sicsa*

The Scottish Informatics & Computer Science Alliance

Newsletter - Summer 2012

Editorial

SICSA differs from the other research pools in that we have broadened our remit to include computer science and informatics education, as well as research. This puts in a strong position to represent all aspects of our discipline at every level. The recently published Guardian league tables for computer science and IT show that Scottish universities do disproportionately well when it comes to course quality.

In the Guardian league tables, the quality of the educational experience was assessed for 103 institutions, 13 of which were in Scotland. An even distribution would therefore suggest that we should expect 1 Scottish institution in the top 10, 2-3 institutions in the top 20 and 3-4 institutions in the top 30. In fact, we do quite a lot better than this with St Andrews and Glasgow in the top 10, Stirling, Edinburgh and Strathclyde between 11 and 20 and Dundee and Heriot-Watt between 21 and 30. So, half the institutions in Scotland are in the top 30 in the UK.

So, we punch above our weight in teaching and education as well as in research. This confirms (in a somewhat unscientific way) that high-quality research and high-quality teaching go hand in hand. So, as SICSA's contribution to research improvement becomes evident, we can expect to see corresponding improvements in teaching quality.

The question we now have to think about is how to use our collective strength in SICSA to bring about improvements in teaching quality as well as research quality. As a community, we have not been very good at sharing either best practice or resources. We have some of the best people in the world presenting courses so we should be making these available to each other as a basis for courses elsewhere. Perhaps as well as distinguished research visitors we should have distinguished teaching visitors who could stimulate ideas about how to teach computer science?

In our proposal for an innovation centre which we submitted to the SFC in June, we have identified key challenges for the future as developing secure software, dealing with the data deluge and building internet-scale systems. Are these reflected in our current courses? What is the right balance between course in new developments and fundamentals such as machine learning and statistics and more traditional courses based on discrete mathematics? Perhaps one thing we should do over the next year is to have a collective debate about the shape of future computer science courses.

Ian Sommerville, SICSA Director

Cover Image: SICSA PhD Conference 2012 poster session

News from across SICSA

Report on recent activities - MMI Research Theme

Prof. Stephen Brewster

In the past few months the SICSA MMI Research Theme has been extremely busy organising events and workshops, all of which have been very successful.

Earlier in the year Stephen Brewster from the University of Glasgow and Per Ola Kristennson from St Andrews organised a Mobile Interaction workshop at the University of Glasgow at which Michael Rohs from LMU in Munich (www.medien.ifi.lmu.de/team/michael.rohs) was the keynote speaker. Michael is an expert on novel interaction techniques for mobile devices, applications of computer vision techniques in mobile HCI, the usage of sensors for mobile interactions, and the integration of physical and virtual resources in the user's environment. There were over 45 workshop participants from Universities across SICSA.

Back in February Abertay University organised an Affective Computing workshop on Future Affective Technology Experiences: Uncanny Experiences and Interactive Narratives. This followed on from a workshop held at Heriot Watt last year.

In March Julie Williamson from the University of Glasgow and Tom McEwan from Napier organised an industry academic workshop on user experience (UX). Along with a UX speed dating session for people to meet each other, there were presentations from industry and academia and then time for different challenge activities. Marianna Obrist, an expert on user experience, gave the keynote. There were 30 workshop participants from Universities across SICSA.

Furthermore, the SICSA MMI theme hosted a workshop on multimodal-interaction and museum installation design by Eva Hornecker at the University of Strathclyde and MMI researchers contributed to a Summer School on Inference and Dynamics in Interaction organised by academics from the University of Glasgow and St Andrews. Just prior to the SICSA PhD conference we organised the MMI Doctoral Colloquium at Glasgow University.

In July, as part of a distinguished visiting lecture program, MMI is supporting a Mobile Experience Sampling Methods Workshop held in the University of St Andrews.

Details of all these events can be seen here: http://www.sicsa.ac.uk/themes/multimodal-interaction

SICSA Student wins EPSRC Doctoral Prize fellowship

SICSA student, Lars Kotthoff has been awarded a prestigious EPSRC Doctoral Prize fellowship to follow up on his SICSA-funded doctoral studies at St Andrews. After completing his PhD, he will work as a research fellow and continue his investigations into the Algorithm Selection Problem. The aim of the Doctoral Prize is to help universities retain and recruit the best PhD students to increase the impact of their PhD and to improve retention of the very best students in research careers. It targets the top 10-15% of students at each university.

