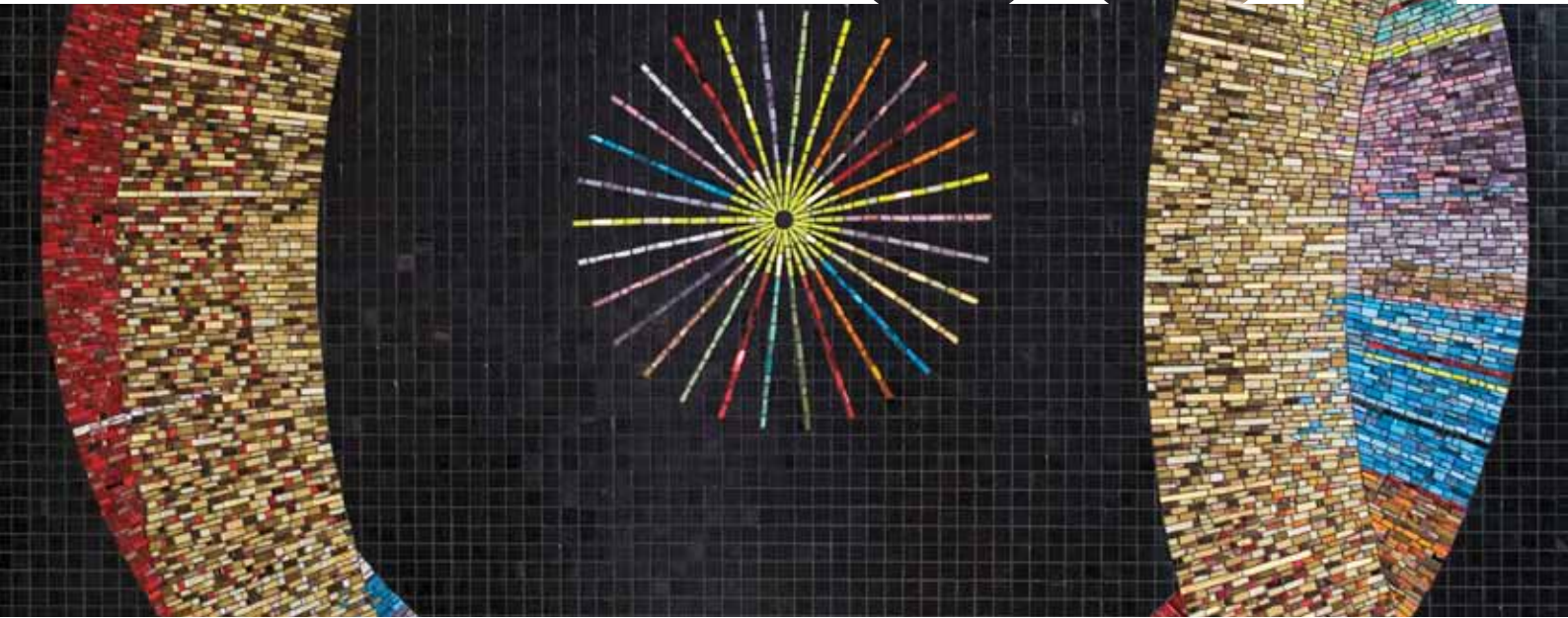




UCL



NEWS FROM THE DEPARTMENT OF **COMPUTER SCIENCE**

ISSUE 6
DECEMBER 2012

Dear Alumni,

It's been another busy few months for the department – a new term has begun and there are many success stories to reflect on. We hope you enjoy our latest news round-up.

In the meantime I am delighted to include an invite to all CS Alumni and friends of the department to our next Alumni Dinner:

UCL Computer Science 2nd Annual Alumni Dinner Tuesday 12 February 2013

A drinks reception and three course meal followed by a talk by our distinguished guest and award winning Computer scientist Dr Sue Black.

Sue is passionate about computer science and its benefit to individuals, organisations and the economy,

and has recently set-up a non-profit organisation called The Foundation to promote computing to the public. Sue has been instrumental in championing awareness of and support for Bletchley Park, becoming a trustee and recently won the PepsiCo Women's Inspiration Network award www.sueblack.co.uk

To book your tickets please see <http://uclcsalumnidinner2013.eventbrite.com>

Microsoft & UCL-CS

CS has recently been enjoying various collaborative events with Microsoft. Last month over 200 CS students attended a Windows 8 Developer Day hosted by Microsoft. During the event it was announced that the **Microsoft Imagine Cup** will be hosted at UCL, with as many CS students as possible aiming to work towards publishing great software. UCL will be host to the London Region finals (inc. Imperial College, Kings College) in March, and will also host the UK finals for all regional university entries in April. We are expecting around 300 students from other universities to attend UCL for each event. The Microsoft Imagine Cup is the world's premier student technology competition, open to students to use their imagination and passion to create

a technology solution in one of six competitions and challenges. Over the past ten years, more than 1.65 million students from more than 190 countries have participated in the Imagine Cup.

