling.
Abstract
Chronic diseases place a huge strain on both individuals and the health care system. In Australia, chronic diseases account for approximately 80% of the total burden of disease (Department of Health and Ageing, 2004). Disease management (DM) programs were therefore developed with the aim of helping those individuals living with a chronic disease to better manage their condition. However, despite the known benefits, participation rates remain typically low and are often reported as being a particularly problematic and complex issue (Foster et al., 2003).

This research examines the efficacy of message framing and the offer of an incentive in maximising the recruitment of at-risk adults in Australian Health Management’s (ahm) disease management program, Total Health.

The study found no significant effect in motivating ahm members to join the Total Health program. However, other factors such as age, gender, being overweight, stress and regular breast examination and cervical cancer screening in women were found to play a significant role. It is recommended that less emphasis be placed on message framing with more emphasis directed towards the actual messages themselves. In particular it is recommended that tailored messages, especially those that appeal directly to different age and gender groups, be examined.

Incentives were also found to be ineffective in increasing enrolment rates; however, only one type and denomination of incentive was tested. It is recommended that a variety of different types and denominations of incentives be tested to determine the most optimal, especially since the use of non-monetary incentives in the first pilot study was found to significantly influence re-enrolments rates in two ahm health programs.

Biography
Christina is currently undertaking a PhD in Marketing with the Centre for Health Initiatives (CHI). Her research project is in collaboration with Australian Health Management (ahm) and investigates different strategies to increase participation rates in disease management programs.
Name | Dheeraj K Klair  
---|---  
Title of Work | Energy Efficiency of Pure and Slotted Aloha based RFID Anti-collision Protocols  
Email Address | dkk282@uow.edu.au  
Supervisor | Dr Kwan-Wu Chin (Principal Supervisor), Dr Raad Raad (Co-Supervisor)  
Faculty & Academic Unit/School/Department | SECTE, Faculty of Informatics  

Abstract  
A Radio Frequency IDentification (RFID)-enhanced wireless sensor network (WSN) combines the capabilities of RFID systems and WSNs. WSNs are widely known for their self-organization and sensing capabilities. RFID on the other hand is an emerging technology for object identification and supply chain management. Therefore, an RFID-enhanced WSN promises a self-configuring, adhoc, wireless RFID tag reading network that is capable of processing data from both sensors and RFID tags. A key problem in RFID-enhanced WSNs is the limited battery lifetime which demands energy tag reading protocols. This poster therefore aims to identify the most energy efficient variant amongst twelve Pure and Slotted Aloha based RFID tag reading protocols. We present an analytical methodology that evaluates the energy consumed in the following phases: i) success ii) collision, and iii) idle listening. We first calculate the delay of each phase and then use it to formulate the energy consumption, battery lifetime, and battery wastage of all variants. Our results show that Pure Aloha with fast mode and muting consumes the least energy, hence ideal for RFID-enhanced WSNs.

Biography  
Dheeraj K Klair is a PhD student at University of Wollongong. His current research interests include energy efficient Medium Access Control (MAC) protocols for RFID System, WSNs and Stochastic Modelling of Communication Protocols for Wireless Networks.
**Name**  
Jodi Anne Lee

**Title of Work**  
Can Tumour Associated Macrophages be Targeted by PAI-2 Based Therapeutics?

**Email Address**  
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**Supervisor**  
Associate Professor Marie Ranson

**Faculty & Academic Unit/School/Department**  
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---

**Abstract**

The progression of tumours to malignancy is aided by the surrounding stroma and infiltrating leukocytes, of which tumour associated macrophages (TAMs) contribute up to 70% of the tumour mass in some cancers. TAMs potentiate malignancy by contributing to the production of the extracellular protease, plasmin. Originating from peripheral blood monocytes, TAMs have been found to over express components of the u-PA system and this behaviour identifies them as potential targets in the development of anti-u-PA targeted cancer therapies. One such potential therapy utilises the accelerated internalisation mechanisms of cell surface u-PA upon inhibition by its specific inhibitor, plasminogen activation inhibitor (PAI) type – 2. This research shows for the first time that the internalisation of PAI-2 by U-937 and THP-1 monocytic cell lines is mediated in part by the low density lipoprotein receptor (LDLr) family of endocytosis receptors, in a u-PA dependent manner. Importantly, this shows that TAMs expressing high levels of u-PA may be targeted using PAI-2 therapeutics. Current research is being directed at the role of exogenous PAI-2 in proliferation and differentiation of monocytes to macrophages in order to further develop PAI-2 as a delivery mechanism.

