School News - June 6th 2008

UCD School of Computer Science and Informatics

CLARITY

In April 2008 SFI announced that it had granted funding of €12 Million to fund The CLARITY Centre for Science, Engineering and Technology (CSET). This is supplemented by a further Industrial contribution of some €4.6 Million and at a total investment of some €16.4 Million represents the second largest ICT CSET awarded in the history of the state.

CSI are delighted with this news as a number of our staff were instrumental in securing what is UCD's first CSET. The Centre Director will be Professor Barry Smyth (UCD) while one of the Principle Investigators is Gregory O'Hare (UCD). In addition UCD is represented by two Associate Principle Investigators, Prof. Paddy Nixon and Dr Simon Dobson. CLARITY is a research centre, based in UCD, that focuses on Adaptive Sensing and Information Discovery. Its aim is to develop innovative new technologies of critical importance to Ireland's future industry base and contribute to improving the quality of life of people in areas such as personal health, digital media and management of our environment. The over-arching theme of CLARITY's research programme - "bringing information to life" - which embraces both the harvesting and harnessing of large volumes of sensed information, both from the physical world in which we live, and the digital world of modern communications and computing. This research centre will serve as a true global centre of excellence for multi-disciplinary research, and represents a large-scale academic-industry collaboration, consisting of more than 100 full-time researchers in partnership with more than 10 industrial partners. In addition, CSI has strong links with a number of other research centres based in UCD (whereby staff are involved in the directorship or as collaborating researchers). Examples include: The Adaptive Information Cluster (AIC) is a cross-disciplinary research centre focused on integrating research on adaptive sensor networks, content extraction, adaptive utilization and adaptive middleware. The cluster brings together researchers in University College Dublin and Dublin City University. Its mission is to play a leading role in the delivery of the National Research Strategy through the development of next generation adpative information technologies. The cluster was established in 2004 with €5.6M in funding from Science Foundation Ireland. More information about A.I.C. is available at the following link: http://www.adaptiveinformation.ie

Left to right: Prof Alan Smeaton DCU, Deputy Director of CLARITY CSET, Prof. Frank Gannon, Director General SFI and Prof. Barry Smyth, UCD Director of CLARITY CSET

From left to right:
Dr. Arthur Cater, Eva Derulova,
Dr. Joe Carthy, Head of School, Jacob Dostal and Dr. Mel Ó Cinnéide

B.A. Scholar Awards 2008

Congratulations to the following award winning students in Stages 2 to 4

Stage 2 B.A. Scholar:	Magdalena Sabina Zieniewicz
Stage 3 B.A. Scholar:	Jacub Dostal
Stage 2 B.Sc. Scholar:	Sigitas Monkevicius
Stage 3 B.Sc. Scholar:	Eva Derulova
Stage 4 B.Sc. Scholar:	Neil Cowzer
Stage 2 Comp Sci: (for his work on the "Please Talk" Campaign)	Jonathon Blackmore
Medalist: President's Award for Excellence in Student Activities	Jacub Dostal

PEL successfully attracts IBM and Enterprise Ireland funding

The IBM Center for Advanced Studies (CAS Dublin) and the IBM Dublin Software Laboratory are joining up with the Performance Engineering Lab in UCD's School of Computer Science and Informatics to develop new tools for testing and verification of enterprise software applications. In particular, this will target large corporate distributed enterprise applications made up of numerous software components that run on a collection of heterogeneous servers. Services provided by enterprise software are typically business-oriented tools such as online shopping and online payment processing, interactive product catalogues or automated billing systems. Such systems can be built using a wide range of technologies (Enterprise Java, Web Services, SOA technologies, AJAX). The project will use advanced analysis techniques (data mining) to extract information from large volumes of data; advanced monitoring techniques, (run-time correlation of events from different sources) that can be applied during testing; automatic diagram creation and diagram-to-script transformations; as well as the categorisation and collection of the issues that occur throughout the testing process. The goal is to transfer this knowledge into IBM product groups. The two year project is worth over a quarter of a million euro and will support five research staff.

