

Newsletter - Autumn 2012

Editorial

My first words as the new SICSA Director are dedicated to thanking outgoing Directors Ian Sommerville and Jon Oberlander for their hard work over the last few years on the SICSA Directorate. Attending the very successful SICSA Ph.D. conference at Glasgow Caledonian this summer, I was struck by how many students from different universities already took it for granted that it was normal to know each other, despite not being in the same city or academic niche. This culture of collaboration, rather than competition, is one that Jon and Ian have embodied from the start, and we are very grateful for the way they have guided SICSA from the start. The new faces in the Directorate are Aaron Quigley from St Andrews, who takes over as Deputy Director, and Director for Knowledge Exchange, and Sharon Goldwater from Edinburgh, who takes over the Graduate Academy.

Computing science is vital for business in Scotland and through the tools it creates, is dramatically changing the way we live our lives. While the need for SICSA's research and education is clear, the wider university sector in Scotland faces a number of challenges in the near future: austerity-related cuts to research funding, the potential for unpredictable changes associated with the dramatic increase in student fees in England, and preparation for the possibility of an independent Scotland. SICSA is already proving to be an organisation which supports Scotland's computing researchers and represents their interests to outside bodies, allowing them to continue to punch above their weight. To be in a position to help individual Schools navigate the stormy waters ahead, we need to build an agile and sustainable organisation which can continue to serve Scottish Computing and Informatics Schools beyond the initial pump-priming SFC funding. The main priority of the new Directorate team is to shape SICSA's structures to better fit the future challenges, and to obtain funding commitments make this a reality. While we continue to explore the options for external funding it was encouraging to hear at the last SICSA Committee meeting the level of support from members for a self-financing SICSA -- a healthy indicator of the value of SICSA!

A recent example of how SICSA can work in an intelligent, high-value manner is the work by Glasgow's IR group in creating the SICSA Experts system (<http://experts.sicsa.ac.uk/>) which allows you to search for Scottish academics. This means it supports companies considering investing in Scotland, or academics looking for reviewers, or Ph.D. students looking for supervisors, and is already drawing interest from other government and industrial bodies.

As always, we encourage everybody to engage with the SICSA research themes - propose a workshop, an invitation of a Distinguished visitor, or a summer school. These can be used to pump-prime new research directions and collaborations. One area of new activity is the restored pooling funding of £410,000 which we will be using to support entrepreneurial activity. Postdoctoral and Early Career Researcher Exchanges funding is available to provide bursaries for researchers in Informatics and Computing Sciences at SICSA institutions to take part in researcher visits to Europe, North America, China and India, and we can provide bursaries for researchers in Informatics and Computing Sciences at SICSA institutions to boost participation in European FP7 projects.

While SICSA started life as a primarily research-focused organisation, building on Greg Michaelson's effective work as Education Director, we also plan to expand the budget dedicated to Education, and are in the process of creating four themes for Education, in a similar manner to the Research themes. If you have any other suggestions about how we should do things differently in the future, please mail me on director@sicsa.ac.uk!



Professor Roderick Murray-Smith, SICSA Director

News from across SICSA

SICSA PhD Conference 2013

Nicola Hogg

Organisation for the 5th annual SICSA PhD Conference is now underway, and we are pleased to announce that this year's Conference will be held on 12th-13th June at the University of Stirling, in their stunning campus location.

SICSA is excited to bring the conference to Stirling and believes the picturesque campus setting will make a refreshing change to the usual urban surroundings, and hopefully avoid any delegates getting lost on the way to dinner! The campus itself offers excellent facilities in the form of the Pathfoot Building, where the daily conference activities will take place, and the Management Centre which will hold the evening dinner and provide accommodation for delegates. The Management Centre has been awarded the highly coveted Conference Centre of Excellence Award, one of only two venues in Scotland to achieve this, so we are confident the venue will not disappoint!

