



# School of Engineering Newsletter

Volume 3 | Issue 4 | December 2009

## Head of School Foreword

This issue celebrates the recent success of Professor Kenny Kwok, Associate Professor Chin Leo, Dr Samantha Liyanapathirana and Dr Haiping Zhu, who were all successful in the 2010 round of Australian Research Council grants.

Furthermore, School staff who gained funding from the UWS Research Grants Scheme include Dr Samantha Liyanapathirana with Associate Professor Chin Leo as co-investigator; Dr Fidelis Mashiri with myself as co-investigator; Dr Vivian Tam with Dr Khoa Le as co-investigator; and Professor Yang Xiang with Dr Siu Kai Lai as co-investigator. Dr Olivia Mirza was successful in receiving Research Seed Grant Scheme funding for her research.

Dr Pramod Kumar Gupta from the Indian Institute of Technology Roorkee in India has received a 2010 Endeavour Research Fellowship to undertake his research project at the School from January to July 2010.

The EA Accreditation Board has granted full-accreditation to the School's Bachelor of Engineering (Advanced) program for each of the six Key Programs.

Dr Mithra Fernando was successful in the Vice-Chancellor's Excellence Awards, gaining an Individual Highly Commended Award for Professional Service.

Mr James Berry was successful in the College of Health and Science Teaching Excellence Awards, gaining a citation for Outstanding Contributions to Student Learning for the creation of innovative and imaginative resources that engage students in current disciplinary issues and develop critical thinking skills.

Widevision 16 was held on Monday November 23 at Doltone House, Jones Bay Wharf Piers in Pyrmont. The exhibition showcased the innovative projects undertaken by 2009 final year Industrial Design students, and was well attended.

We look forward to hearing more from our Alumni in 2010 and we also have exciting news and events planned for 2010. Keep abreast of Alumni information at [www.uws.edu.au/EngineeringAlumni](http://www.uws.edu.au/EngineeringAlumni)

Season's Greetings and all the best to you and your families for a safe and Happy New Year.

Yours sincerely,

Brian Uy



### Alumni – stay connected

Graduates past and recent of UWS Engineering, Construction Management and Industrial Design disciplines are welcomed to join our UWS School of Engineering Alumni Chapter.

- B**uild networks.
- R**ecieve newsletters.
- I**nteract in your future.
- D**iscover old friends.
- G**ain career advice and
- E**xplore new opportunities.

To join,  
visit [www.uws.edu.au/EngineeringAlumni](http://www.uws.edu.au/EngineeringAlumni)  
and complete the Keep In Touch form.

# Research and International

## Grant Successes

### ARC

Professor Kenny Kwok, A/ Professor Chin Leo, Dr Samantha Liyanapathirana and Dr Haiping Zhu were all successful in the 2010 round of Australian Research Council grants. All of these School staff are members of the School's newly formed Civionics Research Centre.

The following staff were successful in obtaining ARC Discovery Project Grants:

- » Prof KC Kwok; Prof V Macefield; Dr PA Hitchcock; Dr DK Walton  
*Occupant comfort, cognitive performance and task performance in wind-excited tall buildings (\$605,621 over 4 years)*
- » Dr S Liyanapathirana; A/Prof CJ Leo  
*Application of expanded polystyrene (EPS) geofam and deep cement mixed columns for protection of existing foundations during urban construction (\$183,000 over 3 years)*

The following staff were successful in obtaining ARC Linkage Project Grants:

- » Prof Aibing B Yu, Dr Haiping Zhu, Dr Renhu Pan  
*Granular dynamics: characterization, modelling and application (\$160,014 over 3 years)*

### ALTC

Ragbir Bhathal and fellows have been granted a \$200,000 ALTC for Advancing Science by Enhancing Learning in the Laboratory.

### IRIS

A/Professor Jon Allen, Professor Bill Bellotti (School of Natural Sciences) and Dr Leigh Sheppard (Solar Energy Group) were successful in gaining \$13,700 in the latest IRIS grant round. The funding for their project on energy- and water-efficient greenhouse design and operation will help fund leading researchers from Wageningen University in the Netherlands to come to UWS to share their expertise.

### UWS Research Grant Scheme (Science, Technology, Engineering and Medicine)

Dr Samantha Liyanapathirana has been awarded \$22,319 for her project titled 'A novel method for testing pile integrity based on a digital tomograph', with Associate Professor Chin Leo as co-investigator.

Dr Fidelis Mashiri has been awarded \$24,367 for his project titled 'Concrete Filled VHS-Plate Fabricated Columns', with Professor Brian Uy as co-investigator.

Dr Vivian Tam has been awarded \$20,157 for her project titled 'Recycled Concrete for High-Grade Applications', with Dr Khoa Le as co-investigator.