**Biography**

Jodi Anne Lee graduated from the University of Wollongong with a first class honours degree in Biological Sciences in June 2007. She is currently enrolled as PhD candidate at the University of Wollongong under the supervision of Associate Professor Marie Ranson. Jodi has recently returned from Sweden where she presented a poster at the XIth International Workshop on Molecular & Cellular Biology of Plasminogen Activation.
Abstract
A control system for an autonomous blimp is developed in this study. The blimp is used as the test bed for “2007 UAV Outback Challenge” organized by Australian Research Centre for Aerospace Automation (ARCAA). The Challenge requires the blimp to fly autonomously to a designated area and rescue the dummy Jack. To achieve this rescue task, artificial intelligence is used on this blimp. Machine learning as a widely used modern approach of artificial intelligence is the core of this Autonomous Blimp research. An intelligent learning strategy is implemented in this control system to achieve autonomous navigation without a blimp model. This system can make the airship have the learning ability of a human being, and get experience from the pilot of the blimp. The machine learning method we have chosen here is reinforcement learning. It is a way of programming by rewards and punishment without needing to give the flying model of the blimp. As the result of the learning, the blimp will be able to finish all tasks without any human intervention.

Biography
I am a HDR student who is studying for the master degree by research in informatics faculty. My major is electrical engineering, and I started my research from last session in April. I got my bachelor degree of electrical engineering from Zhengzhou University of Light Industry in China, and was an associate lecturer in Zhongyuan Institute of Industry. My research field is the industry control and control system.
Name | Melissa Lynch  
---|---
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Supervisor | Prof. Sandra Jones & Prof. Don Iverson  
Faculty & Academic Unit/School/Department | Health Sciences, Faculty of Health & Behavioural Sciences

**Abstract**

The sun protection practices of Australian adolescents are not only shown to be consistently inadequate, but even the low levels of positive behaviours are on the decline (Fritschi, et al., 1992; Summerville & Watt, 2003). This is despite adequate knowledge levels, and numerous previous educational and mass media campaigns/interventions. A more comprehensive understanding of adolescent attitudes to sun protection, and potentially a social marketing intervention, is thus required.

This research project, conducted in conjunction with The Cancer Council NSW, consists of several major research stages; which included different data types and collection tools. Stage one, uses focus groups to gather insights into adolescent attitudes and behaviours regarding sun protection, this includes product, cost and branding analyses. Stage Two uses a quantitative survey to determine the size and scope of behaviour groups. Thus, rather than targeting adolescents as a whole, segmentation can be used to determine which particular behaviour groups are most amenable to change, and a more successful intervention can be established. Stages Three and Four will again use focus groups to both design and test an effective intervention with the chosen adolescent segment.

Results thus far indicate a number of interesting behaviour and attitude characteristics displayed in regards to adolescent sun protection as a whole, for example; the desire to distance themselves from ‘childhood’, the desire for ‘invisible’ sun protection and the impact of peer influence. A number of Brand Loyalty segments were also identified during this stage; based on product usage, attitudes and behaviours. Thus revealing that attitudes and behaviours amongst adolescents are not homogenous, instead, there are in fact specific groups with differing and unique perspectives, requiring tailored intervention strategies. This of course is unlike previous campaign/interventions which have targeted adolescents as a whole, rather than acknowledging attitudinal and behavioural differences within the cohort.

**Biography**

Melissa Lynch is currently completing a PhD with the Health and Behavioural Science Department, and as part of the Centre for Health Initiatives. Melissa has an ARC scholarship with industry partner The Cancer Council NSW.
Abstract

This poster demonstrates the results of an ongoing project aimed towards developing a new validated modelling procedure of the solids friction factor for the accurate prediction of pressure drop for the fluidised dense phase pneumatic conveying of powders. In spite of its growing popularity and widespread acceptance in various industries such as Power, Cement, Chemical, Pharmaceutical, Alumina, Limestone, Refinery, etc, fundamentally understanding the flow mechanism and accurately predicting the pressure loss as an important design parameter has only made limited progress so far due to the highly concentrated, complex and turbulent nature of the solids-gas mixture.

