Davina Rooney
A new spin on engineering

2001 Civil Engineering graduate, Davina Rooney’s advice to up-and-coming engineers is simple “Make the most of it, take every opportunity.” It is a career philosophy that has allowed her to develop a diverse career and see a lot of the world in her position with Arup.

Like many school leavers, Davina was unsure of what direction to take in her career. As an academic allrounder, she had interests in maths and science, but was also very interested in communication. A careers advisor suggested engineering at the University of Sydney and encouraged her to apply for some of the scholarships on offer in the faculty. “Sydney Uni kind of took me under their wing and made me aware of some of the opportunities that were available” she recalls.

Fast forward to 2007 and Davina believes that enrolling in Civil Engineering was “just the best decision that I ever made.”

“You may feel like you’re doing a very small piece of a big puzzle, but you really do have responsibility.”

Since graduating, Davina has drafted and designed an earthquake resistant school in the Indian Himalayas, worked in disaster relief in the aftermath of the 2005 Pakistan earthquake, reviewed plans for a new acoustic roof for the Sydney Opera House and worked in London.
Faculty

Dean’s Report

Engineering Sydney continues to grow under the direction of the Board and the leadership of Keiran Passmore as Director. We are developing new initiatives as well as enhancing those we have already started. Our new initiatives for 2007 will be Alumni of the Year Awards over a range of categories. We will include more details on this in the next Engineering Sydney Newsletter when we will call for nominations. We are also working on a Summer Industry Placement Program and a Summer and Research Placement Program with industry. These will enhance the Major Industry Placement Program which currently operates mainly in the School of Chemical and Biomolecular Engineering.

We continue to build our research links with international universities of high standing. Just before Christmas, we had a visit from the Dean of the Whiting School of Engineering at John Hopkins University (JHU), Professor Nick Jones and I will be making a reciprocal visit in mid-February. Our relationship with Harbin Institute of Technology (HIT) in China continues to strengthen. HIT is one of the top 5 Engineering Schools in China and we now have significant staff and student exchanges taking place. The President of HIT, Professor Wang Shuguo, visited the Faculty in late January with a delegation including the Director of the Graduate School, Professor Xumei Ding, the Director of the International Office, and Professor of Structural Engineering, Professor Sumei Zhang, and the Dean of Aeronautics, Professor Yao Yu.

Our Faculty was delighted to see that it was one of 3 Australian Engineering Schools rated in the top 50 in the world by the Melbourne Institute, and one of the same 3 Australian Engineering and Computer Science Schools rated in the top 75 in the world by the Shanghai Jiao Tong index which is regarded as a very high measure of quality research including citations, publications and funding. These rankings augur well for the Research Quality Framework (RQF) exercise currently being carried out to measure research quality and impact in Australian Universities by DEST.

Our new student intake shows the continuing trend of students wishing to take the Flexible First Year, combined degrees with Commerce and Medical Science, and a growth in Biomedical Engineering. We also have our first intake of students to the Power Engineering Stream in Electrical Engineering.

Professor Gregory Hancock, Dean
Professor Vassilios Agelidis  
EnergyAustralia Chair of Power Engineering

Professor Vassilios Agelidis recently took up the position of EnergyAustralia Chair of Power Engineering in the School of Electrical and Information Engineering. Professor Agelidis describes the establishment of the Chair as one of the most orchestrated efforts in Australia toward addressing the skill shortage currently facing the power engineering industry. EnergyAustralia is one of few utilities worldwide to offer direct financial support toward restoring undergraduate and postgraduate research programs in power engineering. The new relationship between the University and EnergyAustralia will also present important opportunities for information sharing between industry and the research community.

Professor Agelidis believes that developing strong power engineering programs in universities is the best way to address the skills shortage. He firmly believes that undergraduate training should be supported by significant laboratory time and he is working to develop a strong lab component within the curriculum. To enable the increased focus on laboratory work, he is planning the implementation of state-of-the-art laboratory facilities. By providing graduates with skills such as problem solving, communication, team work and project management in addition to technical skills, the school plans to equip them with the tools necessary to ensure they are competitive in the market place.

Professor Agelidis believes that the future of power engineering relies on strong profiling of the importance of the discipline among potential students. He points out that “energy and water are critical for long term sustainable social and economic development. By studying power engineering you are at the centre of the long term development of the world.” As the only commodity that needs to be generated instantly, electricity is a challenging resource with varying demand across time. He also wants people to be aware of the many new developments in the field that will continue into the foreseeable future. Some of these developments include improved sensing technology, on-line and off-line monitoring and diagnostic systems information and communication systems and electronics. Integration of these technologies will create increased opportunities for effective and more economical management of networks that will offer long term benefits to customers and the environment.
Grapevine and Letters to the Editor

Engineering Sydney™ would like your news and views for our proposed Grapevine section beginning in our June 2007 edition.

