Welcome to Edition 3!

This edition of the newsletter is being sent out a bit later than we’d have liked, but the summer for us has been really frenetic – Open Days, exciting conclusions to postgraduate projects, a “world first” (see overleaf) and a bumper period of external research contracts with some very tight deadlines indeed. PLEASE take a look at the item on the Lego League on this page, as we would really appreciate some of you getting involved, as a sponsor, trophy donator, even as a volunteer judge! Also, did you notice the School’s name change? Our Head of School, Peter Gardner explains all below! Bob Stone & Carolyn Toney

Welcome to the latest edition of the Industrial Liaison newsletter. I am delighted to have the opportunity to bring you up to date on the latest developments within the School. We aim to consolidate, and improve our reputation both in the UK and abroad, and to ensure that as a School we play to our considerable research strengths, which are aligned to challenges in the outside world.

The School has key strengths in the areas of Electronic Engineering, Electrical Engineering and Systems Engineering. For us, Systems Engineering pervades a broad range of our activities including railway, energy, communications and remote sensing systems, as well as interactive computer systems. We have now restructured our research groups around these key strengths. The research group names are now: Electrical Power and Control Systems (EPCS); Emerging Device Technology (EDT); Interactive Systems Engineering (ISE); Railway Systems Engineering (RSE); Space Environment and Radio Engineering (SERENE); and Wireless Communication and Remote Sensing (WCRS). To reflect the breadth of this strategic vision we have changed the name of the school to the School of Electronic, Electrical, and Systems Engineering, with effect from 1st October 2014. This tangible change reflects our commitment to continuous improvement and to staying at the very forefront of teaching and research.

I have been very pleased to see some very positive indicators for the school. We have gained ground with all of the major UK league tables, and we made it into the top ten of the Guardian league table. Our graduates continue to be highly employable. The latest DLHE survey data shows over 90% of them in graduate employment within six months of graduation, with average salaries at that stage of £26K putting us equal third in the UK. The latest National Student Survey Results showed improvements all round, highlighted by an increase in the overall satisfaction rating, from 88% in 12/13 to 93% in 13/14. As you are well aware, recruiting potential new engineers in the UK remains a big challenge. We have been pleased therefore to see our home undergraduate intake increasing this year. Thank you for your continued interest in and engagement with the School. I hope that you enjoy the newsletter articles, which provide you with some examples from the wide range of activities in EESE.

Peter Gardner

Lego League – Help Us Reach Out to Schools!

On January 8th 2015, we will be hosting our second regional tournament of the First Lego League. Following on from the huge success of last year’s event, we have doubled the size of the tournament to 16 teams, with 160 participants from primary and secondary schools.

Here’s how you can help, and at the same time increase your company’s involvement in Outreach to schools. We’ll need double the number of judges of design skills, research and presentation skills and teamwork skills. No experience of robotics or the Lego League is required, just enthusiasm for sharing in the ideas of young people taking their first steps in the world of engineering. We already have a couple of volunteers from readers of this newsletter, we’d like more! We’ll provide all the training you need, on the morning and beforehand in an email containing examples of the judging forms and links to the tournament website.

PLEASE GET IN TOUCH with Dr Tim Jackson – T.J.JACKSON@bham.ac.uk

EESE’s latest Hexacopter Flies New Sensors

The new student intake recently witnessed the flight of one of the School’s latest small unmanned air vehicles, a hexacopter equipped with a variety of onboard sensors. On this flight we were investigating the potential practical uses of a new 360° spherical panorama camera (the Ricoh Theta) and the latest thermal imaging attachment for the iPhone 5, the FLIR ONE.

We now plan to use this combination for research into smart energy management as part of the current EPSRC-sponsored eViz project. The hexacopter was also part of a School “world first” project over the summer – read more overleaf!
Industry Support
Our latest “recruit” to the industry base supporting the work of the Industrial Liaison Committee is SEED Technical Services Ltd., based in Malvern, Worcestershire. SEED is a leading provider of 2D and 3D photorealistic graphics, animation and simulation. The company is also heavily focused in the field of virtual reality and is developing content for the purposes of e-learning, visualisation and training across a vast range of industries both in the UK and overseas. The SEED group is looking to collaborate with groups such as EESE’s HIT Team in developing the hardware and software for the next generation of virtual environments. The company’s website is at: http://www.seedtech.co.uk

17th Century Royal Navy Ship Returns to Her Final Resting Place
Launched in 1678, the Anne, a 70-gun third rate ship of the line, was built as part of the restoration of King Charles II’s Royal Navy, overseen by Samuel Pepys. She was beached at Pett Level near Hastings 12 years later during the Battle of Beachy Head and deliberately torched to prevent capture by the French. Today a designated wrecksite, the Anne’s remains have only become visible over recent years as a result of the storms battering the south coast.