Following recent applications, the Student Conference Committee is now in place and we are pleased to announce that the position of Academic Chair has been accepted by Dr Marwan Fayed, a SICSA appointed lecturer from the University of Stirling. In a departure from the usual format, this year's conference will be held over two days and one night. Although slightly shorter, the committee, led



University of Stirling - Picture Credit: John McPake

by Dr Marwan Fayed (University of Stirling), have the opportunity to deliver a 'quality over quantity' programme that is sure to excite and engage.

Another change will see Research Theme Leaders holding theme events prior to the conference; taking full advantage of the gathering of the SICSA community, and ensuring theme events are accessible to all SICSA students.

Whether this will be your first SICSA PhD conference, or third, this year's event promises to be exciting and a breath of fresh country air!

SICSA Education update

Prof. Greg Michaelson

The first SICSA Education New Computing Lecturer Induction Day was held at the University of Dundee on 1st October, 2012, hosted by Dr Karen Petrie. 22 participants, representing all SICSA member institutions, took part in sessions with Dr Judy Robertson (Heriot-Watt) on large and small group teaching, Dr Quintin Cutts (Glasgow) on teaching and assessing programming, Dr Karen Petrie (Dundee) on research led and research based teaching, and Dr Jackie Archibald (Abertay) on Honours and MSc project supervision. The event proved very lively and engaging, and good contacts were forged between new and established colleagues from across Scotland's Computing departments. All participants will be shortly be asked to complete a questionnaires to assess how the event might be improved in future.

The next SICSA Education All Hands meeting will be held at Edinburgh Informatics on 3rd December from 12.30-15.00, starting with lunch. The agenda will include a review of the past year's activities, plans for 2013 and longer term SICSA Education organisation.

SICSA Studentship Profiles

In this issue we focus on two SICSA Prize students at two very different stages of their research. The first student, Simon Jouet recently began his studentship at the University of Glasgow whilst our second, Claire Maternaghan, has recently completed her PhD and is preparing for the next stage of her career after completing her studies.

Simon Jouet - University of Glasgow

Can you tell us a bit about your academic/professional career to date?

My initial education took place in France where the education system is slightly different from Scotland. In the last two years of high school I had a scientific education mainly focusing on Math, Physics and Biology. After that I moved to Glasgow to study Computing Science based on the ratings of the University. In first year we had to pick three topics that lead me to an M.Eng. In Electronic and Software Engineering (half computing science and half electronic).

The University forces us to have real world experience during the summer of third to fourth year for three months and during the first semester of the M.Eng. The first placement was at IBM - Tivoli branch in Greenock where I developed a remote control and asset management software for windows mobile. Most of this software has been integrated in another project now sold to over 800 thousands licences. The second placement lasted 6 months and was at Spartan Solutions a small company (with big clients) in Glasgow that provides a software suite for asset management using RFID.

Could you tell us about any awards or prizes that you have won recently?

I won the Francis Morrison Award in 2011 and twice the Engineering Excellence List in 2011 and 2012 for my academic performances. Last year Kyle White (another SICSA student) and I won the Raytheon Student Security Challenge during a daylong challenge of security.

Can you discuss why you wanted to embark upon a PhD and why Scotland?

I love challenges. I enjoyed university so far but it was guided by the courses we had to do and the challenges limited to the difficulty of the coursework. In a PhD the challenge is as hard as you want it to be, there is always things to be improved or rethought. Scotland has been my home for more than five years so I have established some

bonds here. Also because I knew the lecturers and their research interests I knew where to look to do a PhD that would suit my curiosity.

Can you tell us about your planned research?

The research topic that Dr. Pezaros and I wrote aims to change the current approach to network anomaly detection and prevention. The current approaches are to use software based systems that cannot cope with the high speed networks due to the processing power required to analyse the entire traffic. The approach we want to take is to use reconfigurable hardware such as FPGAs in network devices to do anomaly detection and prevention in real-time. This involves a lot of anomaly detection theory but also machine learning and digital electronic.

What do you hope to gain from your PhD? What are your career plans?

Someone told me not so long ago that when you end your PhD you should be one of the most knowledgeable people in the world about the topic. I don't know if that is true but if you work for three years on one specific area it might make sense. More than knowledge I think it is a good experience to practice self-discipline and learn how to resolve highly complex problems. I haven't made up my mind yet of what I want to do afterward, the academic side of things seems interesting but I don't know if I have the skillset required for that.

