Happy new year to alumni and friends of the department. I hope you all had an enjoyable and peaceful festive season. It has been a particularly busy time for us, but we finished last term with cause to celebrate – our research strength has been highlighted by our 2014 Research Excellence Framework results. Read on for more about this and other exciting updates.
Last month saw the publication of the results for the 2014 Research Excellence Framework (REF) evaluation. We were thrilled that UCL was ranked in first place for Computer Science, out of 89 Universities assessed, and considerably ahead of other Institutions. 61% of our research submissions were rated as world-leading (the highest possible category) and 96% of our research submissions were rated as internationally excellent.

UCL researchers in Computer Science (and Informatics) received a ‘grade point average’ of 3.57 (out of 4) and submitted 75 staff to be assessed in REF2014. The REF shows our seminal contributions across the full range of our 11 research groups and 8 research centres, including the Centre for Health Informatics & Multiprofessional Education (CHIME), Biomedical Physics & Biochemical Engineering, and the Centre for Medical Image Computing (CMIC).

As a result our research has produced a deep, lasting and sustained impact, particularly in Internet technologies, cyber security, and sectors of industry such as retail and finance. The reach of UCL Computer Science also now extends to the developing world particularly in healthcare and in extending Internet penetration.

Head of UCL Computer Science, Prof John Shawe-Taylor says:
“I am immensely proud and honoured to lead a Department that has demonstrated such a breadth of research impact across our society. The REF2014 evaluation is proof of our position as the leader in Computer Science. We will continue to change lives, and we will harness our research to train the next generation of Computer Scientists.”

Jane Butler, who joined us after a distinguished career in the Internet industry, and who is now Vice Dean (Enterprise), Faculty of Engineering Sciences says:
“Its not often that one can compare the impact of a Computer Science department with the Internet revolution that changed all of our lives - and that I was a part of - but it is true, UCL Computer Science is exceptional in every sense.

Whether it be medical devices and new diagnostic techniques or art and fashion or eGovernment services or keeping our children safe online, they and many other areas of our lives are all part of the core work that UCL Computer Science undertakes in research and brings to its teaching. I am honoured to be part of an outstanding team”.
Anita Borg Scholarship:

Computer Science MEng winner

Fourth year Computer Science MEng. Student Kinga Mrugala has been awarded a Google "Anita Borg" Scholarship. The award was established by Google "to encourage women to excel in computing and technology and become active role models and leaders in the field". Dr Anita Borg (1949-2003) fought to ensure that technology’s impact would be a positive one. In 1997 she founded the Institute for Women and Technology which today bears her name.

Kinga was one of 78 recipients chosen from applicants across North America, Europe, the Middle East and Africa. Awards reflected the "strength of each candidate’s academic background and their demonstrated leadership".

Kinga has already taken part in a "retreat" in Zurich where she was able to meet other winners and participate in workshops, breakout sessions and social activities.

Speaking of the award Kinga said "The application itself was fairly simple, there were just a couple of essay questions. However, since the questions asked for concrete examples, it was important that I was active while studying. The new UCL Computer Science curriculum and our Second Year Systems Engineering project with Dr Dean Mohamedally was particularly helpful in me getting noticed by the committee. I also participated in hackathons and volunteering activities.

“Getting the scholarship was an amazing experience. At the retreat I was able to meet other female computer science students and hear from engineers at Google, which was inspiring. The scholarship also gave me confidence and courage. Thanks to that I applied for a job at Google, as a result I will be joining them in Zurich next summer.”

For more information on the Department’s work towards Women in Engineering see here.
QuanTech Exhibition at Canary Wharf:

Industry Internship Programme now the largest of its kind

The Department recently hosted the UCL Engineering QuanTech project exhibition at Level 39 Incubator, Canary Wharf. It was an opportunity for major finance companies and experts to hear from our multi-discipline teams from software system engineering, risk management, quants, math, electrical and mechanical engineering specialties.

Project topics included Big Data, CRM, HFT and derivative modelling, all of which are demanded by multinational companies, and are all examples of the architecture implemented by UCL generation-Y engineers.

The Faculty of Engineering at UCL is proud to run one of the most successful work placement programmes as a mandatory part of specialty finance graduate degrees and we are grateful to our partners - the innovators, inventors, investors, founders, developers and other stakeholders in our programmes. We enjoy industry links with hundreds of companies spanning the whole of financial services, including investment banks, retail banks, hedge funds, insurance companies, reinsurance companies, stock exchanges, alternative execution venues and financial services technology firms.

Financial Computing comprises both Computational Finance (algorithmic trading, risk management, market simulation and portfolio optimisation) and Financial IT (financial software engineering, cloud computing, GPU and scalable high-performance computing).

The programme is now endorsed by a number of major finance companies, including JP Morgan: “UCL’s industry internship programme is the largest of its kind anywhere. Students enter the market with robust academic and applied experience.”

A video of the QuanTech Exhibition can be found here.
UCL hosts:

Advances in Architectural Geometry 2014

We were proud to be hosts of the Fourth Edition of the Advances in Architectural Geometry (AAG) Conference, which ran over four days in London last Autumn.

AAG is a symposium where both theoretical and practical work linked to new geometrical developments is presented. The symposium aims to gather the diverse components of the contemporary architectural tendencies which push the building envelope towards free form and respond to the multiple current design challenges.