Congratulations to Professor Muffy Calder

SICSA would like to congratulate Professor Muffy Calder on her appointment as Chief Scientific Advisor for Scotland.

Professor Calder, currently Professor of Computing Science and Dean of Research at the University of Glasgow's College of Science and Engineering, was appointed in February following an open competition. The Chief Scientific Adviser for Scotland is an overarching role, championing science as a key driver of the economy, and ensuring the Scottish Government uses science effectively in all policy-making.

Professor Calder's appointment is great news for Scottish Computing Science and we would like to wish her all the very best in her new role.

You can find further details about this story at the Scottish Government web site.

SICSA student on cloud nine after achieving success with high-tech start-up

Steven Kendrick

PlanForCloud founders: Ali (left) and Hassan (right)

Two Scottish Computing Science students, including a SICSA sponsored student, have recently achieved success in the world of business after their Edinburgh-based company ShopForCloud was acquired by US firm RightScale, a leader in cloud management. Following the acquisition the company has subsequently been rebranded PlanForCloud.

Ali Khajeh-Hosseini, a SICSA sponsored student at the University of St Andrews (supervised by SICSA Director Ian Sommerville), and Hassan Khajeh-Hosseini, a student at the University of Edinburgh, set up ShopForCloud in February 2012 and since then the company has moved from strength-to-strength.

PlanForCloud enables sophisticated modelling of the components of cloud deployments, including servers, storage, database and data transfer, as well as usage scenarios that incorporate growth, seasonality and other variability in the consumption of cloud resources. With up-to-date prices from major cloud providers – including Amazon Web Services, Google Compute Engine (GCE), Microsoft Windows Azure, Rackspace, and more to come – PlanForCloud lets users forecast costs on any supported cloud, save the forecasts, and later update them as cloud prices fluctuate. PlanForCloud automatically performs a simulation on planned deployments and generates detailed 3-year reports that enable companies to accurately budget for future usage.

“When we launched PlanForCloud, it was clear businesses needed tools to help forecast their cloud costs across the constantly expanding list of cloud providers,” said Ali Khajeh-Hosseini,. “As cloud usage grows and becomes a larger part of corporate IT budgets, our service provides the tools businesses need to improve the visibility and predictability of their cloud computing initiatives.”

The pair also commented “It is fantastic that RightScale has given us the flexibility to setup office in Edinburgh and enabled us to keep providing great new features for free. We are expanding our team and look forward to releasing a whole bunch of cool new features to help you plan for cloud. We think this is great news for the Scottish startup community….it sends out a buzz that the VCs [venture capitalists] and companies in California can see Scotland has got a great bunch of tech start-ups they can get involved with.”

PlanForCloud can be used by any business to forecast clouds costs, including those that are not currently RightScale customers or users of cloud services. No cloud provider accounts or current cloud deployments are required to use the site or calculate cloud costs. Visit PlanForCloud at www.PlanForCloud.com.

PlanForCloud are now recruiting –
visit http://www.planforcloud.com/pages/recruitment.html for full details.

Scots jobs boost down to high quality graduates

Picture Credit: Chris Watt, The Scotsman

A SWISS banking software firm opened its first UK development site in Edinburgh recently, praising Scotland's supply of skilled graduates.

Avaloq has hired 30 engineers and analysts from Scottish universities and plans to employ 500 staff at its city centre base over four years.

Chairman Didier Sangiorgio said his firm had chosen Scotland over Brazil, the Philippines and Singapore, adding: "The UK market is our most important. Scotland is close in size, efficiency, and quality to Switzerland, and you have these remarkable universities with a great focus on information technology. This is a truly fine place to be and I am thrilled that it has happened."

Scottish Development International and Scottish Enterprise have been working with Avaloq since November 2010. The project is being assisted with a Training Plus Grant of £1.74m.

Finance secretary John Swinney, who led the opening ceremony, said: "We welcome the company to Scotland."

This article based on a piece published in The Scotsman - February 2012

Glasgow wins Raytheon Cyber Challenge

A team of students from the University of Glasgow's School of Computing Science recently won the Raytheon Cyber Challenge.

The Raytheon Cyber Challenge is one of the most advanced security challenges ever put together, and the winning team from the School of Computing Science at the University of Glasgow scored higher than ever expected to win the title. Simon Jouet and Kyle White swept the floor with the competition with a score of 4,000 points, with previous winners only ever amassing a total of 3,500 points during the tournament.