What do you like to do outside of work/academia?

There is the hobbyist electronic/computing occupation but this doesn't really change from what I do when I work. I am a cinephile and musicophile so I spend quite a lot of my spare time watching movies and listening to music. Outside all of the technology related things, I enjoy cooking and I'm not against the occasional pint with friends.

SICSA Studentship Profiles

Claire Maternaghan - University of Stirling



Could you discuss why you decided to embark upon a PhD?

I wanted to ensure I maximised my options for future career paths, as at that stage I hadn't decided between a future in academia or industry. A PhD also offered me the opportunity to develop my communication skills; both in written and oral form, and exposed me to life in academia.

Tell us about your research

My research explored various aspects of home automation, focusing on the design and development of a home system that could offer both technical and non-technical users the ability to control, monitor and program their home.

This involved three individual strands, which came together to form a comprehensive system. The first of these strands involved a service-oriented plug-and-play framework for interfacing to the various devices in the home. The second included a policy system with a custom language designed for the home and novel policy overlap and conflict detection techniques. Finally, the third strand explored the end user programming aspects of the home system, offering design guidelines for home automation interfaces.

The work was rounded off with user evaluations within the three strands. The successful results allowed me to complete and submit my thesis, which I have now successfully defended.

How would you say being a SICSA student has benefited you?

Primarily: the extra six months funding. This allowed me to round my work off to a higher standard before commencing on my thesis. I was able to submit my thesis within this duration, instead of what often can happen where 3-year funded students have to find and start a new job and work on completing their thesis in their own time, which can be both stressful and detrimental to the quality of the thesis.

I personally feel that SICSA has brought Scotland together, allowing PhD students the opportunity to get to know one another and network within the country. The PhD student conference is a prime example of this, where we can get to know each other on both professional and social levels. I have personally found some of the summer schools and workshops hosted by SICSA to be invaluable to my PhD (one of the summers schools even led to a part time job!).

Can you tell us about any internships that you have completed during your studies?

I have completed three internships, two before the PhD commenced and one at the end.

The first internship was at Sword Ciboodle in Glasgow, as a software engineer for the summer. The second was an academic internship for the MATCH project (collaborative research project between the universities of Dundee, Edinburgh, Glasgow, and Stirling).

My final internship was at Google, based in their Mountain View headquarters in California. The internship was for 14 weeks this summer, and allowed me to work on my research in a commercial setting by exploring home automation aspects for the Google Android team.

Internships have proven to be invaluable during my career, and I would highly recommend pursuing them.

What are your plans for the future?

I received an offer from Google near the end of my internship, and will start as a full time software engineer on the Android team in November.

Further news from across SICSA

SICSA Prize Studentship Induction 2012

Nicola Hogg

SICSA is pleased to welcome the final round of Prize Students into the Scottish Informatics and Computer Science Community, and to celebrate, the SGA Director will be holding an Induction event for these Students in the Informatics Forum at the University of Edinburgh, on 26 November 2012.

The afternoon will be an informal event, allowing new students and their supervisors the opportunity to meet their fellow SICSA peers and learn about their research interests. Topical talks will be held throughout the afternoon; introducing students to the Graduate Academy, Knowledge Exchange team and previous SICSA students who will share their experiences.



This is a great opportunity to get to know the SICSA community, and learn what SICSA can do for you and your PhD. The event is by invitation only, but if you are an existing Prize Student who was unable to attend a previous Induction session, please contact admin@sicsa.ac.uk to register your place.

SICSA Summer Schools

Nicola Hogg

SICSA has funding available for Summer Schools in two forms. Firstly, students can apply for up to £500 towards the cost of accommodation and registration fee, to attend a Summer School held abroad. Students can apply for this at any time by simply emailing details of the school they wish to attend, along with an email of support from their supervisor, to admin@sicsa.ac.uk. Outcomes are usually known within a week.