University of Sydney engineering alumni are located all over the world and Grapevine presents an opportunity to share experiences, memories and points of view.

Photos, stories, news, careers, history, letters: these are all things that Engineering Sydney would like to share with readers. Planning a reunion? We can help you to publicise it.

Readers are invited to send news updates, photos, letters to the editor to:

susanna@eng.usyd.edu.au or to
Susanna Smith,
Rm 231, Building J13,
Faculty of Engineering,
University of Sydney NSW 2006.

We look forward to hearing from you.

SAVE THE DATE! Saturday 27th October, 2007
Relive the memories of your university days and celebrate your anniversary graduation with family and alumni colleagues

To RSVP, please complete the registration form available online at:
www.usyd.edu.au/alumni/activities/reunions/spring.shtml or call +61 2 9036 9222
Also visit our ‘Look Who’s Coming’ webpage to see if your alumni friends will be attending!
Davina is pleasantly surprised by the diversity that her career with Arup has provided. “All sectors of business and industry are very interested in people with engineering degrees, but I had no idea that a large engineering firm would have so much diversity.” She said.

Social responsibility in engineering is an issue very close to Davina’s heart, and Arup have supported her work with disaster relief organization RedR. She spent two weeks working for AusAid in Pakistan after the 2005 earthquake, completing structural assessments of medical facilities with the National Engineering Services of Pakistan. Arup are one of the first corporate partners of RedR and they see the benefit that comes from supporting their employees’ relief work. Employees bring back new ideas and gain a wider perspective from the experience. It was the building of the earthquake resistant, Druk White Lotus School in Ladakh, India, that Davina believes was her greatest challenge to date. After spending a year designing the project in Arup’s London office, going into the field was a new experience, but in hindsight she describes the projects as “some of the happiest months of my life.” The project has since won three World Architecture awards in the categories “Best School”, “Best Building in Asia” and “Best Green Building” and has won the “Best consultancy” (Large firm UK category) for Arup.

The other type of social responsibility that Davina supports is ethical engineering. She thinks it is important for engineers to work with “environmentally and socially profitable designs.” She recognizes that there is a strong push within the industry to adopt environmentally and socially responsible practices. “There’s a realisation that we have to take better care of our planet and there’s a real push toward reducing energy and water saving.” she says. She refers to Engineers Australia’s charter of ethics as a guide that all engineers should work toward: “You may feel like you’re doing a very small piece of a big puzzle, but you really do have responsibility.”

Davina looks forward to a long and diverse career in engineering “It’s great having such a tangible career where you can show your friends and family members what you do, and to work with the firm that designed the Opera House is pretty amazing.”
When the Sydney Harbour Bridge celebrates the 75th anniversary of its opening on March 19, it is appropriate to acknowledge the role that engineering alumnus, John Bradfield, played in the realization of the iconic structure.

One of the original designers of the bridge, John Job Crew Bradfield, was a brilliant student who resided at St Andrews College. He graduated with a Bachelor of Engineering and the University Gold Medal in 1889. He went on to work at the New South Wales Department of Public Works as a draftsman and during this time completed a Masters of Engineering, graduating with First Class Honours and the University Medal in 1896.

In 1895, Bradfield founded the Sydney University Engineering Society and was president in 1902-1903 and 1919-1920. In his 1903 presidential address, he drew attention to the competition for the design of a bridge across Sydney Harbour.

“He was always thinking of the future. He was probably the first man to plan for Sydney as a city of two million people.”

In 1912, Bradfield proposed a suspension bridge to connect Sydney with North Sydney, but also submitted a design for a cantilever bridge. It was the cantilever design that was initially accepted for the project. In 1922 Bradfield traveled overseas to seek tenders for the bridge and it was here that he became aware of developments in light steel that made the proposal of the arch bridge that was eventually built possible.

In 1924 Bradfield received the first Doctorate of Science in Engineering awarded by the University of Sydney. His thesis was titled *The city and suburban electric railways and the Sydney Harbour Bridge*. Sir John Monash, in his role as academic examiner, commented that “These works are undoubtedly of exceptional magnitude, being in some respects unique in Engineering practice.” In 1926, his first thesis result was realized when St James, Museum and the Chalmers Street section of Central Stations were opened.