To examine the scale-up accuracy of existing model/design procedures, four popular/applicable models (developed by other researchers) and a model generated by the authors were evaluated by predicting the pressure drop for pipelines with various diameters or lengths (viz. 69 mm I.D. × 168 m; 105 mm I.D. × 168 m; 69 mm I.D. × 554 m) for the conveying of power-station fly ash (median particle diameter 30 μm; particle density 2300 kg m⁻³, loose-poured bulk density 700 kg m⁻³). A comparison between the predicted pneumatic conveying characteristics (PCC) and the experimental plots indicated that the models generally predicted grossly inaccurate results, especially when scaled up. To investigate the effect of bend model on predicting conveying characteristics, total pipeline pressure loss was calculated separately using three useful/appropriate bend models, with an appropriate particle-wall friction factor equation (based on straight pipe data). Comparisons of the results with experimental data show that there is a significant variation between the trends of the predicted PCC depending upon the choice of bend model.

It is concluded that the “existing” models for solids friction factor are generally not capable of predicting pressure drop reliably (under significant scale-up conditions). Therefore, some additional/alternative parameter/parameter groupings are needed to be identified which can describe the flow mechanisms and their change more accurately. Moreover, the estimation of bend pressure drop can have a considerable impact towards correctly predicting the total pressure loss in a pneumatic conveying system. Hence, the issue of selecting a proper bend model cannot be ignored during modelling (especially by ‘back-calculation’ method) and/or calculating the total pipeline pressure drop.

Biography

Soumya Suddha Mallick is a PhD student and casual academic staff at the Centre for Bulk Solids and Particulate Technologies/Faculty of Engineering, under the supervision of Associate Professor Peter Wypych. His project aims at presenting the industry with some key breakthroughs towards designing reliable fluidized dense-phase pneumatic conveying systems. Graduated as a Mechanical Engineer from Bengal Engineering College (Kolkata) in 2001, he worked for five years as a Design Engineer in a Consulting Engineering Company in India, specializing in designing thermal and nuclear power plants. He completed his Masters (part-time professional degree course) in Energy and Environment Management from Indian Institute of Technology (Delhi) in 2005, before obtaining an offer from UOW to commence his Doctorate studies with full financial support.
Abstract
Cancer will affect one in two men and one in three women at some stage in their lives.¹ A cure for this disease has not been found so there is a need to improve current cancer therapeutics which will possess less side effects, be more toxic and increase survival rates. The synthetic versatility of isatin has led to many bioactive derivatives including those with anti-cancer activities.² 5,7-Dibromoisatin has been shown to possess modest cytotoxicity in vitro using human monocyte-like histiocytic lymphoma cells (U937) (IC₅₀ 10.5 µM).³ Derivatives of 5,7-dibromoisatin containing various functional groups attached to the nitrogen atom were prepared since other work in the group had indicated similar compounds were cytotoxic against U937 tumour cells. The target compounds were assessed for their cytotoxicity in vitro against U937, Jurkat (leukemic T-cell) and MDA-MB-231 (metastatic breast) cancer cell lines. Of the 12 compounds synthesised, five were found to exhibit IC₅₀ values <1 µM against U937 cells. The synthesis and cytotoxicity evaluation of the isatins will be discussed, together with preliminary structure-activity relationship (SAR) work.


