

★ INNOVATION WITH IMPACT

UEA
University of East Anglia

Commercial news and opportunities from the University of East Anglia
Issue 04 Spring 2010

The Internship Programme
helping local businesses

Piloting Professional
Development courses

Image processing software
goes commercial



Graduate Intern scheme helps local businesses

The University of East Anglia is pleased to announce the extension of the successful Graduate Internship Programme and would like to encourage businesses in the region to participate in the programme.

Internships are a proven way for businesses and third sector organisations to inject fresh talent into the workplace to address strategic business issues and kick start graduate careers. Mutually beneficial for both the business and graduate, the University has been working with organisations in Norfolk and Waveney to offer a cost effective and flexible 4 - 12 week full/part-time programme for businesses to secure an intern.

Organisations have used the programme to investigate new services, research and develop new products, launch ecommerce websites, evaluate marketing plans/materials, streamline processes, implement low carbon initiatives and much more.

Ruth Barton, a 2009 'Society, Culture and Media' graduate, was secured by Tim Youngman, head of digital marketing at Archant, to work within the marketing section of the regional digital development team. During her 10 week placement Ruth was responsible for researching potential business opportunities and writing up recommendations within reports.

Tim said: "In a short space of time working with us Ruth has analysed data on new market opportunities and provided thought provoking reports and business plans for new areas of opportunities for Archant. She has also worked on creative marketing campaigns, an area she clearly enjoys and wants to develop. Her enthusiasm, attention to detail and quality of her output has led us to offer Ruth a full time role within Archant."

Ruth commented: "Having moved from a non-graduate job to this internship it has helped me realise how useful my degree actually is. Although Society, Culture and Media is not directly linked to Marketing, it has provided me with the essential skills that I have been using at Archant to research and write reports."

There is a cost to organisations who secure a graduate, but a 40% subsidy is available for all eligible small and medium sized enterprises based in Norfolk/Waveney. In addition to this, OPITO – The Oil & Gas Academy is offering some additional funding for companies within the oil and gas industry. Funding for all subsidies



are limited and will be allocated on a first-come-first-served basis.

Further information on the Internship Programme can be found at: www.uea.ac.uk/nbs/evolve/intern or from Andrea Walker on 01603 591574 or evolveinternship@uea.ac.uk

Contract success to help NHS suppliers

The School of Medicine's Health Economic Consultancy Group has won a contract to deliver analytical and training services to new technology manufacturers in the health sector.

Operating under the 'UEA Consulting' banner, the team will provide a range of services to eleven small businesses who have won a competition run by Health Enterprise East (HEE) to develop their products for potential use in the NHS. This is part of a regional Small Business Research Initiative (SBRI) project supported by the NHS East of England, EEDA and the Technology Strategy Board.

The Health Economics Consultancy Group, led by Dr Ric Fordham, will help the winning companies develop and market their products to health providers by taking them through a product analysis process. The process is designed to guide the companies in identifying market conditions, comparative economic advantage and value-based pricing and analysis of delivery costs. The consultancy will take the form of an initial workshop followed by site visits to the winning organisations. Each company will receive help in putting together evidence for an economic dossier suitable for inclusion in an overall business plan.

Mr Geoff Carruth, Business Development Manager for the Faculty of Health, said: "This is a very good contract for the University which allows us to build on our growing reputation to act as a 'bridge of expertise' between the suppliers and health providers. The contract demonstrates how our expertise brings benefits both to the NHS and its suppliers and, of course, it will result in improved services for patients."

The contract will initially run for six months with an expected second phase.

Technology designed for pixel perfection



imsense is a pioneer in automated, effortless, high quality Dynamic Range Optimization Solutions for still and video imaging.

This patented, award winning eye-fidelity™ technology is available for computer and mobile platforms, processes still images including HDR as well as video, perfectly revealing image details in just a click. It is available for PC and iPhone at www.imphotonow.com as well as through OEMs such as onOne software.

