Bioengineering news

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THE LEADING DEPARTMENT OF BIOENGINEERING IN THE UK

IN THIS ISSUE

Head of Department's message

by Professor Anthony Bull

Outreach strategy

Bioengineering remains a relatively understudied and unknown discipline within the UK undergraduate community. Often, school students do not have the opportunity to experience or explore the many different branches of engineering before university and even if they do, they might consider bioengineering to be biology based or to be lacking in some aspects seen in other engineering disciplines. (Although we know that the accreditation of our undergraduate degrees by two of the 'big three' engineering institutions is testimony to the rigour and depth our degrees.)

Lack of visibility

This lack of visibility is something that we, as a Department, are keen to address. The benefits of this should be felt by all those involved in the discipline: at Imperial, and elsewhere. We've made great progress in recent years including successfully campaigning for the HESA and UCAS coding system to be changed to allow bioengineering to be more visible to prospective students when they search for courses. We have been extremely involved in last year's Imperial Festival and in the Fringe events that followed. This year's Festival looks like it is going to be just as successful for us with biomechanics, neurotechnology, synthetic biology, blast injury studies and the Rio Tinto Sports Innovation Challenge all being showcased at the event.

Schools outreach and public engagement

We are looking forward to engaging with younger children so that they are aware of bioengineering right through school, before they make their A-level choices. We are working closely with Edcoms (a leading communications and research agency) to develop an outreach programme of classroom activities and resources which we hope will be taken up by over 70% of secondary schools in the UK. The development of these resources will require a significant input from academic staff and I look forward to the cooperation and involvement of the whole of the Department. We are also hoping to design and build a moveable public engagement space which will allow the public to explore and learn about our research through light, sound and space. This sci:eng:art project will be developed in partnership with Haberdashery, a leading art and engineering design company.

Work experience

But, of course we could do more. Unfortunately this year we were unable to offer any work experience placements to the students who applied to us. Their applications were excellent, A* grade students with the motivation, drive and ambition to become top quality Imperial bioengineers. This one-to-one student contact is extremely likely to persuade and encourage a prospective student to become an applicant and thus turn the tide of ignorance about the discipline. I would welcome suggestions from all colleagues on how we could offer such a placement to the best prospective bioengineers.

Helen Findon is the prime mover for us in many of these activities and behalf of us all I would like to heartily thank her and wish her a fantastic maternity leave starting this spring.

Australia sports inspiration for new international student project

Including more people living with disabilities in surf life-saving through the use of innovative prototype technologies could be one of the outcomes of a new exchange project between university students from Australia and the UK this month.

Led by **Dr Dominic Southgate,** Department of Bioengineering, students from Imperial College London, the Royal College of Art

The 'Endura' prosthetic leg. One of the concepts designed by students during last year's Sports Innovation Challenge aimed at solving current issues for amputees such as perspiration and swelling in the limb.

(RCA) and University of Technology Sydney (UTS) will be developing and demonstrating new innovations in sport related to technology, architecture, culture and society.

Forty students from Imperial and the RCA who are studying the Innovation Design Engineering (IDE) course have headed out to Sydney to team up with students from the Architecture and Design schools at UTS. Students will explore aspects ranging from designing prototype sporting equipment through to the creation of radical new sporting events, new forms of spectator involvement and new civic infrastructure associated with large sporting clubs.

Professor Peter Childs, Department of Mechanical Engineering from Imperial College London, said: "This exchange project will really enable the creativity and talent of the students to be unleashed. In the previous year of the Sports Innovation Challenge the students created a new sport that may enable people in the future to race through the air using magnetic fields and prototype glove technology that could improve the stroke of visually impaired swimmers. In a sporting superpower such as Australia, we are excited to see what innovative new ideas this student collaboration generates."

Dr Dominic Southgate said "London 2012 saw a huge leap forward in the technology used by Paralympic athletes. The projects our students are working on today could well be seen on the track and in the pool at Rio in 2016".