Biography
Lidia Matesic graduated with a Bachelor of Medicinal Chemistry (Honours 1) from UOW in 2006 and commenced a PhD in 2007 under the supervision of Professor John Bremner and Associate Professor Marie Ranson. She is a recipient of an Australian Postgraduate Award and a 2007 Jamieson Award from the NSW branch of the Australian Federation of University Women.
Abstract
Wellbeing and wellness are conceptual terms often used interchangeably to describe human capacity and are found ubiquitously within health literature and practice. In nutrition communications these terms are often found correlated with disease biomarkers, and food intake relationships. Healthy food choices linked to these concepts have been embraced by health authorities/professionals and food industry through health promotion programs and functional foods. Different foci and conceptual dimensions underpinning nutrition communications based on these terms by different stakeholders are likely to propagate diverse meanings and cause confusion. A review was conducted adapting methods from a previous study looking at qualitative/quantitative dimensions of these concepts within various disciplines. Over 280 articles were included which specifically incorporated the concepts as keywords or in the title. Articles were categorised by discipline and summarised on utility of wellbeing and wellness in practice. Key findings included a number of dimensions were common in different disciplines (public health, psychology) related to physical and mental health. Disciplines such as economics utilised more quantitative than qualitative dimensions. ‘Wellness’ and ‘wellbeing’ were found in public health literature relating to determinants of health incorporating social, occupational, spiritual, physical, intellectual and emotional dimensions. Within biomedical literature there was a mixture of this multi-dimensional approach, and a more uni-dimensional approach based on biomarker outcomes. Understanding how these concepts are being used by stakeholders in the food system may enable more and coherent consistent nutrition messages to be developed.

Biography
Anne McMahon M.Nutr.Diet., APD, AIFST, is a lecturer in HBS Faculty and the Education/Marketing Manager, Smart Foods Centre at UOW Anne has broad experience in nutrition marketing and clinical dietetics. Anne is a PhD candidate focussed on consumer response to terminology used in health/nutrition claims and impact on health behaviour.

Published in Nutrition and Dietetics Journal of the Dietitians Association of Australia 2007
Abstract
The utility of cytochrome oxidase I (COI) DNA barcodes for the identification of nine species of forensically important blowflies of the genus *Chrysomya* (Diptera: Calliphoridae), from Australia, was tested. A 658-bp fragment of the COI gene was sequenced from 56 specimens, representing all nine *Chrysomya* species and three calliphorid outgroups. Nucleotide sequence divergences were calculated using the Kimura two-parameter distance model and a neighbour-joining (NJ) analysis was performed to provide a graphic display of the patterns of divergence among the species. All species were resolved as reciprocally monophyletic on the NJ tree. Mean intraspecific and interspecific sequence divergences were 0.097% (range 0 – 0.612%, standard error [SE] = 0.119%) and 6.499% (range 0.458 – 9.254%, SE = 1.864%), respectively. In one case, a specimen that was identified morphologically was recovered with its sister species on the NJ tree. The hybrid status of this specimen was established by sequence analysis of the second ribosomal internal transcribed spacer (ITS2). In another instance, this nuclear region was used to verify four cases of specimen misidentification that had been highlighted by the COI analysis. The COI barcode sequence was found to be suitable for the identification of *Chrysomya* species from the east coast of Australia.

Biography
I am a second year PhD student in Biological Sciences under the supervision of Drs Mark Dowton and James Wallman. The title of my thesis is “The molecular identification and thermal attributes of forensically important blowflies”.

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<tr>
<th>Name</th>
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<tr>
<td><strong>Title of Work</strong></td>
<td>Using COI barcodes to identify forensically and medically important blowflies</td>
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<td><strong>Email Address</strong></td>
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<td><strong>Supervisor</strong></td>
<td>Drs James Wallman and Mark Dowton</td>
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<td><strong>Faculty &amp; Academic Unit/School/Department</strong></td>
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Abstract
Carbon nanotubes (CNTs) exhibit excellent properties which make them good candidate as electrode materials for bioapplications. CNT-based nanomaterials acting as an electrochemical transducer have been intensively investigated. These structures offer substantial improvements in the performance of chemical- and bio-sensing devices with greatly enhanced electrochemical activity, which makes these nanomaterials extremely attractive for numerous sensing applications. CNT-hybrid systems include immobilisation of organic molecules or inorganic materials onto the nanotubes. In the present work, the design and development of bio-platforms on glassy carbon electrodes (GCE) as chemo/biosensors using CNT-hybrids is described. CNT-hybrid materials consisting of CNTs and biomolecules (proteins) or metal nanoparticles have been investigated via chemical modification of the nanotube, before deposition onto the GCE. This integration of the modified CNTs enables the use of the hybrid systems as an active chemo/biosensor device. In an electrode fabrication process, functionalised CNTs (f-CNT) with selected biomolecules or metal nanoparticles were first synthesised and then re-dispersed in Nafion solution. The f-CNT-Nafion nanocomposites were cast onto GCE. The performance of the resulting nanocomposite-based electrodes was characterised using electrochemical techniques. The modified electrode compared with bare conventional GCE exhibits significantly improved electrical conductivity. Preliminary results show these nanotube composite-based electrodes exhibit good electrochemical detection for glucose and hydrogen peroxide.