Founded by Davies Medal winner Prof. Finlayson, imsense is venture backed. Based in Cambridge, and run by former Wanadoo co-founder Philippe Dewost, imsense was spun out from the University of East Anglia, based in Norwich with offices in Thetford and Cambridge. imsense is building real time, best in class DRC technology for still images and video.

imsense has a passion for pixel perfection. Their unique patented technology automatically corrects image exposure and produces high detail, crisp images which are as the eye saw them, not as the device delivered, without

affecting colour balance or applying artificial correction. This breakthrough Dynamic Range Correction works with all standard and High Dynamic Range (HDR) images, is unmatched in the quality of its output and the speed of its output.

imsense develops and licenses algorithms to original equipment manufacturers (OEMs) and independent software vendors (ISVs) to improve and complement their own software products. For further information on imsense, please visit www.imsense.com

University develops innovative new smart packaging

The University of East Anglia has developed new smart packaging that could provide a credible way to ensure food freshness throughout the supply chain - helping reduce the risks of food poisoning, customer dissatisfaction and ensuring retailers maintain their strict standards – whilst addressing the escalating problem of food waste which recent research has found costs the UK £9 billion a year.

Professor Thomas Nann a chemist and nanoscience expert at the University has developed a new technology which enables staff throughout the meat and seafood supply chain to readily verify freshness, at any time, without outward indication to concern customers.

The new technology is highly sensitive to the detection of biogenic amines (produced by bacterial decay of meat and fish), more sensitive than the human sense of smell. It uses a

luminescence-based system to allow checking of freshness by abattoirs, fresh food transporters, restaurants, supermarkets and retail outlets.

Other technologies in development or on the market show obvious, visible colour change in response to certain indicators of decay. However, market research indicates supermarkets and food retailers do not want this. Rather, they consider it vital that the testing process is controlled, displaying no evidence of deterioration to customers.

It is desirable to remove deteriorating products from display before any change in colour or other indication of loss of freshness in the product occurs. 'Sell by' and 'use by' dates are merely indicative of time since processing, they cannot validate the actual condition of a product at any point in time. Tests such as smell require undesirable opening of sealed packaging.

The freshness sensor is based upon innovative new nanoparticle technology which can be incorporated into packaging with no outward sign enabling retailers to ensure that meat and fish displayed for sale is never of 'questionable' freshness, which could be damaging to their reputations.

The technology allows suppliers and retailers to control the testing process by shining a readily-available UV light, such as a barcode

scanner, onto the 'smart' packaging. Luminescent colour then clearly reveals the state of freshness or decay of the product. This enables suppliers and retailers to confidently remove unsatisfactory products before they reach customers, and before any colour change or smell becomes apparent in the meat or seafood.

University of East Anglia are seeking partners who are interested either in licensing this technology, or collaborating in a joint development of new packaging solutions. Please contact: Nick Goodwin on 01603 591560 or n.goodwin@uea.ac.uk



Exercise can cut gallstone risk

University of East Anglia researchers have found that doing lots of exercise drastically cuts the risk of developing painful gallstones.

Gallstones are common but only 30% of cases have symptoms and complications. Dr Paul Banim, a clinical lecturer at the University of East Anglia and a specialist registrar in gastroenterology, led the study of 25,000 men and women and found that those who were most active had a 70% reduced risk of complaints and complications.

Those taking part in the study were split into four groups depending on how much exercise they did and the researchers found that those who did moderate amounts of exercise also had a lower risk of painful symptoms from gallstones than those who were the most inactive.

The team, writing in the *European Journal of Gastroenterology and Hepatology*, said one reason might be reduced cholesterol levels in the bile. They said exercise also raised levels of 'good' cholesterol and help improves movement through the gut, all of which could contribute to the lowered risk.

Dr Banim commented, "It is difficult to prove a link between lifestyle and disease but we weren't surprised to see these results. If everyone was to achieve the impossible and do the same amount of exercise as those in the most active category, gallstones could be reduced by 70%."