Students will work in teams of 6 on projects to do with 4 different sports including surf lifesaving, cycling, football and athletics. These sports also have strong community support in the form of sports clubs and facilities. For example, over 60 of Australia's 400 athletes came from a surf lifesaving background to the London 2012 Olympics, including the gold medal winning men's K4 kayaking team. In Australia there are over 300 surf lifesaving clubs with 153,000 members, 43,000 of whom actively patrol over 400 beaches.

Student teams will be asked to focus on one of the sports and choose a particular area such as exploring how to engage more people in sport through innovative approaches. By exploring alternative directions such as adapting current sporting models to extreme user groups or exploiting technological improvements to gain every possible performance advantage, it is hoped that students will open up new avenues for development whilst learning collaborative design skills and processes.

Students will have the opportunity to meet with a range of sports professionals through workshops with elite athletes, coaches, designers and architects related to each of the sports. The project will culminate in a showcase of their designs at an exhibition that will also be open to media at Object Gallery in Surry Hills, Sydney in March. Further exhibitions will follow when the students return to the UK.

This will be the eighth year for the IDE course's GoGlobal project, which involves the first year master's students travelling abroad on an interdisciplinary international collaboration. In addition, this year it is supported by the mining company Rio Tinto through their partnership with Imperial College London in the Rio Tinto Sports Innovation Challenge - an exciting and challenging venture which aims to inspire students to create new sports technology.

Dr Dominic Southgate pictured with a ski designed by undergraduates for athletes with a through-ankle amputation.

Royal Society announces new round of esteemed Wolfson Research Merit Awards

The Royal Society, the UK's national academy of science, has announced the appointment of 24 new Royal Society Wolfson Research Merit Award holders including **Professsor Jimmy Moore**.

Jointly funded by the Wolfson Foundation and the Department for Business, Innovation and Skills (BIS), the scheme aims to provide universities with additional support to enable them to attract science talent from overseas and retain respected UK scientists of outstanding achievement and potential.

Congratulations to **Professor Moore** on his award, which recognises both his pioneering work on vascular biomechanics and medical device development and the potential to further improve patient care through a better understanding of the biomechanics of blood flow.

Professor Moore will also launch the Department's newest programme of study this October; an MRes in Medical Device Design and Entrepreneurship. The Department is thrilled to be able to offer this course which will train the next generation of engineers to advance innovative device ideas onto the market, a process that includes intellectual property and venture capital funding in a highly regulated environment.

Professor Moore's research focuses on vascular biomechanics and medical device development

Comings and goings

Welcome to the Department!

Mr Joe Anthony Izzy Prinold, Research Associate with Professor Anthony Bull.

Dr Francesca Ceroni, Research Associate with Dr Tom Ellis.

Ms Sarah Jarvis, Research Associate with Dr Simon Schultz.

Dr Andrea Weisse, Research Associate with Dr Reiko Tanaka.

Miss Samantha Felicity Martin, Research Technician with Dr Simon Schultz.

Dr Mazen Haj Sleiman, Research Associate with Dr Sylvain Ladame.

Miss Siu-Teing Ko, Research Assistant with Dr Angela Kedgley.

Dr Danika Hayman, Research Associate with Professor Jimmy Moore.

Ms Catherine Ainsworth, Research Assistant with Professor Dick Kitney.

Mr Fraser Wigley, in a new role as Head of Technical Support for the Departments of Bioengineering, Earth Science & Engineering, and Materials

A fond farewell

Dr Maximilien Philippe Antoine Raymond Louis Vanleene, Research Associate with Dr Sandra Shefelbine.

Dr Nicholas Roach, Research Associate with Dr Etienne Burdet.

Mr Rikesh Patel, Research Assistant with Dr Sandra Shefelbine.