Meanwhile the Department's work has been highlighted by Microsoft Education, who have co-published a blog entry on our undergraduate teaching featuring app development. **The blog entry** describes how traditional lecture-based teaching has been set aside by Dr Dean Mohamedally, Senior Teaching Fellow in Software Systems Engineering, by the arrival of 'apps': 'micro software engineering' packages that are closely targeted to real-world end users who have specific requirements and problems to solve.

UCL has become the first university in the UK to treat apps development as a core computer science skill and where each and every CS student solves real-world problems through deployment.

During 2011/2012 CS first year undergraduate students built Android apps from the beginning of their Object Oriented Programming course. The apps built and deployed included well-received data-gathering tools for charities working in the developing world.

Dr Dean Mohamedally said:

“Students can now take what was previously given as a coursework exercise, harness it, and put it in a wrap up package and most importantly, ship it to do something useful.”



New CS labs

With the growth of teaching in mobile technology CS has invested in new, state-of-the-art facilities for students. Two new labs and one virtual lab were designed by our very own CS Tech Support Group, which now supports all existing infrastructure and teaching.

Apps Lab 4.06, our first multi-apps platform studio laboratory, has been installed with touch screens and local device connectivity, supporting iOS, Android and Windows technologies. Meanwhile 3D Lab 1.05 is a new multi-screen lab teaching environment with multi-3D facilities; 3D printing connectivity (coming soon), stereo 3D graphics programming and 3D interaction

via Kinects. The lab is also enabled for guest speakers or teaching assistants to communicate to a class over HD Skype.

In addition CS has the 300-user cluster “virtual lab” is for OS independence, where students can log in and use a remote machine with a choice of Operating Systems. CS can now boast a variety of device resources – over 50 tablets (different types), phones, Raspberry Pis, Gadgeteer boards, Arduinos, Kinects and other devices – all can be used for teaching hands-on problem based learning projects.

CS thanks everyone involved in the lab projects.



Behavioural Nudge or Technological Fudge?

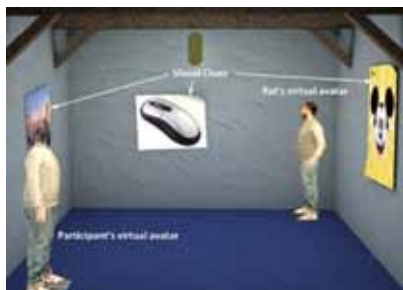
Prof Yvonne Rogers



CS was delighted to host a Distinguished Lecture by Yvonne Rogers, Professor of Interaction Design and Director of UCL Interaction Centre. Behavioural Nudge or Technological Fudge explored ways in which we can design new technologies to help people change their behaviour. In particular Yvonne looked at ‘nudging methods’, derived from behavioural economics and social psychology, which have become increasingly popular, and examined how effective are they and whether technology be designed to exploit them using pervasive, ambient and wearable technologies to nudge behaviour in ways that are desirable to the individual.

We thank Yvonne for a stimulating talk which was brilliantly received – and will keep alumni updated about future talks in the new year.

Of Rats & Men



Using cutting-edge virtual reality technology, CS researchers have ‘beamed’ a person into a rat facility allowing the rat and human to interact with each other on the same scale. Published in **PLOS ONE**, the research enables the rat to interact with a rat-sized robot controlled by a human participant in a different location. At the same time, the human participant (who is in a virtual environment) interacts with a human-sized avatar that is controlled by the movements of the distant rat. The authors hope the new technology will be used to study animal behaviour in a completely new way.

Computer scientists at CS and the University of Barcelona have been working on the idea of ‘beaming’ for some time now, having last year digitally beamed a scientist in Barcelona to London to be interviewed by a journalist. The researchers define ‘beaming’ as digitally transporting a representation of yourself to a distant place, where you can

interact with the people there as if you were there. This is achieved through a combination of virtual reality and teleoperator systems. The visitor to the remote place (the destination) is represented there ideally by a physical robot. During the human-animal beaming process the human participants in the system were in a virtual reality lab at the Mundet campus of the University of Barcelona. The rat was located around 12 km away in an animal care facility in Bellvitge.