ChangingWorlds

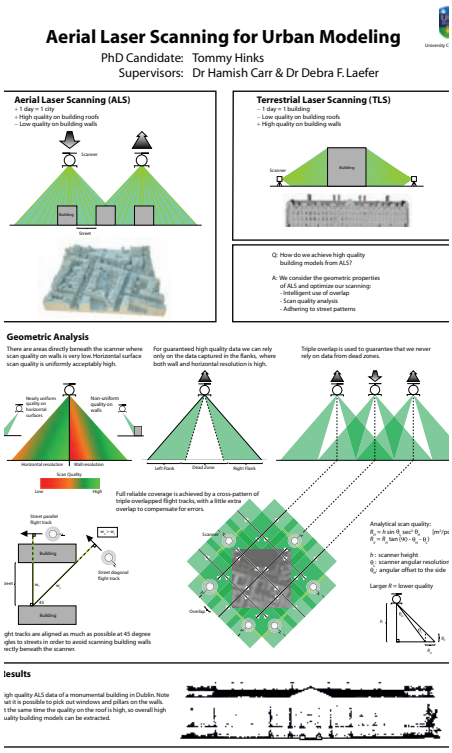
Software company wins innovation award. ChangingWorlds, the Dublin maker of personalisation software for mobile phones, won the inaugural Irish Technology Leadership Group (ITLG)/ Irish Times Innovation Award in March this year. The award was presented at an event in Silicon Valley attended by more than 200 executives from some of the technology industry's leading companies, including Intel Chairman Craig Barrett. Prof. Barry Smyth who is one of the company's directors said that "ChangingWorlds has demonstrated a tremendous ability to execute in the mobile space. It's UCD roots remain an important part of the company's heritage, which is evident from the strategic importance that ChangingWorlds continues to place on research and innovation. The company continues to maintain a significant presence on campus, through its Innovation Centre (based in NovaUCD), and continues to collaborate closely with research within CSI"

Final Year Project Trip to Microsoft Research Cambridge

In March, UCD final year computer science student Christine Trant and her final year project supervisor Lorcan Coyle travelled to the Socio-Digital Systems (SDS) laboratory in Microsoft Research in Cambridge. Christine is building a Whereabouts Clock as part of her final year project; this is based on an earlier research project done by researchers in the SDS lab. The Whereabouts Clock is a situated display for the family home that visualises the general location of family members through use of a clock metaphor. It is a communal display that makes this information available to anybody in the family home and is perceivable at a glance. Christine and Lorcan were shown around the SDS lab by Abigail Sellen and introduced to a number of SDS researchers, including some of original developers of Microsoft's Whereabouts Clock. They met with Alex Taylor, Sharam Izadi, and Tim Regan, who each contributed ideas towards the development of Christine's project.

Dr. Lorcan Coyle and final year student Christine Trant

Christine and Lorcan were shown the SDS museum of implemented devices and were shown a working model of the original Whereabouts Clock.
Christine and Lorcan would like to thank the school for sponsoring the trip, Lorna Brown of Microsoft Research for arranging the visit, Abigail Sellen for showing them around, and all the SDS researchers who gave so generously of their time during the visit.



Winning Poster at Transport Research Arena Europe 2008 Conference

Postgraduate student Tommy Hinks recently won a gold medal for a poster he submitted to the TRA 2008 - Transport Research Arena Europe 2008 Conference in Ljubljana, Slovenia. The poster competition was entitled YEAR 2008 - Young European Arena of Research.
Students submitted abstracts, and out of 300 submissions, 50 were selected to be presented as posters in the competition. These 50 were divided into six categories (Tommy's was Infrastructure Production and Design). Each category had three medalists, so there were six gold medalists in total. Congratulations to Tommy on winning his gold medal!