News in brief

Dr Etienne Burdet will deliver a keynote lecture 'Towards an integrated approach of motor learning' at the Technically Assisted Rehabilitation Conference in March at the Fraunhofer-Institut für Nachrichtentechnik, Berlin.

Major James Singleton delivered a podium presentation '*Unexpected' survivors: causes of death and injury patterns in IED fatalities'* at the Government Experts on Mitigation Strategies Annual Conference, at the Defence Academy, Shrivenham in January.

Dr Spyros Masouros also delivered a lecture, 'Assessing in-vehicle mitigation systems with different ATDs' at the same conference.

In the investigation into the death of Mark Duggan, **Professor Jonathan Clasper** has explained that the location of the pistol held by Duggan, which was found 12ft away from his body, could not be explained by an involuntary movement after he was shot. This item was covered by The Times (pg 7) on 01 February 2013.

Dr Aldo Faisal featured in an Imperial Podcast recently, talking about his involvement in the MRC's Strictly Science event which will take place from 04-14 April to celebrate 100 years of the MRC.

CBIS news

By Major Martin Dansey

The consolidation of CBIS continues with February packed full of associated events. The Centre hosted its second Advisory Board meeting Chaired by Admiral the Lord Boyce where Centre Strategy during and beyond its current funding cycle was discussed in detail. The Advisory Boards involvement has proved an excellent addition to CBIS as a whole with the Centre benefitting from endless experience in related fields. The Centre is extremely fortunate to benefit from such an esteemed voluntary panel who continue to display immense drive and willingness to become involved with all aspects of the Centre.

The Research Strategy Group also sat during the month with the expansion of current priorities featuring heavily. CBIS intends to develop into relevant blast related fields with much in the pipeline. This adaptability proved key to a very positive meeting held between CBIS and the trustees of the "Find a Better Way" charity also in the period. The charity founded by Sir Bobby Charlton looks to assist in the detection of Land Mines and aid those affected by them. CBIS hopes to combine with the charity on a joint project in the near future.

CBIS also hosted two members of the Indian Institute of Technology Delhi between 11 and 23 February during their visit to the Helmet Conference organised by the Faculty of Engineering and supported by CBIS. The international conference was a huge success with the subject of Traumatic Brain Injury, a CBIS area of interest, featuring prominently.

Finally as we look toward the rest of the year we have begun to put the finishing touches to our call for the next cohort of CBIS PhD studentships. It is intended to advertise a further five vacancies in varying disciplines to supplement the on-going studies. We welcome applications from all and look forward to welcoming suitable applicants into the Centre.

ANY NEWS ITEMS?

If you have any items for the next newsletter please contact...

HELEN FINDON
helen.findon@imperial.ac.uk

Events

Departmental Seminars

All seminars will be on Thursday 1-2pm in room RSM 3.03 unless otherwise stated. A full list of seminars can be found on the events page.

For further details please contact Chiu Fan Lee. If you know of someone who would like to be on the email distribution list for these seminars please guide them to sign up list.

28 February 2013
Professor Jimmy Moore, Imperial College London. The biomechanics of lymphatic system pumping.

01 March 2013
Dr Kevin Cleary, Children's National Medical Centre, Washington DC. Device development for the paediatric environment.

07 March 2013
Dr Himadri Gupta, QMUL. Title TBC.

14 March 2013
Professor Terry Matsunaga, University of Arizona. Title to be confirmed.

21 March 2013
Dr Tetsuya Kobayashi, University of Tokyo. Title TBC.

College events

21 March 2013
Imperial Fringe – Life as we know it. 17:30-21:00, College Main Entrance, South Kensington Campus. Join us for a lighthearted evening of discovery into the fascinating world of synthetic biology. A pay bar will be open throughout.

03-04 May 2013
Imperial Festival. Make a date with discovery this May bank holiday and spark something different at Imperial Festival. See highlights from last year, and the latest programme information on the Festival homepage: www.imperial.ac.uk/festival.

Bioengineering news

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