Professor of Haptics at CS, Professor Mandayam Srinivasan says:

“The process demonstrated here not only shows the range of our technology, but also provides a new tool for scientists, explorers or others to visit distant and alien places without themselves being placed in any kind of danger, and importantly, to be able to see animal behaviour in a totally new way – as if it were the behaviour of humans”.

Fugue installation featured at “Risk inSight



The **Risk inSight** project exhibition took place at the Rolex Centre in Lausanne during October. The **Fugue project**, which is led by CS's Artist in Residence Dr Gordana Novakovic was invited to contribute to this large scale open-to-public science and art exhibition. Combining science, arts and society, the Risk inSight exhibition aims to show risks and to highlight why and how they are playing an increasingly important role in modern societies.

Writing of the Fugue exhibit, Gordana says:

“Life is full of risks, and in spite of modern medicine, around 25% of Earth’s inhabitants die from bacterial or virus infections. ‘Fugue’ is inspired by our main defence against this fate, the immune system. At the heart of the piece is a complex piece of scientific software, an artificial immune system algorithm, which

accurately mimics the cascading responses to infection of the human immune system. No two responses will ever be the same, and the time scale and outcome of the struggle is always unpredictable”.

However, “Fugue” does not just display what could be seen under a microscope. Instead, the artists have transformed the data generated by the artificial immune system into symbols that express the dynamics and the rhythm of the biological processes. It is entitled “Fugue” because the artists found inspiration in the resemblance between the complexities of the immune system and the complexities of the musical form fugue. While the visuals reflect one view of events in the underlying immune system when it is infected by an artificial virus, the sound reflects another, and always in a new and unpredictable way.

BBC & UCL strategic partnership

BBC Research & Development have announced a strategic partnership with CS, to drive innovation, and to collaborate on a wide programme of R&D activity. Over the next four years, the new partnership between BBC and CS will focus on an ambitious programme of research work that seeks to advance state-of-the-art communications technologies, Internet research, content production, user experience (UXD) and access services. The outcomes of this research will also be shared with the wider industry. As part of the partnership, the BBC and UCL will share facilities and resources, and create new opportunities for students, graduates, staff and third parties with a range of sponsored studentships for doctorate level research, internships, student placements and a staff exchange programme. This initiative will form the foundation for future collaboration with other academic and industrial partners and as such will act as a catalyst in accelerating UK performance in this sector.

A new, joint space at 1 Euston Square will also be established. 80 researchers from BBC R&D and CS will co-locate in a new, permanent home that will act as a gateway for participation with other universities and organisations.

Professor Anthony Finkelstein, Dean of UCL Faculty of Engineering, said:

“UCL Engineering is committed to delivering research that changes the world. Applying our expertise in cutting-edge computing to create new ‘digital experiences’ is an excellent example of one way university research can have a real impact on people’s lives. BBC R&D is the ideal partner as they provide both technical excellence and a fantastic platform for exploiting the results of innovation.”



Prize Winners with IBM

A special congratulations to the winners of our IBM sponsored Academic Prizes for BSc/MEng Computer Science Best Individual Projects. Winners were presented with their prizes by Dr Reza Hazemi, CS Research Alumnus and Associate Partner for IBM UK, and Hugh Varilly, Visiting Professor at CS and Distinguished Engineer Emeritus at IBM.

1st prize (£250)
William Martin for
‘Topic Model Training Enhancement’.

2nd prize (£150)
Jakub Kozlowski for
‘Eugene: Agent-based market simulator for use on validation and system testing of trading algorithms’.

3rd prize (£100)
Judyta Palimonka for
‘Increasing transparency of targeted advertising’.

As a Department we are always keen to recognise outstanding academic performance and we enjoy a strong association with some of our best performing students, so I would like to take this opportunity on behalf of Computer Science to formally congratulate our winners.



Don't forget to keep up-to-date with the latest CS News

Why not keep up-to-date with Department's latest work – we're proud to have a big impact on the future of Computer Science. We continue to create innovative technologies that change lives with computers.

- Check us out on the web www.cs.ucl.ac.uk

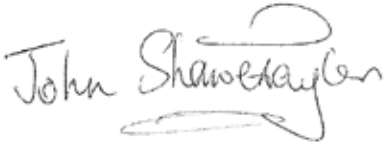
- Like us on Facebook here



- Or follow us on Twitter here



Kind regards,

A handwritten signature in black ink that reads "John Shawe-Taylor". The signature is fluid and cursive, with a long horizontal flourish at the bottom.

John Shawe-Taylor

Head of Department

Professor of Computational Statistics and Machine Learning