Commercialisation development for image technology

Dr. David Connah and Prof. Graham Finlayson have been successful in securing a £25,000 pathfinder award to develop a technical demonstrator for their image processing software which allows enhanced presentation of multiple image channels to be represented in a single image.

David explained: "A traditional colour image is displayed in three channels, which represent amounts of Red, Green and Blue light. But it is actually possible to capture as many as 200 channels, including ultra violet and

infra red. We have developed a method that allows these multiple channels to be presented in a single, three channel, colour image. This can result in previously hidden content becoming more visible, enabling greater distinction between objects of similar shades. The techniques have real potential for use within the analysis of satellite images or medical imaging where very small differences in images can be significant, but there are probably other applications we have not yet considered."

The Pathfinder award has been made by Icení Seedcorn Fund and is a key stepping stone in making this technology opportunity a commercial reality, the project will run for six months and will include the development of the new technology and initial business development activity with potential users.

Breakthrough producing hydrogen from water and sunlight

Scientists at the University of East Anglia, led by Dr. Thomas Nann, report a breakthrough in the production of hydrogen from water using the energy of sunlight.

Amidst all the hype about a potential hydrogen economy, which would rely upon the highly energetic and clean burning hydrogen atom, one of the big challenges has been whether sufficient hydrogen can be produced without using yet more energy to create the hydrogen.

Typical production methods include stripping hydrogen from other fuels like methane or using electrolysis to split the hydrogen out of water, but efficiencies are between 20%

and 40% for producing energy from traditional photovoltaic processes.

However, Dr. Nann and colleagues have made a breakthrough on this matter, for which they have reported a 60% efficiency for a process in which hydrogen is produced from water by the photons in light that strike a specially designed submerged electrode.

The team used a gold electrode coated with nanoclusters of indium phosphide absorb

incoming photons of light. The nanoclusters then pass electrons liberated by the sun's energy into an iron-sulfur complex which acts like a match-maker between the negatively charged electron and a hydrogen proton in the surrounding water molecules. Gaseous hydrogen results.

The team are now working on demonstrating the process with cheaper materials.

Oceans of change for fisheries

Fisheries and aquaculture face multiple risks from climate change according to a new study involving scientists from the University.

The report, published by the Food and Agriculture Organization (FAO) of the United Nations, predicts 'an ocean of change' for fishers and fish farmers. It concludes that urgent adaptation measures are required in response to opportunities and threats to food and livelihood provision due to climatic variations.

The study, 'Climate change implications for fisheries and aquaculture', is one of the most comprehensive surveys to date of existing scientific knowledge on the impacts of climate change on fisheries and aquaculture. Covering some 500 scientific papers, the picture the FAO review paints is one of an already vulnerable sector facing widespread and often profound changes.

Dr Tim Daw and Prof Neil Adger and Prof Katrina Brown co-authored the chapter 'Climate change and capture fisheries: potential impacts, adaptation and mitigation', which looks at the social vulnerability of fisherfolk to climate change.

"Marine and freshwater ecosystems will be profoundly affected by processes like ocean acidification, coral bleaching and altered river flows with obvious impacts on fisherfolk, but it is not just about what happens to the fish," said Dr Daw.

Fishing communities are vulnerable to sea level rise and their livelihoods are threatened by storms and extreme weather. Meanwhile, the social and economic context of fisheries will be disrupted by impacts on security, migration, transport and markets.

Fisheries are already rapidly evolving due to overexploitation and globalisation. They will suffer from wide range of different impacts from climate change, which may be unpredictable and surprising. The poorest will be least able to adapt to these impacts. For example in Kenya poorer fishers were shown to be less likely to switch to other livelihoods if catches declined."

Prof Adger added: "Climate change is going to be a huge challenge to every sector of society and what we're learning about fisheries shows how difficult adaptation will be, particularly for the poorest parts of the world."





