



## CLARITY NEWS

Researchers at the CLARITY Centre for Sensor Web Technologies (<http://www.clarity-centre.org>) have been awarded with the Best Paper Award, at this year's International Conference on Adaptive Hypermedia and Adaptive Web-Based Systems (AH 2008) held in Hannover, Germany, for their work on personalising the popular YouTube video sharing site.

The award-winning paper, entitled "Social Information Access for the Rest of Us: An Exploration of Social YouTube" is a collaboration between researchers in UCD (Dr. Maurice Coyle and Dr. Jill Freyne, led by Prof. Barry Smyth, CLARITY Director) and researchers at the University of Pittsburgh, USA (led by Prof. Peter Brusilovsky). The paper describes how the researchers were able to improve the way that users of YouTube gained access to videos that matched their needs and interests, by enabling YouTube to adapt to changing patterns of access over time.

YouTube catalogues hundreds of millions of videos and provides its users with access to these videos via its built-in search engine or by encouraging users to follow links to

popular video 'channels', such as comedy, politics, music etc. It is estimated that more than 3 billion videos are viewed every month by YouTube visitors, with many commentators pointing to YouTube as an example of the future of video beyond television. Despite its success, as the service has grown rapidly, it has become increasingly difficult for users to explore the full gamut of content that is available, which is where the work of the UCD researchers comes in to play.

"Everyday millions of people access YouTube but there is so much content it can be difficult to find truly memorable videos," commented Maurice Coyle, the paper's lead author.

"At UCD we have been developing a wide range of social recommendation technologies that take advantage of willingness of users to share information with others, and we have combined these technologies with related work at the University of Pittsburgh to produce a version of YouTube that is capable of making suggestions to YouTube users, on the fly, as they browse and search."

Jill Freyne, who presented the paper at last week's AH conference, and who is currently

collaborating with IBM's Collaborative User Experiences research group in Cambridge (MA, USA), commented that, "In this work we were able to show how the recommendations we made were more likely to be responded to by YouTube users, encouraging users to view more videos and explore the YouTube universe more actively."

The AH conferences have become the major forum for the scientific exchange and presentation of research results in the broad area of adaptive web-based systems, exploring technologies that allow web-sites to respond more intelligently to the needs of their users. This year's conference, which attracted submissions and participants from all over the world is the fifth in a series of biennial conferences that began in 2000. "We are very proud of this award, not just because of the prestige of the AH conference, but also because the work is the fruit of a collaboration between our group and the University of Pittsburgh, which began at the previous AH conference held in Dublin in 2006. An award like this speaks to the quality of Irish research in this important sector, helping to showcase Irish research to academia and industry around the world." says Prof. Barry Smyth.

Congratulations to the following Ph.D. students who successfully passed their vivas:

Liz McCarthy  
Mohammed Abdur Razzaque  
Davide Baú  
John Fitzpatrick  
Peter Cahill  
Kevin Whelan  
Mark Hogan  
Karen Church

## CSI NEWS

Dr. Joe Kiniry has been nominated as the Chair of Working Group #4: Tool Integration of the COST Program (European Cooperation in the field of Scientific and Technical Research) He also sits on the Management Committee as he formally represents Ireland within the Action. The first Management Committee and Working Group meeting for the Action took place at Chalmers University in Gothenburg, Sweden during the the last week of May 2008. Joe chaired the last working group session and gave the a talk entitled Tool Integration to kick off the meeting and discussion.

Dr. Dan Zimmerman of the University of Washington, Tacoma and Dr. Joe Kiniry from UCD (pictured right) presented their paper "Secret Ninja Formal Methods" in full ninja gear at the premier conference in their field, Formal Methods 2008, in Turku, Finland on Thursday, 29 May, 2008.



The audience enthusiastically received their humorous but-informative presentation and the questions and feedback afterwards were fantastic. More information about this paper and the presentation can be found on the KindSoftware research group website: <http://kind.ucd.ie/>

## New technology to improve internet searching by stacking and sharing information

A new approach to Internet searching that helps people to share their search experiences with friends and colleagues has been developed by researchers at University College Dublin. HeyStaks, the new web browser plug-in, works with Google and provides users with the ability to create so-called "search staks" as a way of organising and sharing their searches.

For example, using the new technology a group of friends planning a holiday abroad might create and share a "Holiday 2008" search stak. As each person searches for travel, accommodation and entertainment options, their search selections will be automatically shared with the other group members during future searches as specially highlighted search results. In this way the group members benefit from each others' searches as they plan for the perfect holiday. Likewise, a group of students collaborating on a project might create a search stak to capture their individual searches and share what they have found with the group, leading to more productive research.