Crowd sourcing Improves Predictive Texting

Exciting new research carried out by SICSA Lecturer Per Ola Kristensson and collaborators at the Montana Tech is hitting the main-stream after publication in the New Scientist Magazine. The New Scientist writes about their use of crowd sourcing and online web sources to create better statistical language models for Augmentative and alternative communication (AAC) devices.

The full article 'Crowd sourcing Improves Predictive Texting' can be found on the New Scientist website.

Biology + Computing = ??

Dr Carron Shankland

The sun shone on Stirling as we met to discuss the meaning of the equation: Biology + Computing = ?? This was a SICSA-sponsored workshop, bringing together members of the Modelling and Abstraction (modabs) community with the self-organising, emergent, autonomous, biologically inspired systems (seabis) community. With the continuing interest in modelling biological systems, these two groups have potentially much in common. The aim of the workshop was to allow us to share our experiences and inspirations, and to foster connections between participants.

Vashti Galpin opened the proceedings with an excellent invited talk on modelling protein trafficking using process algebra (specifically, Bio-PEPA and HYPE). The Seabis side of the group was represented by Yaochu Jin, who spoke about analysing and synthesising gene regulatory motifs, with particular emphasis on the robustness and evolvability of solutions. Contributed talks were widely varied: some biologically-focussed talks (Systems biology approach to in silico and in vitro modelling of drug sensitivity-resistance transition in PI3K/PTEN/AKT signalling in cancer, Epidemiology in the heart of informatics, Relationship between AMH and follicle number throughout life), some biologically-inspired computation (An Investigation of Cellular Intelligence and its Role in Artificial Intelligence), talks addressing the problems of incomplete data in modelling (An introduction to Automatic Static Analysis of Biological Models, Qualitative and Semi-quantitative Approaches to Systems Biology), some crossover work (Optimisation of Process Algebra Models Using Evolutionary Computing), and some focussed on networks and their properties (Biologically inspired Coupled Complex Networks, A critical study of network models for neural networks). Particularly thought-provoking was Leslie Smith's contribution on Synthetic neural systems, raising questions about brain:computer interfaces.

An important feature of the day was the final discussion session. Participants were asked to write questions on post-its during the day (so we could also see what sort of discussion was developing). A recurring theme was abstraction: what level of abstraction to choose, and how to know the level is correct. Linked was the issue of lack of data. We also asked what computing could bring to biology: are there "design patterns" for biology? On a more practical note, questions were asked about funders and publishers for inter-disciplinary work. Our lively discussion had more questions than answers!

The meeting was held on Monday 21st May 2012 at the University of Stirling, organised by Carron Shankland, David Cairns and John McCall.

Women and Computing

Prof Jane Hillston

On a wet and cold afternoon in May, an audience of about 50 women and one man, gathered to listen to a distinguished and diverse panel of women talk about their experiences in Computer Science. The panellists were:

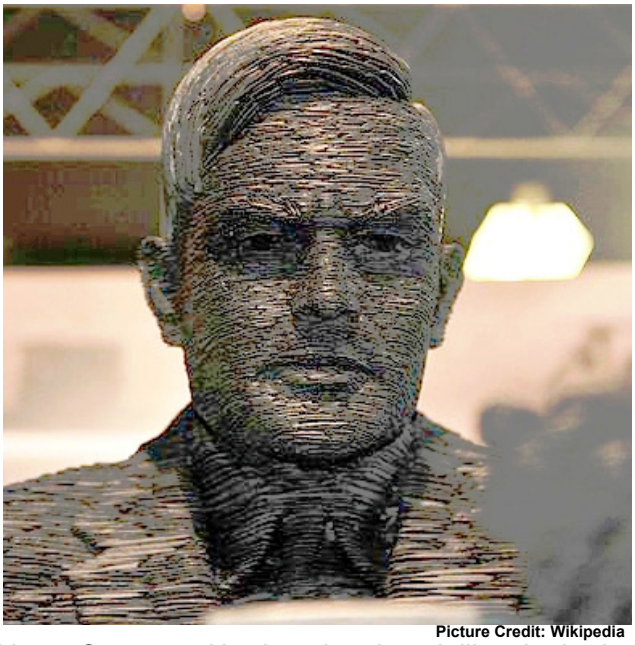
- Professor Barbara Grosz, Higgins Professor of Natural Sciences, Harvard University (and until September 2011, Dean, Radcliffe Institute for Advanced Study);
- Gillian Arnold, Chair of BCS Women and co-founder of Ag Resourcing, a recruitment consultancy within the science, engineering and technology sector;
- Professor Kerstin Dautenhahn (Univ of Hertfordshire), head of the Adaptive Systems Research group;
- Dr. Sharon Goldwater, Lecturer, School of Informatics, University of Edinburgh;
- Emilia Kasper, Software Engineer in the Privacy Team, Google Zurich;
- Kate Ho, Managing Director, Interface3.