Professor Yang Xiang has been awarded \$20,475 for his project titled 'On Asymptotic Analysis for Large Amplitude Nonlinear Vibration of Laminated Piezoelectric/Functionally Graded Rectangular Plates', with Dr Siu Kai Lai as co-investigator.

### Visitor from Shanghai Jiao Tong University

Professor Shan Ben Chen from Shanghai Jiao Tong University visited the School, funded by the International Research Initiative Scheme (IRIS). Professor Chen is a prestigious Cheung Kong Scholar Professor in China and a world-renowned researcher in the areas of robotic welding and intelligent control. He is at UWS to conduct research work with Drs Gu Fang and Jeffrey Zou in relation to the recently-awarded ARC Linkage Grant "A Vision Controlled Autonomous Multi-Robot Welding System". He has also presented two seminars to the School in the area of intelligent robotic welding.

### Highly Commendable Paper Award 2009

The Research Network for a Secure Australia (RNSA) Highly Commendable Paper Award 2009 has been issued for the paper on 'Dynamic behaviour of stainless steel investigated with a tension split Hopkinson bar' by Professor Brian Uy, Professor Zhong Tao of UWS and Dr Bao-Sheng Chen from Hunan University in China. Their paper was presented at the 8th International Conference on Shock and Impact Loads on Structures on 2-4 December 2009 in Adelaide, Australia.



Dr Tuan Ngo of RNSA presenting Prof Brian Uy with his Highly Commendable Paper Award

### Academic Staff Publishes

Dr Xinqun Zhu co-authored a book now published by Taylor and Francis titled 'Damage models and algorithms for assessment of structures under operation conditions'. Details can be found by contacting Dr Zhu on [xinqun.zhu@uws.edu.au](mailto:xinqun.zhu@uws.edu.au)

# Research and International

## Conferences

### ICSCS'10

After great successes of the 1st (ICSCS'01 in Pusan, Korea); 2nd (ICSCS'04 in Seoul, Korea) and 3rd (ICSCS'07 in Manchester, UK) International Conference on Steel and Composite Structures, ICSCS'10 will be held in Sydney from July 21-23, 2010. This conference is organised by the University of Western Sydney and International Conferences and Events (ICE) Australia, in collaboration with the "Steel and Composite Structures", An International Journal. ICSCS'10 will bring together from around the world researchers, engineers, manufacturers, product providers, fabricators and contractors to discuss and exchange the latest information and technology on Steel and Composite Structures. Professor Uy is chairing this Conference and the organising committee is made up of staff of the School. Further information can be found at [www.iceaustralia.com/icscs2010/](http://www.iceaustralia.com/icscs2010/)

Abstract submissions have been extended until 8 January 2010.

### CECAR5 / ASEC 2010

Hosted by Engineers Australia, together with the Australasian Structural Engineering Conference (ASEC 2010), CECAR5 will bring together a broad cross-section of the civil and structural engineering professions who want to learn, network and advance their technical skills. A combination of these Conferences, workshops and technical site visits will be a high quality three day event attracting a prospective audience of 600-800 delegates in Sydney, Australia from August 9-12, 2010. Professors Uy and Xiang are co-chairing the Structural International Scientific Committee. Further information can be found at [www.cecar5.com](http://www.cecar5.com)

### International Conference on Wireless Information Networks and Systems

Dr Qi Cheng was invited to serve on the Technical Program Committee of the International Conference on Wireless Information Networks and Systems, held on 6-10 July 2009 in Milan, Italy.

### Endeavour Research Fellowship Recipient

Dr Pramod Kumar Gupta from the Department of Civil Engineering of the Indian Institute of Technology Roorkee in India has received a prestigious 2010



*Dr Pramod Kumar Gupta*

Endeavour Research Fellowship from the Deputy Prime Minister of Australia.

The Endeavour Awards are the Australian Government's internationally competitive, merit-based scholarship program providing high-achieving individuals with a unique opportunity to undertake study, research or professional development.

Dr Gupta will undertake his research project titled 'strength and behaviour of concrete filled tubes subjected to concentric quasi-static and impact loading' at the School of Engineering from January to July 2010.

This project is related to Professor Uy's ARC Discovery Project on impact loading of concrete filled steel columns.

### New Testing Machine

The School was successful in obtaining funds through the Research Infrastructure Fund for over \$600k to build Australia's largest high-capacity testing facility for full-scale testing of structural elements of over 1,000 tonnes or 10,000kN.

As part of a commitment for continuous improvement of the existing research infrastructure, the School of Engineering has placed an order with Tianshui Spark Machine Tool Co. Ltd in China for a 1,000 tonne Multipurpose Compression, Shear and Torsion testing machine. This high capacity testing machine will enhance research and industry consultancy capabilities of the School's NATA accredited material testing facility, in particular, in the areas of high strength steel, high strength concrete, composite and innovative materials.