The patent-pending HeyStaks technology, developed by a team of researchers led by

Professor Barry Smyth is being commercialised through NovaUCD. "Seeing research graduate from the laboratory to the marketplace is always a big step, but a very exciting one. It's an important part of the innovation cycle within CLARITY," says Professor Barry Smyth from the UCD School of Computer Science and



**Prof Barry Smyth (centre) and Peter Briggs and Dr Maurice Coyle, co-founders of HeyStaks**

Informatics and Director of CLARITY, a €16m Science Foundation Ireland research centre combining researchers from University College Dublin, Dublin City University, and the Tyndall National Institute.

HeyStaks is one of four new initiatives to share the Eircom €100,000 Web Innovation Fund. With the award, each company enters into an agreement with Eircom to develop their concepts through to production and, if appropriate, initial launch on the eircom.net platform. The award winners also receive business development training and advice by Enterprise Ireland, as well as additional six-month post-launch funding and assistance with marketing and advertising.

"We are very excited about the potential of HeyStaks," says Dr Maurice Coyle, one of the co-founders of HeyStaks and a recent UCD graduate. "It is a unique take on Web search that we believe will greatly improve how people mine for information online. The Eircom Innovation Award gives us a real opportunity to accelerate the commercialisation of the new technology."

"Right now we are moving to an invitation-based beta release of the service. Interested parties will find more information on HeyStaks.com in the coming days and weeks and we are very interested in hearing from people who would like to participate in this beta release," says HeyStaks co-founder Peter Briggs, who has recently completed his Ph.D. under the supervision of Professor Barry Smyth.

## In future editions of this newsletter CSI will be running a profile on its academics and their areas of research in the school.

We start with Dr. Rem Collier who, along with other researchers is responsible for the design and implementation of Agent Factory.

Agent Factory is a cohesive framework that delivers structured support for the fabrication of multi-agent systems. The overall goal of this area of research is to develop new software capable of helping people build an intelligent distributed software, distributed over multiple machines. Agent-oriented approach software aims to provide a more natural metaphor for designing and building software systems specifically where software is viewed as a community of entities (or software programmes) - also known as **agents** which interact with one another in order to solve problems that are beyond the scope of a single agent.

Agent Factory uses smart or intelligent technology (middleware) which is used to

bring together enabling technology in the form of:

**Robotics** (or avatars) which interact with other computers using a common language to communicate with;

**Virtual reality** - real virtual and mixed reality - and

**Mobile computing** - refers to location aware services.

The software used is based on Java to make use of the platform-independence facility associated with Java. This technology can be used where processing must be distributed across multiple machines. The software is used predominantly for research however it is also used by major corporations such as Proctor & Gamble who use this technology for their supply chain work as well as Southwest Airlines and other companies. The software allows you to manage complexity - for example to reduce delivery time using an agent-based approach.

Agent Factory is an open source project that is available for download from SourceForge. Rem and his colleagues are currently in the process of releasing Agent Factory software on Source Forge. Source Forge is a repository for open

source software and provides web space including a Wiki page and difference abstraction levels which allow other users to share code/software by making it available to programmers.

It can also be used as a resource for other researchers - the software can be used by millions in the worldwide community through Open Source.

The research in Agent Factory is not funded directly but instead is funded through work done on other projects - i.e. CLARITY, robotics, virtual reality etc. The benefits in developing this software and sharing it on Open Forge means Rem and his colleagues get their name out there and benefit from the kudos associated with this. It is also a valuable test for technical feedback and to find ways of improving the technology.

For further information see Agent Factory



**Dr. Rem Collier**

## PEL

The Performance Engineering Lab (PEL) has just received a positive decision from EC for the funding of an EU-FP7-PEOPLE-MarieCurie-IAPP (Industry Academia Partnership Pathway) project. The project, CARMESH, is a 4-year project (starting JAN'09) involving tight collaboration with Telcordia Technologies (Ex-Bellcore) in Poland, with continuous exchange of senior research fellows, research fellows, and early-stage researchers in order to design, specify, implement, and demonstrate the CARMESH project. 3 international workshops (2 in UCD) will be organised; funding support will be provided by the EC to attract world's leading researchers and industry experts in automotive/vehicular communications and large-scale mesh networks. The CARMESH project takes the view of an intelligent city where networking infrastructures are ubiquitous and different ambient and relevant services are proactively provisioned to the end-user (car's driver and passengers) based on their location, profile, real-time environmental conditions and other relevant service parameters. Different applications and services will be targeted among which real-time traffic information, safety, infotainment services, location based services, network-assisted GPS-based location in cities, etc. CSI researcher Dr. Hamid Nafaa is leading the UCD involvement in this project along with the support from Dr Seán Murphy, Dr. John Murphy and Prof. Liam Murphy. The project has an overall budget of €616,965 with €426,876 for UCD.