Bradfield was in the official opening party of the Sydney Harbour Bridge on 19 March 1932 and the Governor, Sir Philip Game, named the bridge highway after him. He went on to work on other important projects such as Brisbane’s Story Bridge and the Cataract and Burrinjuck Dams in New South Wales.
Bradfield’s ties to the University of Sydney remained close throughout his life: He was a member of the Senate from 1913 to 1943, a trustee of Wesley College from 1917 to 1943, a Councillor of Women’s College from 1931 and Deputy Chancellor of the university from 1942. In his 1920 presidential address to the Sydney University Engineering Society he revealed his belief in the importance of the role of the engineer:

“In ever-increasing numbers the engineer, trained in the art of directing the great resources of nature for the use and convenience of man, will be found in the forefront of the world’s progress, and the men who will be the most successful will be those who, with self-reliance, have learned how to wait, and wait patiently, for the realization of their applications.”

Without Bradfield’s foresight and self belief, Sydney would not be the city we all know today. As Jack Lang wrote in his own autobiography in 1956: “Bradfield wanted to be the Napoleon III of Sydney. He wanted to pull down everything in the way of his grandiose schemes. He was always thinking of the future. He was probably the first man to plan for Sydney as a city of two million people.”

Want to know more?

Further information on Bradfield can be found in the University of Sydney Library’s online display Bradfield’s Bridge.


The Museum of Sydney is displaying the Bridging Sydney exhibition until April 29 2007.

http://www.hht.net.au/museums/mos/exhibitions#bridging

Photo Credits
Krutli, H.C. Portrait of Dr Bradfield. nla.pic-an23278893 National Library of Australia
Cazneaux, Harold. The arch in the sky. nla.pic-un3820229 National Library of Australia
The Sydney University Engineering Undergraduate Association (SUEUA) has an 85 year history of providing Engineering students with the chance to socialize with fellow students and 2007 president, Blake Mair aims to make every SUEUA event accessible to every engineering student. He plans to achieve this by organizing affordable subsidized events throughout the year to remind students that there is more the university than just study.

Events planned for 2007 include:

1st year camp at Cataract
Beer and Bangers
Harbour Cruise
Pub Crawls each semester
Stonehenge end of semester parties
Slip and slide day
Engineering Ball
Royal event (at the Royal Hotel)

SUEUA will produce a survival guidebook for all first year students to help them settle into the faculty and encourage them to get involved in SUEUA activities.

Industry
Blake also believes that SUEUA has potential to promote industry presence on campus and he encourages industry interaction and sponsorship of SUEUA. SUEUA aims to help students look at life beyond study and this includes career development. For industry it is an opportunity to reach students in a socially interactive environment.

Alumni
SUEUA are interested in hearing from any former students interested in supplying historical information or organizing a reunion. For further information please contact Blake Mair at bmai2305@mail.usyd.edu.au

SUEUA are proudly sponsored by the Royal Hotel. Enquiries about sponsorships can be directed to Winney Suen at winney@student.usyd.edu.au.
Engineering Revue Society

After years of nurturing talent, cementing friendships and entertaining audiences, the University of Sydney Engineering Revue Society is set to expand its program.

Engineering Revue Society President and Producer, Sarah McDonald, wants to provide more opportunities for students and alumni to be involved with the society. Events on the drawing board for 2007 include: a beach party, trivia night, and *Who wants to be an Engineer?* game show.

Budding Revuers will be able to hone their skills at scriptwriting camps during the Easter holidays and props and practice camps during the July break.

The society will also produce an engineering student publication that will be a media source for all Engineering societies and students. The first edition will be included in OWeek showbags and subsequent editions will be available in all Engineering buildings throughout semester.

The annual Engineering Revue will take the stage at the Seymour Centre in October. Sponsors of the event are Centre Sports Store and KBR. Any further sponsorship of the revue would be greatly appreciated and the society offer promotional opportunities at events throughout the year.

Alumni

The Engineering Revue Society is proud of the long history of the Engineering Revue and are eager to involve past revuers in their activities. A reunion for all revuers, past and present, will be held on 19 May 2007. This will be a great opportunity to catch up with friends and share experiences of the revue. Please see the Engineering Revue Society website www.engorevue.org for further details.

The Engineering Revue Society is interested in any archival or historical material related to the revue. Any old photos, programs, costumes or memories are valuable resources that the society would like to preserve as a historical record.

For further information about the Engineering Revue Society please visit the website www.engorevue.org or email Sarah at sarah@engorevue.org

Sarah McDonald, 2nd year BEng/B Comm, President of the Engineering Revue Society

A scene from the 2006 Engineering Revue
Honours and Awards

Fellow IEEE

Associate Professor Abbas Jamalipour of the School of Electrical and Information Engineering has been awarded a Fellowship with the Institute of Electrical and Electronics Engineers (IEEE). The IEEE is the world’s leading professional association for the advancement of technology.