Upon acquisition, the machine will be the best of its kind in Australia and UWS will have a national advantage for structural engineering research and material testing. The machine is expected to be commissioned by November 2010.



*1,000 tonne Multipurpose Compression, Shear and Torsion testing machine*

# Students news

## Design Lab-Electrolux International Competition

Aaron Avila, a Bachelor of Industrial Design 3<sup>rd</sup> year student, has made the top 25 in the Design Lab-Electrolux international competition. He has designed a robotic window washer named "Geco". Geco is a circular, robotic window washer, and Aaron's response to a future where he believes glass will be used to a larger extent in homes and buildings. The robot has an advanced micro fibre ring that spins while it cleans. Its "gecko feet", made from nano technology, keep it fixed to the window. It runs on solar power making it energy efficient, and it also has a special feature that allows it to change colours and patterns as it cleans, blending naturally into its surroundings so it doesn't disturb the user's view.

## School Graduate Stories Initiative

Codey Travers-Grantham, a 3<sup>rd</sup> year Bachelor of Engineering (Robotics & Mechatronics) student, formerly of St Clair High School, is the first engineering student to feature in a Schools Engagement flyer in a new initiative called "School Graduate Stories". He was required to answer questions related to his university experience and how it differs to school. Information about his university course is also added to the flyer, which is sent to their former school for publication purposes. The flyer can be viewed at [www.uws.edu.au/community/in\\_the\\_community/for\\_schools/school\\_graduate\\_stories](http://www.uws.edu.au/community/in_the_community/for_schools/school_graduate_stories)

# Learning and Teaching

## Advanced Program Accreditation

The Engineers Australia Accreditation Board have granted full-accreditation to the School's Bachelor of Engineering (Advanced) program for each of the six Key Programs (Civil, Computer, Electrical, Environmental, Robotics & Mechatronics and Telecommunications).

## School of Engineering Honours Conference

The 2009 School of Engineering Honours Conference was held on September 24 with 20 students participating, 5 industry representatives present and most School academic staff in attendance. Awards went to Kevin Micallef (Robotics & Mechatronics Eng), Ghassan Salha (Elec/Telcom/Comp Eng) and Thomas Ryan (Civil/Enviro Eng).

## Vice-Chancellor's Excellence Awards

Dr Mithra Fernando was successful in the Vice-Chancellor's Excellence Awards, gaining an Individual Highly Commended Award for Professional Service.

## College Teaching Excellence Awards

Mr James Berry was successful in the College of Health and Science Teaching Excellence Awards, gaining a citation for Outstanding Contributions to Student Learning for the creation of innovative and imaginative resources that engage students in current disciplinary issues and develop critical thinking skills. James has developed and embedded an innovative range of web-based resources including RSS-fed podcasts, mindmapping tools and TeacherTube to support studio-based learning for students of Industrial Design and Design & Technology. His approach has been to capitalise on emerging technologies to capture, replicate and enhance the traditional design studio learning environment for a student base comprising visio-spatial learners of the Net Generation.

## Professional Development Program

Dr Ataur Rahman's application for a Professional Development Program during the Autumn semester of 2010 has been accepted. The College of Health and Science will contribute \$5,000 to support the program and Ataur will visit Cornell University in the USA and the University of Newcastle (Australia) to work with Professors Jery Stedinger and George Kuczera, respectively on hydrologic modelling.



# Community Engagement

## UWS Indigenous Student Mentor Program

Associate Professor Jon Allen ran a Design Workshop on August 28 as part of the UWS Indigenous School Student Mentoring Program for Year 10 students.

The workshop hosted fifteen Year 10 Indigenous students, each making a simple model and producing silicone moulds and urethane cast replicas. Each month the students attend the UWS Kingswood campus for a two-hour academic enrichment or developmental workshop.

## Widevision

The opening of the Industrial Design graduate exhibition, Widevision 16, was held on Monday November 23 at Dalton House, Jones Bay Wharf Piers in Pyrmont. The exhibition showcased the innovative projects undertaken by final year Industrial Design students and was well attended.

## Alumni Chapter

Welcome to all Alumni who joined our UWS School of Engineering Alumni Chapter during the recent postcard promotion! We look forward to hearing more from our Alumni in 2010 and we also have exciting news and events planned for 2010.

Stay tuned at [www.uws.edu.au/EngineeringAlumni](http://www.uws.edu.au/EngineeringAlumni)

## Penrith UWS Day

UWS Day Penrith was held on November 3 with more than 1000 high school students attending along with teachers and career advisors.

A series of talks, demonstrations and hands-on activities were arranged by the School of Engineering, including talks on 'Wind effects on tall buildings and civil structures' by Kenny Kwok, 'Inventing the Future' by Jon Allen, 'Building the Future' by Phil Love, and two talks by Ragbir Bhathal on 'Space & Rockets' and the University's Observatory. Upul Gunawardana ran a lab on

'Optical Fibres in Action', Chris Nash provided a demonstration of silicone moulding and casting, plus Karen Yevenes and Jon Allen held a drawing and rendering master class.