Biography
Suriya Ounnunkad received a Bachelor’s degree (honors) in Chemistry from Chiang Mai University, Thailand in 2001 and a Master’s degree in Physical Chemistry from Mahidol University, Thailand in 2004. He has been a lecturer in Physical Chemistry program and a researcher at Department of Chemistry and Nanoscience Research Laboratory, Chiang Mai University. Currently, He is a Ph.D. candidate of ARC centre of excellence for Electromaterials Science and Intelligent Polymer Research Institute, University of Wollongong, Australia. His research interests include chemo-/bio-sensors based on carbon nanomaterials.
Abstract

Previous research has repeatedly confirmed that obese children display broader footprints than their non-obese counterparts. It is speculated these flatter feet may be caused by either a collapse of the longitudinal arch, as a result of excess mass, or simply the midfoot fat pad remaining longer in the feet of obese children.

The aim of this study was to investigate the effects of obesity on midfoot plantar fat pad thickness and plantar arch height in children.

A portable ultrasound system and a combination level were used to quantify midfoot plantar fat pad thickness and plantar arch height, respectively, of 20 children recruited from the HIKCUPS study, who were otherwise healthy with no lower limb pathology.

The obese children displayed a significantly thicker plantar fat pad (mean = 5.2 ±0.3 mm; \( t = 3.257; P = 0.004 \)) and lower plantar arch height (mean = 11.5 ±0.3 mm; \( t = -3.333, P = 0.004 \)) than their overweight counterparts (mean = 4.6 ±0.5 mm; mean = 15.5 ±0.2 mm, respectively).

Although the midfoot plantar fat pad was significantly thicker in the obese children, the mean difference in fat pad thickness was only 0.5 mm. More importantly, the obese children displayed a lower plantar arch height regardless of fat pad thickness. It is speculated that this represents initiation of a longitudinal arch collapse that could have negative consequence for foot function during life. However, further research is required to confirm the long-term effects of bearing excessive mass on foot structure and function.

Biography

- Completed BEd (Tasmanian State Institute of Technology) then taught Physical Education/English at primary and secondary levels.
- Postgraduate study examining childhood obesity after observing the incidence of overweight and obesity in primary school children.
- Masters thesis: Does Body Mass Index Influence Functional Capacity in Prepubescent Children?
Abstract
This study seeks to explore the use of auto-identification technologies and location-based services in national security initiatives. Public awareness of national security has increased significantly since the terrorist attacks in the United States of America on September 11, 2001. Location-based services provide applications such as immigration and visa control to advanced home-detention. Location applications have the potential to be privacy insensitive and pervasive. This aspect needs to be balanced with benefits that the technologies offer.

To understand the motivations of government and drivers for public motivation and adoption, Critical Social Theory (CST) is applied. CST allows the issue of technology adoption for national security to be studied by examining events of national security significance through public reaction as shaped by popular media.

For advancement of government-driven solutions to national security threats, it is imperative that research looks beyond the solutions and develop greater awareness of the implications of the technologies. The aim of this research is to provide insight into the use of auto-ID and LBS in national security in order to understand how social aspects of technology can impact lifeworld perception of the use of the technology.

This identified social shaping factors of recent national security events which have contributed to the investigation of recent national security events to establish the social context in which auto-ID and LBS technology is being used. This created an awareness of reactions to the implementation of LBS and Auto-ID technologies in national security situations. By establishing this groundwork, a paradigm for understanding and discovering the proposed impact of future LBS and auto-ID applications being used in national security could be established and is referred to as the PSL (Privacy, Security, Liberty) Intersection.