Fellowship of the Academy of Technological Sciences and Engineering

Professor Liangchi Zhang of the School of Aerospace, Mechanical and Mechatronic Engineering, has been awarded a Fellowship with the Academy of Technological Sciences and Engineering (ATSE).

Fellow of the American Association for the Advancement of Science

Professor Albert Zomaya, Head of the School of Information Technologies, has been awarded a Fellowship of the American Association for the Advancement of Science (AAS).

Standards Australia Award for Outstanding Service

Professor Greg Hancock, Dean.
Honorary Associate Professor Tony Stokes, Electrical and Information Engineering.

Your alumni email forwarding service now allows you to link your private email address to a University alumni email address:
Yourname@alumni.sydney.edu.au

Email forwarding is just one of the many services available via the Alumni Web Community.

The University of Sydney

Register online today!
Calendar of Events 2007

April

3  Engineering Sydney Careers Fair  
   Seymour Centre  
   Contact: Keiran Passmore 02 9351 5768 kpassmore@eng.usyd.edu.au

May

5  Graduating Class of 1957 50th Anniversary Reunion  
   Royal Sydney Yacht Squadron, Kirribili  
   Contact: John Doherty 0412 640 493 jdoherty@bigpond.com

19  Engineering Revue Society Reunion  
    Contact: Sarah McDonald sarah@engorevue.org  
    Web: www.engorevue.org

23  Dean’s Annual Lecture  
    Composite Materials: From the Space Shuttle to San Francisco’s Symphony Hall  
    Professor George Springer, Stanford University  
    Contact: Kay Fielding 02 9351 4739 K.Fielding@eng.usyd.edu.au

24  Faculty of Engineering Graduation Ceremonies  
    Great Hall, University of Sydney

SUPERVISE AN ADVANCED ENGINEERING PROJECT

The University of Sydney Advanced Engineering Program is being taken up by more very high scoring students every year. This coming semester, there will be over seventy new engineering students working on twelve humanitarian and sustainability projects. Students will be involved in projects such as developing appropriate technical solutions for clean drinking water, small scale energy transformation, solar distillation and land mine detection. Their added challenge will be to find low cost solutions suitable for village workshop manufacture.

This is important work for the University, the students and the developing world. It expands awareness, challenges raw creativity, develops friendships and has the possibility of saving lives.

Supervisors are needed for about two hours a week. If you are a retired engineer, a post graduate student or an academic with creative energy and ideas, you are invited to participate in this heartwarming and invigorating program.

Please email Associate Professor Michael Roberts, Advanced Engineering Coordinator michael.roberts@eng.usyd.edu.au for more information.
Deans Advisory Committee

Professor Gregory Hancock AM    Dean
Professor John Small    Pro Dean
Professor Brian Haynes    Associate Dean Research
Professor Liangchi Zhang    Associate Dean Postgraduate
Professor Liyong Tong    Director of the Graduate School of Engineering
Dr Doug Auld    Associate Dean International
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Professor Albert Zomaya    Head of School of Information Technologies
Professor Kim Rasmussen    Head of School of Civil Engineering
Associate Professor Geoff Barton    Head of School of Chemical and Biomolecular Engineering
Professor Hugh Durrant Whyte    Director Australian Centre for Field Robotics
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Keiran Passmore    Executive Director Engineering Sydney™
Eric van Wijk    Faculty Executive Officer
Michael Whitley    Secretary to the Faculty and Faculty Finance Manager

 Presidents and Executive Officers of Foundations and The Warren Centre

Adjunct Professor Michael Dureau    President Electrical and Information Engineering Foundation
Stuart Glanfield    Executive Director Warren Centre for Advanced Engineering
Ian Frew    Executive Officer Electrical and Information Engineering Foundation
Irene Scott    President Chemical Engineering Foundation
John Young    President of the Aerospace, Mechanical and Mechatronic Engineering Foundation
Peter North AM    Chairman, Warren Centre for Advanced Engineering
John Doherty    President of SUEA (Alumni Organisation)
Blake Mair    SUEUA President (Student Organisation)

Please let Engineering Sydney know if you have changed address, telephone number, email or job so that we can update our records and keep you up-to-date with Engineering Sydney information.

Please complete the following information and return to:
Susanna Smith
Rm 231, Building J13
Faculty of Engineering
University of Sydney NSW 2006
Fax : 02 9351 4654 Email: susanna@eng.usyd.edu.au

Name_________________________________________ Degree and Year _____________________________
Address__________________________________________________________________________________
Telephone (home)_____________________ (work)_______________________ (mobile)__________________
Job Title________________________________Organisation________________________________________
Email Address_____________________________________________________________________________