After the panellists had each related what had inspired them (Mathematics teachers in several cases) and the challenges they had faced (at least one instance of overt sexism), the discussion was opened to questions from the floor. Most of the audience were computer science undergraduate students from a variety of Universities. Many of their questions were focused on how to make the "right" career decisions -- not an easy question to answer! Throughout, the panel stressed the importance of finding something that you are passionate about, being bold, grabbing opportunities and taking risks. After over 90 minutes of stimulating discussion, both panellists and audience were rewarded with a scrumptious afternoon tea, sponsored by SICSA.

T100 Symposium, University of Edinburgh

Prof Jane Hillston

"If he was working now, what would Alan Turing be working on?" That was the question posed by several of the speakers at the T100 Symposium, which took place on 11th May. 2012 is the centenary of the birth of Alan Turing, which has stimulated a worldwide programme of events and celebrations. T100 was a series of events and activities organised by the Royal Society of Edinburgh and the School of Informatics at the University of Edinburgh, to bring the celebrations to Scotland (www.t100.org.uk). In addition to the research symposium, there was a public lecture, "Alan Turing: Legacy of a Code Breaker", by academic and broadcaster, Jim Al Khalili, and a schools activity called the Twit-Test. SICSA was one of the sponsors of the events, and thanks to that sponsorship 40 PhD students from across Scotland were able to attend the symposium without a registration fee.



Picture Credit: Wikipedia

The programme of the symposium was chosen to reflect on four key themes in Turing's work, representing the diversity of Turing's legacy in computer science and beyond.

The four themes were Artificial Intelligence, Computability and Algorithms, Computer Hardward and modelling the brain, and Morphogenesis.
Speakers included David Harel and Barbara Grosz. The programme was recorded and most of the talks will be available on-line via the T100 website shortly.

So what would Turing be working on today…? Well, there were several suggestions that came up on the day, but a recurrent theme was the idea of the Turing Test updated for modern systems, in terms of pervasive systems, quantum computers, or biological modelling.

The Turing Test was also at the core of the TwitTest, a version of the Turing Test for the Twitter generation. This revised Turing Test mixed up chat-bots, school pupils, teachers and celebrities. The question was whether anyone could tell who was who more than 50% of the time. Working as individuals and as class groups, using smartphones and desktop web browsers, school pupils and their teachers took part in a real-world experiment in March where they had to work out which tweets in a twitter stream were for real and which were fake – and they also have to work out how to fake it themselves! At a Edinburgh Science Festival event on 11th April reporting on the experiment, prizes were awarded both for good fake-spotting, and for good fakery.

SICSA Education Showcase: Engaging the Next Generation 2012

Steven Kendrick

SICSA was delighted to host the inaugural SICSA Education Showcase ("Engaging the Next Generation") in April 2012 at the University of Glasgow. The event was coordinted by SICSA Director for Education, Prof Greg Michaelson, along with SICSA Administrators, Steven Kendrick and Thea de Joode.

This industry-facing event was designed to showcase the broad spectrum of undergraduate and postgraduate Computing Science courses on offer within Scotland and to provide an opportunity for employers of Computing Science graduates to meet with representatives from all of the Scottish Universities under one roof.

The event was attended by exhibitors from all of the Scottish Computing Science departments, as well as E-Placement Scotland, Informatics Ventures and University of Glasgow Careers Service. It attracted representatives from a broad range of employers from across the country. Following the success of the 2012 event, the Education Showcase will now be a regular feature in the annual calendar of SICSA events and the next event will take place in Spring 2013. Please visit the SICSA events web page regularly for updates.

The exhibition posters from the 2012 event can be downloaded from the SICSA website.

SICSA Staff and Theme Leader Rotation

Summer 2012 marks a time of significant change for the SICSA Executive, with staffing rotations occurring across the administration, directorate and research themes throughout the period. A summary of the recent and future changes follows:

SICSA Administration:
Following the departure of Dominique Balharry in April, Steven Kendrick (University of Glasgow) has taken over as SICSA Executive Officer.