Biography
Holly Tootell is a Lecturer in the School of Information Systems and Technology. Holly’s research interests are the social implications of technology, focused on national security. Holly is the Secretary of the Australian chapter of the IEEE Society on Social Implications of Technology (SSIT).
Abstract
In Australia, advertising complaints are adjudicated by the Advertising Standards Bureau (ASB) against what are referred to as ‘prevailing community standards’. This term is used throughout the academic literature on advertising ethics and has a central place within the existing regulatory framework in Australia. Despite its normative importance, there is no formal definition of the term ‘community standards’ and there is no apparent consistency in the use of this term in ASB decisions. Currently, the majority of complaints made against advertisements in Australia are dismissed by the ASB as they are judged not to be contrary to ‘prevailing community standards’ in relation to the current AANA Code of Ethics. This research however suggests that the existing Code employed by the ASB to adjudicate these complaints does not represent the views of the Australian public. There appears to be large gaps within the current Code where issues that are relevant to the general community are either inadequately addressed or, in some cases, not addressed at all. This research has been able to demonstrate that there is a need to develop a framework of evidence based community standards for ethics in advertising to ensure that the real views of the Australian public are applied when adjudicating advertising complaints against community standards, which would enable a more accurate and fair determination process.

Biography
Katherine is currently studying her PhD and her project is examining Evidence-Based Community Standards for Ethics in Advertising. Katherine’s other research interests include media influences on young people, sexuality education, protective behaviour programs and harm minimization programs for drug and alcohol use.
Abstract
Malnutrition is prevalent in elderly hospitalised patients and has been associated with longer lengths of stay (LOS), higher rates of complications and increased hospital costs. The feeding of patients has traditionally been the role of nurses, however with an ever-increasing workload there may be insufficient staff time to ensure the nutritional care of patients.

Sutherland Hospital has introduced a program in which trained volunteers assist, socialise and feed nutritionally vulnerable patients on weekdays at lunchtime. This study aimed to evaluate the lunchtime assistance program in terms of dietary intakes by comparing weekdays (with volunteers) and weekends (no volunteers).

Nine patients (mean age±(SD):89 ±4.6 years) participated in this pilot study. Data were collected for each patient over two weekdays and two weekend days, including observations of all main meals (between 7am and 6pm) and weighing leftovers at each main meal. Daily estimated energy and protein requirements were calculated for each patient using the Schofield equation and the recommended dietary intakes for protein.

Adequate amounts of energy and protein were provided each day, however only one patient consumed their estimated energy requirement and only two patients met their estimated protein requirements.

At lunch, the average energy intake increased by 439kJ (~35%) when volunteers were present (p<0.05) and the average protein intake increased by 10.1g (~66%) (p<0.05). Observations indicated that volunteers socialised with patients, encouraged them to eat and spent more time feeding them than nurses. Trialling volunteer assistance also at the evening meal in a larger study with greater power would be useful.

Biography
Karen graduated with a Master of Science (Nutrition and Dietetics) from the University of Wollongong in 1993. She has worked in clinical dietetics, private practice, quality management and food service dietetics. Karen is currently lecturing in the School of Health Sciences and completing a PhD at the University of Wollongong. Her research is titled ‘Investigating food service systems to maximise nutrition support for long stay hospital patients’. She is also the national convenor of the Dietitians Association of Australia National Food Service Interest Group.
**Abstract**

Some atypical antipsychotics clinically used to treat schizophrenia, such as olanzapine, induce weight gain by unknown mechanisms. The dorsal vagal complex (DVC) of the brainstem is implicated in the regulation of energy balance. Additionally, the endogenous cannabinoid system, and blood-borne hormones such as cholecystokinin (CCK) and peptide YY (PYY) are involved in feeding and satiety.

**We investigated:** (1) whether antipsychotics alter cannabinoid CB1 receptor (CB1R) binding in the DVC; (2) whether there are dose-dependent effects of olanzapine treatment on weight gain and food intake, (3) the effects of olanzapine on plasma CCK and PYY concentrations.

**Methods:** Experiment 1: rats were treated with olanzapine, haloperidol, aripiprazole or vehicle for 1 or 12 weeks. CB1R binding in the DVC was determined using autoradiography. Experiment 2: Rats were treated orally for 15 days at various dosages (saline (control), 0.75, 1.5, 3 and 6mg olanzapine/kg/day). Fasting plasma CCK and PYY levels were measured using RIA kits.