Left: The winning poster for category Infrastructure Production and Design TRA 2008

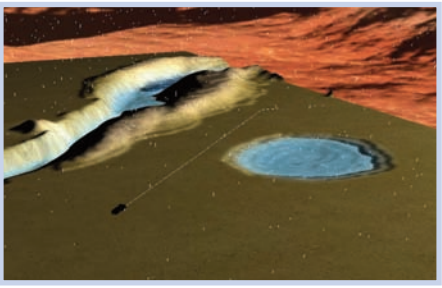
Other CSI News

CSI researchers Dr. Raja Jurdak and Dr. Abdelhamid Nafaa have been awarded €94,211 for an Enterprise Ireland's Commercialisation Proof-of-Concept project entitled "Scalable and Unified Management and Control of Large Scale Sensor Networks". The project will run from May 2008 until May 2009; and it will investigate efficient ways of using wireless mesh network overlays as a medium-range access network for geographically spread sensor clusters. This project is expected to bring six new developers to CSI, (mostly interns), to work on the project.

Grammatical Representations for Evolutionary Design - Dr. Michael O'Neill

The natural process of biological evolution has served as a significant source of inspiration in the development of powerful problem solving tools by Computer Scientists. In particular, much success has been enjoyed through the application of these Evolutionary Algorithms to Design (e.g. analog circuits, music, antennae, graphic art and animation) and through the huge speed up that computers bring over the natural process of evolution. This Evolutionary approach to Design has arguably resulted in the most successful form of Artificial Intelligence to date by routinely providing human-competitive solutions, and in some cases passing human tests of innovation by generating patentable design solutions. In this research we investigate the application of a powerful and novel Evolutionary Algorithm to the area of Architectural Design.

The project is lead by Dr Michael O'Neill (UCD School of Computer Science & Informatics and Director of the UCD Natural Computing Research & Applications Group) and brings together a multi-disciplinary team of collaborators including an Architect, Ms. Elizabeth Shotton, a Civil Engineer, Dr. Ciaran McNally, both from the UCD School of Architecture, Landscape and Civil Engineering, and experts in Natural Computing, Dr. Anthony Brabazon (UCD School of Business), and Evolutionary Design, Dr. Martin Hemberg (Harvard Medical School). The project is funded by an SFI Research Frontiers grant worth €159,413 direct costs over three years starting in September 2008.



The Drought landscape (above) and Bar Code Panels (below)

3rd Year Students Demonstrate Collaborative Projects

Over the last semester the students of Comp30050 have been working on their collaborative software engineering projects. At the start of the module, students choose their own team mates and propose their own projects. They set milestones for themselves, which are used to grade their progress. On April 24th they ran demos of their completed systems for the school to see. Eight teams demonstrated their technology – each demonstration is shown below. Thanks to all who attended and thanks to all the students and demonstrators who put so much work into the course. - Lorcan Coyle, Benoit Gaudin, and Joe Kiniry.

SFI awarded Research Frontiers Projects

SIFT: Segmented Information Fusion

Rem Collier, John Dunnion and Fergus Toolan (now at Griffith College) were awarded €146,999 by SFI for a Research Frontiers Project entitled - "SIFT: Segmented Information Fusion".

SIFT explores the potential of a new class of segment-based data fusion techinques that have shown promise in the area of information retrieval. These algorithms have outperformed the benchmark Comb* family of algorithms in experiments carried out on small and medium size document collections. This project builds on these results, by: (1) investigating a number of variant algorithms; (2) scaling the algorithms for use with large document collections such as the TREC Terabyte and Enterprise Tracks; and (3) evaluating the potential of our techiques in improving the performance of the machine learning classification problem.

Congratulations to some of the following Ph.D. students who recently passed their vivas:

Bianca Schön
Ian Martin
Antonio Ruzzelli
Richard Tynan
Daniel Aioanei
Mauro Dragone
John O'Donovan
Kevin McCarthy

TRIL News

The Technology Research for Independent Living (TRIL) Centre has developed the BioMOBIUS™ Research Platform which will enable researchers to help clinicians detect and prevent or improve certain conditions related to ageing, such as falls and cognitive decline.

"Very often, technology research is driven by technologists," says Professor Paddy Nixon, Director of the TRIL Centre. "The BioMOBIUS research platform has been specifically realised the other way around. We start by understanding older people's needs, then we design and test the technology, ask if it's helping them, and modify the design and adapt the platform if needed."