Executive Assistant, Thea de Joode (University of Edinburgh), has recently commenced maternity leave. We wish Thea all the best for the coming months!

The post of Executive Assistant has recently been filled by Nicola Hogg at the University of Edinburgh. See the article below for a profile of Nicola.

SICSA Directorate:
From August, Professor Ian Sommerville (SICSA Director) and Professor Jon Oberlander (SICSA Deputy Director/Director of KE) will step down after many years of service for SICSA. On behalf of SICSA we would like to thank Ian and Jon for their valuable contribution to SICSA.

From August the SICSA Directorate will be:

SICSA Director: Professor Roderick Murray-Smith (University of Glasgow)
SICSA Deputy Director/Director of KE: Professor Aaron Quigley (University of St Andrews)
SICSA Graduate Academy Director: Dr Sharon Goldwater (University of Edinburgh)
SICSA Director of Education: Professor Greg Michaelson (Heriot-Watt University)

SICSA Themes:
From August, Professor Jane Hillston will step down as Theme Leader for the Modelling and Abstraction theme. We would like to thank Jane for all of her hard work and her efforts to maintain a lively programme of Modelling and Abstraction events. Jane will be replaced by Dr Carron Shankland from the University of Stirling. We are also pleased to announce that from August there will be a number of new theme co-leaders in place.

From August, Theme Leaders will be:

Modelling & Abstraction: Dr Carron Shankland (University of Stirling)
Multi-Modal Interaction: Professor Stephen Brewster (University of Glasgow) / Professor Johanna Moore (University of Edinburgh.
Complex Systems Engineering: Professor John McCall (Robert Gordon University) / Professor Neil Ghani (Strathclyde)
Next Generation Internet: Professor Saleem Bhatti (University of St Andrews) / Dr Tristan Henderson (University of St Andrews) / Dr Mahesh Marina (University of Edinburgh) / Dr Colin Perkins (University of Glasgow)

Staff Profile

Nicola Hogg, University of Edinburgh - SICSA Executive Assistant

Nicola joined SICSA as Executive Assistant in June 2012 and is based in the Informatics Forum at the University of Edinburgh. Having graduated from the University in 2009 with a Business and Accountancy Degree, she joined the Finance department of Historic Scotland as part of the Income Team, and gained three years' experience working in a diverse and geographically dispersed organisation. Originally from Manchester, she now considers herself an honorary Scot having lived here for 7 years after falling for a native while studying! Together they have travelled throughout Asia but never fail to be impressed by Scotland's beauty. You will now find them trawling the Lochs of Scotland, trying to find their ideal wedding venue. Nicola has a passion for all things creative, and is currently studying for a diploma in Interior Design having discovered a talent whilst redeveloping their first home.

SICSA Distinguished Visitor - Prof Martin Campbell-Kelly

Dr Jeremy Singer

Professor Martin Campbell-Kelly*

Professor Martin Campbell-Kelly (Warwick University) was a SICSA Distinguished Visiting Fellow in April 2012. Campbell-Kelly is an authority on computing history. He was hosted by Dr Jeremy Singer at the University of Glasgow. The week-long visit, although short, was extremely busy and highly productive. Campbell-Kelly offered to give presentations on a range of topics, but by popular request, he spoke about Alan Turing in two public lectures.

The first lecture was held at the School of Computing Science, University of Glasgow. The enthusiastic audience comprised academics, undergraduate and postgraduate students, and a number of invited children from local schools. Campbell-Kelly highlighted Turing's role in the early development of the British computer industry. He ended by describing the Deuce, which was the first machine installed at Glasgow University, based on Turing's design. Campbell-Kelly was delighted to identify a mysterious black box as a vacuum tube signal amplifier, which was salvaged from the Glasgow Deuce machine when it was decommissioned, and has been handed down from professor to professor ever since.

The second lecture took place at the Informatics Forum, University of Edinburgh, where there was a lively interest in the work of Turing. Further collaborations during Campbell-Kelly's visit included small group discussions about programming language history and spreadsheets.

In conclusion, this was an excellent opportunity for the SICSA community to get a valuable insight regarding the history of computer systems engineering. Campbell-Kelly enjoyed his visit and expressed a keen interest in maintaining contact with SICSA academics in the future.

***Picture Credit: University of Warwick web site**

SICSA PhD Conference 2012

Steven Kendrick

The 4th annual SICSA PhD Conference took place at Glasgow Caledonian University between 20th and 22nd June 2012.