## MOBIUS

Dr. Joe Kiniry gave a talk last May at the 15th International Symposium on Formal Methods in Finland summarising the Mobius Program Verification Environment - [http://kind.ucd.ie/documents/talks/mobius\\_pve.html](http://kind.ucd.ie/documents/talks/mobius_pve.html) at a special session on formal methods tools at Formal Methods 2008 <http://www.fm2008.abo.fi>.

Dr. Joe Kiniry gave a tutorial at ETAPS 2008 entitled "Verification-centric Development in Java with JML and ESC/Java2" and it was a big success. There were around 20 participants, including active verification researchers, academics looking to use JML and ESC/Java2 in their teaching and research, junior and senior Ph.D. students, and commercial software developers.

## CSI Graduate wins Runner-up in HP Invent 2008 Awards

Congratulations to Mark Harkin who won runner-up in the HP Invent 2008 awards. The award is given to students who have demonstrated both excellence and innovation in their final year projects in an Engineering or Science discipline. Mark's project focused on developing a Bluetooth based solution for access control to a ski-lift. The solution operated on a standard Bluetooth enabled mobile phone which communicated with the access control mechanism/gate which was emulated by a laptop. Mark won a HP IPAQ for his efforts. On completion of his Computer Science degree in Summer 2007, Mark chose to pursue further study. He has just completed the first year of a two-year Master's in Quantitative Finance in UCD and he envisages a career in the financial industry.

Prof. Pádraig Cunningham is leading the preparation of a full proposal to SFI under the current Strategic Research Clusters call. The title of the proposal is "Clique: Graph and Network Analysis Cluster".

## CASL NEWS

Congratulations to Ph.D. student Michael Collins who won best paper award at ICITST 2008 for his paper entitled "Identifying and isolating aberrant nodes in wireless sensor networks"

Congratulations to Mohammed Abdur Razzaque, who defended his Ph.D. thesis recently. He is now working as a postdoc on the NEMBES project, looking at adaptive sensor networks.

Congratulations also to Olga Murdoch, who had a paper from her final-year project on using ontologies to improve the searching of photographic image libraries accepted for presentation at the Irish Artificial Intelligence and Cognitive Science conference (AICS 2008) Olga Murdoch's paper "Ontology-Based Query Recommendation as a Support to Image Retrieval" (written with Lorcan Coyle and Simon Dobson) was accepted for oral presentation and Owen Phelan's paper "The Ambient Calendar" (written with Lorcan Coyle, Graeme Stevenson, and Steve Neely) was accepted for poster presentation. Both papers came out of their final year projects.

## CAPSIL

Dr. Aaron Quigley who is CAPSIL co-ordinator and Dan Hartnett, CAPSIL Management Support Team attended the second CAPSIL Workshop, held in Waseda University Tokyo from 30th to 31st of July last. Aaron presented a co-ordinator report to the CAPSIL consortium members.

CAPSIL (International Support Action of a Common Awareness and Knowledge Platform for Studying and Enabling Independent Living) is an EU funded support action under FP7. This workshop brought together consortium members from three regions (US, Japan, and EU). These represent extensive teams who are developing hardware/software/knowledge solutions in independent living. Each CAPSIL meeting will have an increasingly expansive set of objectives in order to involve the entire independent living community from all three regions (US, Japan, and EU), in the process of developing our roadmap and instantiating CAPSILs. Included during the two day event was a visit to the Waseda University Joint Institution for Advanced Biomedical Sciences along with policy, funding and independent living research presentations from, Prof. Toshiyo



Tamura (Chiba University), Mr. Dai Hiyama (Yamatake Co.), Mr. Tatsuya Yamazaki (NICT) and Mr. Kunihiko Niwa (JST/CRDS).

Each of the work packages within CAPSIL will be used to create the technical research roadmap for independent living. This roadmap will be used to help inform upcoming funding calls in the EU, Japan and the US.

To learn more, visit <http://www.capsil.org/>

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](mailto:caroline.murphy@ucd.ie)