It involves architects, engineers, mathematicians, software designers and contractors. An outcome of the conference it connecting researchers from architectural and engineering practices, academia and industry, and AAG has become a reference in the professional field and is supported by the direct participation of the most renowned architectural design and engineering offices along with academic laboratories.

This year’s event consisted of two days of presentations of accepted papers, followed by two days of hands-on workshops.

These workshops allowed participants, teachers, students and professionals to learn and experiment with new technologies and practices reflected in the themes tackled during the symposium. We would like to thank our sponsors, conference organisers and helpers. More information about AAG 2014 can be found here.
New MSc:

Business Analytics now accepting applications

Applications are now open for our new MSc in Business Analytics, which begins in September 2015. MSc Business Analytics is a multidisciplinary degree and aims to combining the best teaching and expertise from UCL Computer Science, in partnership with UCL’s Department of Management Science & Innovation.

This unique programme is at the intersection between science and enterprise. It will be delivered by academic and industry leaders at the forefront of their discipline, as we intend to cultivate our graduates with core skills in data engineering, machine learning and management science - augmented with the skills necessary to become global leaders in industry.

It will provide an exciting, rigorous, practical foundation in the study of data, the technology required to handle it at scale, and how to use it effectively to help organisations solve major business and societal challenges.

We are delighted to welcome onboard our industry partners from Google, Santander, Microsoft, SAS, IBM, Barclays, RBS, Sainsburys, BUPA, Tesco, Dunhumby and Satalia.

Core modules include Business Data and Statistics, Mathematical Modeling, Information Retrieval and Data Mining, and Programming for Business Analytics, and an extended project supervised with an industry stakeholder.

There are also four MSc Scholarships available, worth £4000, for UK/EU offer holders with an excellent record of academic achievement. Applications will be accepted between 1st November 2014 and 31st May 2015.

To apply see here.
Conference Awards:

Staff & Student winners

Our staff and students have recently picked up awards at international conferences. Lynne Salameh and Astrit Zhushi (below), two PhD students in the Systems and Networks Research Group, have won the Best Paper Award at the USENIX ATC 2014 conference for their paper "HACK: Hierarchical ACKs for Efficient Wireless Medium Utilization".

The work tackled a pressing problem in the building of high-speed WiFi networks, and introduces a novel cross-layer optimization for TCP traffic on WiFi networks that encapsulates TCP acknowledgement information within WiFi's link-layer acknowledgements. This optimization, which the authors call Hierarchical ACKnowledgements (HACK), nicely mitigates the overhead of sending TCP acknowledgements over WiFi. In experiments conducted with a built prototype, HACK improves TCP throughput by up to 32% over "stock" WiFi.

Elsewhere, a paper by Bowei Chen, Shuai Yuan, and Jun Wang from our Media Futures Research Group has received Best Paper award at ADKDD 2014: The 8th International Workshop on Data Mining for Online Advertising, a premier venue for computational advertising.

"An Empirical Study of Reserve Price Optimisation in Real-Time Bidding" covers selling impressions in display advertising, and proposes a mathematical model that allocates and prices the future impressions between real-time auctions and guaranteed contracts.

Finally, Jon Gjengset (below), Postgraduate alumnus and former researcher, won the Best Presentation award at the ACM MobiCom 2014 Conference in Maui, Hawaii, for his talk on a paper he co-authored, "Enabling Phased Array Signal Processing on Commodity WiFi Access Points". Jon's talk can be found online here.

Pictured below, from L-R, Lynne Salameh, Astrit Zhushi and Jon Gjengset.
Schools Outreach:

Computer Science wins funding for Master Teachers’ CPD

As a member of the Computing At School’s (CAS) Network of Excellence, we are deeply aware of the challenges faced by school teachers as they roll out the new Computing curriculum in secondary schools this year. Specifically, Computer Science has not been widely taught in schools for decades and there is a shortage of teaching materials for the classroom and a lack of resources to help teachers in their planning.

The course kicked-off with a two day session dedicated to Algorithms and Programming. Professor Stephen Hailes started the day with a review of some of the research in the department, an overview of what computer science is, how it underpins everything we do and why computing skills are essential for all of us in the modern world.

The teachers delivered some great unplugged activities illustrating algorithmic thinking featuring magic tricks, assistive technologies and a visit from “Robbie the Robot”. Elementary programming from "unplugged" through to Scratch and Python was taught by Rae Harbird and David White.

In partnership with CAS, we aim to bring together teachers and lecturers who wish to share ideas for developing the teaching of computing in schools, classrooms and communities. Its a meeting of like-minded professionals with the general objective of supporting each other and the specific aim of providing ideas that can be taken and tried in the classroom. For more information about our School’s Outreach work see here.
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http://www.cs.ucl.ac.uk
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Or follow us on Twitter
www.twitter.com/uclcs

Computer Science Shop – customise your own products

Our online shop has just been re-launched. Students recently organised their own competition to design a new CS logo, which is now available on a range of merchandise to buy, and the proceeds from purchases will be spent by the Staff Student Consultative Committee.

Well worth a look here:
http://www.cs.ucl.ac.uk/students/student_shop/

Kind regards,

John Shawe-Taylor
Head of Department
Professor of Computational Statistics and Machine Learning