Strengthening local business relations

The University helped strengthen its business links by hosting a Norfolk Network event on 25th February.

With around 200 business delegates in attendance, the university successfully showcased its projects aimed at working with businesses and invited guest speakers from Adnams, Heart and Green Energy Options to talk about how they have worked with the University to benefit their businesses.

Prof Trevor Davies, UEA pro-vice-chancellor for research, enterprise and engagement, said: "The University has made great progress in promoting a culture of innovation among its academics and the event showcased a number of case studies presented by

businesses highlighting their positive experience of working with us.

We have rapidly expanded our business interaction activities since 2004 when we successfully obtained £1.75m from the Higher Education Funding Council for England.

In recent years we have had a number of major successes in creating new businesses, spin-off and licensing ventures in addition to innovative business support and investment programmes particularly in the low carbon arena. We are extremely keen to continue building on this."

University opens London base

In January, the University of East Anglia opened a study centre within the heart of the capital, close to Liverpool Street Station.

Two of the University's flagship postgraduate degrees – the world's first MBA in Strategic Carbon Management and the innovative MA in Creative Entrepreneurship – are among the first courses being offered in the new centre, located on Middlesex Street.

Dr Richard Harvey, Dean of UEA London, said: "the move has significant benefits both for the University itself and for prospective students.

Students on these part-time Masters degrees tend to be working people who want to upgrade their skills and employability. We know there are many people who find these courses appealing but are not able to leave London to take them in

Norwich, so we are taking the University to them."

Also on offer at the new centre are a range of academic preparation programmes and foundation courses for international students. This is a joint venture with INTO, who already has a centre on the Norwich campus.

Vice-Chancellor Professor Edward Acton said: "We are very excited about this venture, which will not only provide teaching opportunities in London. The Study Centre will also be used as a forum for the rapid dissemination of key scientific, social and cultural research projects among opinion-formers.

It will serve as a rendezvous for the University's London-based alumni and will also provide a hub from which Norwich-based students will access the capital's resources – intellectual, cultural, commercial and political."



New professional development initiative



Professional Development
University of East Anglia

In addition to the University's commercial consultancy and licensing initiatives, the University of East Anglia is piloting some specialised professional development courses.

The University's Centre for Professional Development offers a range of short courses based on our academic's expertise. All the short



courses are aimed at professionals who are looking to develop their skills, knowledge base and keep up to date with developments within their area of expertise.

The University's computer scientists have developed a range of courses specific to niche audiences, for example a datamining course for police forces and a computer security course for SMEs. Specialised courses have also been compiled for various medical occupations and it is likely that other sector courses will follow. Our vision is that our professional courses will

span across the sciences, health, management, environmental and creative sectors.

The courses are designed so that techniques learnt in our sessions can easily be applied in practice. Delivered in Norwich and London or at organisations premises we can also create bespoke individual courses and extended programmes to suit your needs.

To view the courses that are currently on offer or for further information, please visit: www.uea.ac.uk/professionaldevelopment

Business plan competition

An innovative new approach to providing up to the minute analysis of a families energy usage has won the University of East Anglia's 2010 Business Plan Competition.

Helen Bear, an ex-student and previous member of staff in ITCS and Andy Courtenay, also an ex-student and member of staff in the UEA Low Carbon Innovation Centre, won top prize worth £8,000 beating off competition from five other finalists.

The 6 finalists had just five minutes to impress a panel of six judges, pitching their ideas Dragons Den style. The judging panel included Simon Watson, from accountants Lovewell Blake, Mark Scoggins from creative design agency Creative Sponge, Simon Elsegood from Mills and Reeve Solicitors, David Thrower from Barclays and Joita Dey from the UEA's Commercialisation Office.

Helen and partners are developing and applying innovative technology to utilise energy monitoring technologies for carbon savings.