**Results:** Olanzapine induced a significant decrease (-41%) in CB1R binding density in the DVC, aripiprazole decreased binding by -12%, whilst haloperidol induced no significant change vs controls. Consistent with binding changes, 1 and 12-week olanzapine treatment induced significant weight gain, but not aripiprazole or haloperidol. Only chronic olanzapine treatment increased food intake. CB1R binding was correlated to weight gain following olanzapine treatment. Experiment 2: 1.5, 3 and 6mg olanzapine/kg/day significantly increased body weight and food intake, but not 0.75mg. Olanzapine increased plasma CCK, but not PYY.

**Conclusion:** Olanzapine, an antipsychotic with a high risk of weight gain side effect, decreased CB1R binding density in the DVC, whilst antipsychotics with less risk had limited/no effects. Olanzapine dose-dependently promoted weight gain and food intake, and altered plasma CCK but not PYY levels. By understanding the mechanisms behind olanzapine-induced weight gain, we may assist in developing a better pharmacological approach to schizophrenia treatment.

**Biography**

Katrina Green is a PhD candidate from the Neurobiology Research Centre, School of Health Sciences. She completed a Bachelor of Science (Biol & BioMed) and graduated with Class 1 Honours. Her research focuses on understanding the mechanisms behind the side effect of weight gain induced by some antipsychotic drugs used to treat schizophrenia.
Abstract

Although parachute landing injuries are thought to be due in part to a lack of exposure of trainees to realistic descent velocities during parachute landing fall (PLF) training, no research has systematically investigated whether PLF technique is affected by different vertical descent conditions, with standardised and realistic conditions of horizontal drift and pre-landing posture. Therefore, the purpose of this study was to determine the effects of variations in vertical descent velocity on PLF technique. Kinematic, ground reaction force and electromyographic data were collected and analysed for 20 parachutists while they performed parachute landings, using a custom-designed monorail apparatus, at three realistic vertical descent velocities: slow (2.1 m/s), medium (3.3 m/s) and fast (4.6 m/s), with 2.3 m/s horizontal drift. Analysis of variance results confirmed that most biomechanical variables characterizing PLF technique were significantly affected by descent velocity whereby at fast descent velocities the subjects impacted the ground with less initial knee flexion but a greater range of knee and ankle motion and generated higher ground reaction forces compared to slower decent velocities. Furthermore, the subjects activated their anti-gravity extensor muscles earlier during the fast descent velocity condition to eccentrically control the impact absorption. As vertical descent rates increased, the parachutists displayed significantly different neuromuscular and biomechanical strategies when performing the PLF relative to slower descent conditions. It was recommended that PLF training programs should include ground training activities that incorporate realistic vertical descent velocities to better prepare trainees to withstand the impact forces associated with initial aerial descents onto the Drop Zone and, ultimately, minimise the potential for injury.

Biography

John is studying for a PhD in the Biomechanics Research Laboratory, with the thesis title: “How do musculotendinous properties of the triceps surae affect drop landing performance and what are the affects of training?” John’s research interests include the mechanics of muscles, tendons and whole body human movements.
Abstract
The inadequate supply of trained nursing professionals to provide quality care for people is a big problem. E-learning could provide an effective solution to this challenge. Although e-learning is not a new teaching method, a quality framework is lack that can be used to judge the quality of e-learning delivery for working nurses. This calls for a need to overcome this gap. Therefore, the primary aim of this study is to identify indicators of effective e-learning delivery. Based on these indicators, a quality framework of e-learning packages for nursing education can be constructed. Our approach is systematic literature review. Two fields of literature were reviewed: e-learning for adult and nursing continuing education. Based on critical analysis of the published literature, our quality framework was constructed. It consists of seven components, namely, learner, facilitator, content, delivery mode, technology, service and outcome. Each component covers various issues that need to be further investigated.

Biography
Zhenyu Zhang, born in China, arrived on Australia in February of 2006, completed Master of Health Informatics in University of Wollongong in 2006. Started research master degree on Information and Communication Technology since February, 2007. Zhenyu’s research topic is ‘e-learning for nursing education’. Dr. Yu is the supervisor for Zhenyu’s project.