Working with the Hastings Shipwreck Museum, English Heritage and two visiting French interns over the summer, EESE postgraduate students successfully delivered a world-first achievement by using Augmented Reality techniques in conjunction with a small UAV to fly over the location of the shipwreck and, in real-time, visualise a 3D reconstruction of the ship as she might have appeared prior to being destroyed.

Virtual Worlds for Intensive Care Patients
EESE researchers delivered two interactive VR display “modules” to the Queen Elizabeth Hospital in Birmingham and are collaborating with clinical specialists in the Hospital’s Intensive Care Unit to assess the impact of virtual scenes of the coast and countryside on patients’ sleep quality and in the reduction of delirium. As well as an ongoing European Regional Development Fund (ERDF) project addressing future interactive technologies for healthcare, the School has recently been awarded a 2-year grant from the Royal Centre for Defence Medicine for research supporting new technologies for physical and psychological rehabilitation, pain control and patient communication.

New National Rail College Announced
The School was celebrating in September, following the announcement by the government that the headquarters of the new National College for High Speed Rail will be located in Birmingham. Already home to the Birmingham Centre for Rail Research and Education (BCRRE), based within EESE and coordinating campus-wide multidisciplinary academic and industrial liaison activities, this latest development will see the University becoming an important partner to the new College, helping to establish a range of exciting educational programmes and to guarantee best engineering practice at all levels. BCRRE is already offering four new railway engineering programmes to students from this year – BEng / MEng in Civil and Railway Engineering and BEng/MEng in Electrical and Railway Engineering. It is predicted that as many as 2,000 apprentices will benefit from the specialist vocational training to be offered at the new College, delivering future engineers working on the High Speed 2 rail project and beyond.

Staff Research Profile
Bob Stone is our Professor of Interactive Multimedia, Honorary Cossack and Director of EESE’s Human Interface Technologies Team. A Chartered Psychologist and Fellow of the Institute of Ergonomics & Human Factors, Bob joined academia in 2003, after a long and successful career in defence, robotics, surgical simulation and Virtual Reality. After 9 years of ergonomics research at British Aerospace in Bristol, where he specialised in military human factors and remotely operated subsea and space systems, he joined the UK’s National Advanced Robotics Research Centre, funded by the Department of Trade & Industry. There he established the UK’s first industrial Virtual Reality team and, over a number of years undertook numerous consultancy and research projects for commercial and government clients, enabling the group to be launched as VR Solutions Ltd in the mid-1990s. In 2007, he was awarded the UK Ergonomics Society’s Sir Frederic Bartlett Award, the highest award given by that Society to an individual (and the first time ever that an individual had been awarded by the Society three times in their career). In 2011, he received the MoD Chief Scientific Adviser’s Commendation for his contribution to Defence Science & Technology – one of only four individual recipients in the UK.

Knowledge Transfer Partnership – Cogitare Ltd
Cogitare Ltd specialises in developing solutions for the optimisation of rail infrastructure and operations. For example, the company’s ‘Systems Optimisation Process’ helped London Underground reduce whole-life system costs by almost £0.5 billion, saving 5 billion KW hours of energy. The company is always looking at ways of staying competitive in the rail infrastructure domain and are keen to develop better and more economical methods to measure and model ‘real’ rail capacity and to validate and improve capacity simulations and simulators. To push forward with this aim, Cogitare has now embarked on a Knowledge Transfer Partnership (KTP) project with the Birmingham Centre for Rail Research and Education. In addition to gaining access to the Centre’s cutting edge knowledge, capacity and skills in rail capacity simulation and traffic management, not to mention international exposure (via the University’s new Chinese Railway Research Institute), Cogitare will be able to help channel research results from the University into real-world contexts and applications.

REMEMBER! If you’d like to follow up any of the articles in this or previous newsletters, or get involved with our activities and those of our students, then we’d be delighted to hear from you. We’d also like to feature short statements of interests and capabilities from our industrial partners or any news you think may interest our staff and students. PLEASE CONTACT US!!
Prof. Bob Stone: r.j.stone@bham.ac.uk, or Carolyn Toney: c.toney@bham.ac.uk

Copyright EESE, University of Birmingham © 2014