The event featured a number of keynotes from across the UK, including: Professor Philip Wader (University of Edinburgh), Dr Vince Miller (University of Kent), Professor Jane Hillston (University of Edinburgh), Professor Paul Watson (Newcastle University) and Professor Ursula Martin (Queen Mary University of London).

In addition, the conference featured a lively programme of workshops and transferable skills sessions on a wide range of topics.

Poster Session at SICSA PhD Conference 2012

The conference featured two poster sessions, where delegates had the opportunity to showcase their research to fellow students and academics. As in previous events, prizes were awarded to the best posters in each session. The judging panel felt that the standard of posters this year was so high that they awarded a total of 5 prizes. The winners this year were: Alyssa Alcorn (Edinburgh), Erin Scott (Stirling), Ozgur Akgun (St Andrews), Milan Markovic (Aberdeen), and Anthony Etuk (Aberdeen).

If you missed the conference, video footage of the keynote talks are available for download from the SICSA YouTube channel. A selection of presentation slides and the winning posters are available to download at www.sicsaconf.org.

Planning for the 2013 conference will begin in Autumn 2012. If you wish to apply to join the organising committee for the next event please email admin@sicsa.ac.uk.

M&A Workshop - Modelling: Challenges and Perspectives

Dr Andrea Bracciali

The ModAbs SICSA research theme recently organised a scientific workshop which took place at the University of Stirling on 11th June 2012. The workshop was intended to be an occasion for the ModAbs theme to gather together and discuss/present ongoing work and research directions and also to interact with a wider audience.

The workshop featured three technical invited speakers, a few contributed short talks, a talk given by an EPSRC representative, a Modelling Exercise and a final discussion.

The day was opened with a talk by Prof. Alberto Policriti, from University of Udine, Italy, who was visiting the University of Edinburgh as SICSA Distinguished Visitor. He gave the talk "Simulation by Hybrid Automata", presenting recent developments of his research about the interplay between discrete and continuous interpretations of models based on Hybrid Automata.

The second invited talk "Statistical Model Checking of Stochastic Hybrid Systems in UPPAAL-SMC" was given by Prof. Kim Larsen, form Aalborg University, Denmark, who presented the results of a long lasting research project on Timed Automata-based verification.

The last talk "Systems and Security Modelling: From Theory to Practice (Really)" given by Prof. David Pym, from University of Aberdeen, Scotland, was about a modelling framework for reasoning on resources, processes and locations.

These three talks covered topics of interest for the ModAbs community and were delivered via very insightful and stimulating presentations.

A Modelling Exercise was also organised by researchers from Stirling (Dr. Andrea Bracciali), Edinburgh (Dr. Allan Clark), and Glasgow (Dr. Alice Miller and Dr. Gethin Norman). The initiative stimulated some great discussions.

More than 20 participants and the 4 invited speakers attended the workshop from the University of Edinburgh, Heriot-Watt University, University of Glasgow, University of Aberdeen, University of Stirling, University of Trieste, University of Udine, Aalborg University and EPSRC.

Other research areas were also represented beyond the ModAbs theme, including: mathematics; neurosciences; machine learning; and networks.

The workshop was supported by SICSA and Computing Sciences and Mathematics of Stirling University.

SICSA Events

To find out more about forthcoming SICSA events, please visit www.sicsa.ac.uk/events. Please note that further events will be advertised on the web page in the coming weeks.

August:

August 2, 11am – 3pm, School of Computing Science, University of Glasgow. Room TBC. SICSA Masterclass with Dr Apu Kapadia (Indiana University): Mobile user studies and experience sampling.

August 9, 11am – 3pm, School of Computing Science, University of St Andrews. Room TBC. SICSA Masterclass with Dr Apu Kapadia (Indiana University): Mobile user studies and experience sampling.

August 26-September 2, University of Edinburgh. SICSA Summer School in Integrative Computational Neuroscience.

September:

September 8, 9.30am-5pm, University of Edinburgh. Joint Workshop on Compositional Modelling and Analysis of Quantitative Systems.

SICSA Summer Schools 2013

If you are working within a SICSA institution and organising a computing science or informatics focussed Summer School, SICSA is able to provide funding towards this.

For further information about how to apply for sponsorship towards a Summer School and to make an application, please visit the SICSA web site.

The deadline for applications is 30th September 2012.

News Items

If you have any newsworthy items that you would like to contribute to the Winter 2012/2013 edition of the SICSA Newsletter, please contact admin@sicsa.ac.uk.