*Widevision 16 at Dalton House, Jones Bay Wharf Piers, Pyrmont*

# School Staff



Ms Teresa Cheong commenced an ongoing position with the School on October 20 as Undergraduate Administration Officer. Teresa previously worked as a membership

officer for the Waste Management Association of Australia (WMAA), Senior Administration Officer at the Association of Chartered Certified Accountants (ACCA), and earlier as a teaching assistant at the University of Macau. She holds a Bachelor of Business Administration from the University of Macau and a Master of Commerce from University of Sydney.

Professor Yang Xiang has been appointed as Senior Associate Head of School, School of Engineering, for the next year. This position will assist and deputise for the Head of School when required.

Dr Jeffrey Zou's Associate Head of School appointment has been extended until October 2010.

Mr Peter Florence reached his 10-year milestone with UWS on October 15.

Ms Jodie Clark won a gold medal with her over 35's basketball team 'Good Intentions' in the recent World Masters Games held in Sydney, beating 'Shazam' from Melbourne in the final game, 53 points to 20. The next Games will be held in Turin, Italy in 2013 with 'Good Intentions' considering attending to defend their gold!

Mrs Kylie Docker concluded her role as Administration Officer on August 10 and has taken up a new administration position with the School of Nursing and Midwifery at Hawkesbury Campus.

Mrs Patricia Hellier concluded her role as Administration Officer on September 4 for the birth of her second child Katherine, weighing in at 3.1kilos on September 17.



*Baby Katherine Hellier  
born 17 September 2009*



#### IMPORTANT DATES

Early Bird Registration Opens – January 2010  
Abstract Submission Deadline – Friday 8 January 2010  
Authors notified status of abstract – Wednesday 17 February 2010  
Early Bird Registration Deadline – Wednesday 24 February 2010  
Final Paper Deadline – Wednesday 17 March 2010  
Authors notified of reviewer comments – Wednesday 14 April 2010  
Registration Deadline – Wednesday 7 July 2010

### ABSTRACT SUBMISSION DEADLINE EXTENDED

We are pleased to advise the abstract submission deadline has been extended. If you intend to submit an abstract but have not already done so we strongly encourage you to submit before the extended closing date of Friday 8 January 2010. We are calling for abstracts to be submitted under the following themes:

- Bridge Structures
- Case Studies
- Infrastructure Projects
- Structural Health Monitoring
- Building Structures
- Composite Construction
- Steel Structures
- Sustainability Concepts In Steel And Composite Structures

Abstracts must be **submitted online via the conference website** and will be considered for oral and poster presentations. For abstract submission guidelines and to submit your abstract/s please visit the [conference website](http://www.iceaustralia.com/icscs2010).

**ABSTRACT SUBMISSION DEADLINE:  
FRIDAY 8 JANUARY 2010**

**We welcome your participation in this exciting event!**

### KEYNOTE SPEAKERS

We are proud to announce the following Keynote Speakers have been confirmed for ICSCS'10:

- Prof. Ir. Frans Bijlaard, *Delft University of Technology, Netherlands*
- Prof. Mark Bradford, *University of New South Wales, Australia*
- Prof. Siu Lai Chan, *Hong Kong Polytechnic University, Hong Kong*
- Prof. Lin-Hai Han, *Tsinghua University, China*
- Dr. Dennis Lam, *University of Leeds, United Kingdom*
- Prof. Roberto Leon, *Georgia Institute of Technology, USA*
- Prof. Richard Liew, *National University of Singapore, Singapore*
- Prof. David Nethercot, *Imperial College London, United Kingdom*
- Prof. Eiki Yamaguchi, *Kyushu Institute of Technology, Japan*

### NEED MORE INFORMATION

Visit the conference website

<http://www.iceaustralia.com/icscs2010>

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#### ORGANISING COMMITTEE

**CHAIR** - Professor Brian Uy, *University of Western Sydney, Australia*  
**CO-CHAIR** - Professor Chang-Koon Choi, *Korea Advanced Institute of Science & Technology, Korea*  
**CO-CHAIR** - Professor Chris Earls, *Cornell University, USA*  
**CO-CHAIR** - Professor David Nethercot, *Imperial College London, United Kingdom*  
Professor Zhong Tao, *University of Western Sydney, Australia*  
Dr Fidelis Mashiri, *University of Western Sydney, Australia*  
Dr Xinqun Zhu, *University of Western Sydney, Australia*  
Dr Olivia Mirza, *University of Western Sydney, Australia*  
Mr Ee Loon Tan, *University of Western Sydney, Australia*