Helen said: "The feedback we received from the judges was very positive and has given us the confidence to go on and pursue our concept further".

The winners have won £8000 worth of support from advertising and graphic design consultancy Creative Sponge along with a year's tax and accountancy advice from Lovewell Blake, legal support from Mills and Reeve and banking advice and support from Barclays Bank.

Runners up in the competition included a new training resource for medical students, an anti snoring pillow, pet tracking system and carbon management consultancy.

UEA's Business Plan Competition is designed to encourage aspiring entrepreneurs from the UEA and the Norwich Research Park. The competition is open to students, staff and recent graduates and helps to develop and progress their ideas and kick-start their business.

Wirral Council gives CRed-ibility to energy efficiency campaign



Low Carbon Innovation Centre (LCIC) is delighted to announce that Wirral Council has adopted the new community carbon reduction CRed system as part of its energy efficiency campaign.

The campaign was launched at a Tranmere Rovers football match with the organisers showing a picture of a three metre football, representing the amount of CO₂ emitted daily by each of us. The CRed System encourages behaviour change and shows how to reduce your carbon footprint by improving home energy efficiency.

The CRed System has been in operation since 2003 but this is the first version of the new CRed system, updated in 2009, to be used by a local authority. Its unique application as a carbon

reduction collation and recording tool is already proving beneficial to the authority. Wirral Council has implemented an effective climate change committee consisting of Wirral Council, NHS Wirral and Cheshire and Wirral NHS Trust to help spearhead the campaign in their area, giving them inclusive ownership of the campaign.

Chris Harrison CEO of LCIC said: "We are delighted that Wirral are the first to use the new CRed System as part of their energy saving ambition. As government legislation starts to require local authorities to reduce their carbon emissions, tools such as the CRed System will assist their carbon emissions reduction efforts."

LCIC sees the CRed system playing a part in those measures as a trigger to behaviour change and the ability to record the results and the campaign will initially focus on domestic energy usage and home energy efficiency.

Low carbon ERDF fund for the East of England

In June 2009, UEA, through the Low Carbon Innovation Centre (LCIC), was provisionally appointed as Fund Operator for an exciting new investment fund in the East of England.

This appointment, which follows UEA's success in running the Carbon Connections programme has now been formalised and since the summer, the UEA team, led by LCIC's Chief Executive Dr Chris Harrison, has been working hard with EEDA to obtain government approval for the Fund.

With approval in place, the next stage was to appoint a Fund Manager who will be responsible for raising private money for co-investment into innovative, regional SMEs alongside investments from the £8M pot from the European Regional Development Funds.

The fund will have a broad low-carbon remit and be capable of supporting a wide range of new and established companies in their low carbon activities and products through equity investments.

Anyone seeking investment for a venture is advised to keep monitoring EEDA and LCIC web pages for further information as it becomes available.

The Fund is expected to formally open for business in summer 2010. Businesses are kindly asked not to contact us yet. However, anyone interested in the Fund and wishing to keep up to date with developments, or who is interested in the work of LCIC more widely should visit the LCIC Innovation pages.

Training

Carbon Management

available dates; 20th July 2010

Carbon Trading & Carbon Markets

available dates: Wednesday 28th April 2010

Carbon Footprinting

available dates; 19th May 2010

Behaviour Change in the Low Carbon Future

available dates; 13th July 2010

Events

April 22nd 2010 – 'Earth Day at Deepdale', Norfolk

June 29th 2010 – 'Schools Carbon Challenge' hosted by LCIC and Norwich Business School, UEA

July 5th 2010 – 'Biowaste to Energy' hosted by LCIC and Norwich Business School, UEA

July 7th (tbc) – 'Funding low carbon innovation in the built environment' hosted by LCIC and BRE, UEA London campus

To read the rest of the LCIC newsletter please go to the LCIC website at www.lcic.com.

To attend any of the events listed above please contact Matt Dolan on 01603 591358 or m.dolan@uea.ac.uk