Applications built using the BioMOBIUS Research Platform can be deployed in a wide variety of settings, from the clinical lab to the home. A typical application comprises wireless sensors that monitor markers such as gait stability, heart rate, and alertness. This sensor data is converted into meaningful data and a user interface enables the clinician to view the information and adjust application settings. 'Today there are 600 million people over the age of 60, and the UN projects that this figure will grow to almost two billion by 2050,' said Dr Aaron Quigley, UCD School of Computer Science and Informatics and Principal Investigator for the TRIL Technology Platform research strand.

'Home-based applications that use the BioMOBIUS Research Platform could potentially help those two billion people to monitor their own health, remain in their own homes, and maintain their independence for as long as possible. That's a huge opportunity to do good in the world,' said Quigley.

TRIL is a groundbreaking research collaboration involving researchers from Intel, UCD, Trinity College Dublin and NUI Galway to explore technology to help older people to continue living independently in the homes of their choice. The BioMOBIUS Research Platform is free to download here.
http://biomobius.trilcentre.org/
http://www.trilcentre.org/

CSI Graduation Day April 2008

CSI Ph.D. graduates April 2008 - from left to right:

Phil Maguire, Mark O'Keeffe, Maurice Coyle, Alan Martin, Eamonn Newman, Conor Muldoon, Gavin McArdle, Antonio Ruzzelli, William Doran and Richard Tynan.

India 2008

In March this year staff from UCD Centre for Cybercrime Investigation went to New Delhi, India as part of an Interpol mission to provide a 'High Tech Crime Train the Trainer' programme to 20 police officers from the South East Asia region.

The training team consisted of police officers from Germany, Italy, Finland, The Netherlands and the UK as well as staff from UCD. The team were there to deliver the existing and recently updated AGIS Introductory IT Forensics and Internet Investigations training module combined with a newly developed training skills element. The Train the Trainer component was designed and delivered by staff from the Centre for Cybercrime Investigation. The intention behind this pilot initiative was to not only to deliver High Tech Crime training to investigators but also to provide them with training skills so that they could further train other police officers in their regions. The project was part of a capacity building initiative in the South East Asian region and was sponsored by Microsoft.

Instructors and participants from the 'High Tech Crime Train the Trainer' programme which took place in New Delhi, India in March this year.

More CSI News

The TTP principal investigators Aaron Quigley, Mick McGrath and Paddy Nixon along with the TRIL CTO and Terry Dishongh had their proposal for a pre-workshop event at EMBC 2008 accepted. The event is called "Platform Oriented Approaches to Biomedical Application Development for In-lab and In-home Deployments" to be held at the 30th Annual International Conference of the IEEE Engineering in Medicine and Biology Society August 20-24, 2008 Vancouver, British Columbia, Canada.

The success of biomedical systems that enable research both in lab and in the home is predicated on the available of ICT solutions which can be used throughout the research community. The success of technology in other domains such as the internet, personal computers has been based on a set of fundamental tools is necessary to ensure interoperability, rapid development, and user confidence. This workshop will review the challenges associated with development of systems to support biomedical research both in the laboratory and in the home. The key characteristics of a reusable toolbox will be defined. These tools, by necessity, will be heterogeneous and diverse - ranging from body sensor networks to mobile communication devices to home based monitoring systems. Practical demonstrations of how the features have been realized in an open, extensible and reusable toolbox will be based on the TRIL's centre BioMOBIUST research platform will be included through out the workshop. BIOMOBIUS comprises of both hardware and software components that support rapid application prototyping and development of biomedical research systems which incorporate a wide range of monitoring capabilities.

If anyone has any interesting news articles they would like to feature in this newsletter please forward them on to me at the following email address:

Email: caroline.murphy@ucd.ie

Pervasive 2008

In late May 2008 Dr. Aaron Quigley one of the TTP principal investigator presented a paper on Home Deployments for Independent Living - A. Quigley, M. McGrath, P. Nixon, and T. Dishongh, at the Pervasive Computing @ Home workshop in Sydney. This workshop was focused on Pervasive Technology as applied specifically to a home environment.

Lucy Dunne from CSI recently appeared on RTÉ's 'Dance on the Box' which screened a series of four short dance films. Lucy appeared in 'Swing Talking' (right) which was screened last April on RTÉ Two.