This Summer SICSA funded students to attend schools in the Netherlands, Italy, Prague and even Japan! It's easy to apply and open to any Scottish Informatics and Computer Science PhD students, so please make the most of this funding while still available, and remember it doesn't have to be for schools held in summer. If there's a school that can benefit your research but you were worried about the cost, this could be your answer.

The second strand of funding is available to academics seeking support for Summer Schools to be held within Scotland. Funds are awarded based on a contribution per head for every SICSA eligible attendee. The annual application deadline of the 30th September has recently passed, with the review process now underway for submitted proposals. Successful applications will be announced in the next edition of the newsletter.

This summer SICSA supported four Scottish Summer Schools; Inference and Dynamical Modelling in Human-computer Interaction, organised by John Williamson, University of Glasgow; RSE and SICSA Scottish Turing Centenary event, organised by Jane Hillston, University of Edinburgh; Types and Programming Languages, organised by Edwin Brady, University of St Andrews and Towards an integrative computational neuroscience, organised by David Sterratt, University of Edinburgh. SICSA funding enabled 70 SICSA students to attend these events with no registration or accommodation fees.

SICSA DEMOfest

The fifth annual showcase of the Scottish Informatics and Computer Science Alliance (SICSA) research will be held in Edinburgh on the 6th November, where it is anticipated over 50 exhibitors will demonstrate and showcase their research to business and Industry as well as the wider SICSA community.

DEMOfest showcases some of the most exciting and innovative research produced in Scotland; everything from projects to help tackle security problems and tourism experiences in rural environments through to research which can help improve social interaction among older adults or children with autism, all of which could have significant commercial application. DEMOfest offers some of the leading lights in the Scottish business community not only the chance to view this cutting edge research, but also the opportunity of working and collaborating with researchers to bring the best ideas to market.

SICSA Distinguished Visitors

Nicola Hogg

In one of her first tasks as SGA Director, Sharon Goldwater oversaw the most recent round of Distinguished Visiting Fellow applications, which saw a number of strong proposals approved. As a result SICSA will be welcoming the following academics over the coming year:

* 10 September - 14 December 2012 (excl. 5 - 15 October) - Wyatt Newman, Professor at Case Western Reserve University, Cleveland OH. Hosted by Prof. Sethu Vijayakumar (University of Edinburgh). Work is particular relevance to the M&A and CSE themes.

* 18 November - 2 December 2012 - Mari Ostendorf, Professor at the University of Washington, USA. Hosted by Steve Renals (University of Edinburgh). Work is of particular relevance to the MMI theme.

* 3 one week visits during 12/13 (dates TBC) - Barry O'Sullivan, Head of the Department of Computer Science and Director of the Cork Constraint Computation Centre at University College Cork, Ireland. Hosted by Ian Gent (University of St Andrews). Work is of particular relevance to the M&A theme with links to NGI.

Should you wish to engage with any of our visitors or find out more about their activities, further details of talks and seminars they are giving can be found on the SICSA events calendar on the website. Regular updates will also be made available in the 'News' section and on the SICSA Facebook group.

The next deadline for applications for Distinguished Visitor funding will be 31 October 2012. If you are an academic working within a SICSA institution and wish to propose a distinguished visitor, please see www.sicsa.ac.uk or contact admin@sicsa.ac.uk for further details. Applications are welcomed from all 14 SICSA institutions.

SICSA Cyber Security Group

Dr Martin Beaton

In November 2011 the Government published its Cyber Security Strategy setting out how the UK will support economic prosperity, protect national security and safeguard the public's way of life by building a resilient digital environment. Cyber Security was already ranked as a Tier 1 national security priority - along with food security and terrorism - and the UK Government committed £650 million over the next four years to bolster its cyber defences.

This concern is not limited to the UK only, last year the US Government diverted \$10 Billion to Cyber Security from its defence budget and it expects to increase this amount by 9% every year for the foreseeable future. Computer Science research lies at the heart of this environment and it is not difficult to see over the next 10+ years, that this area will be most fertile in terms of research funding and job opportunity for graduates. Clearly there is an opportunity for researchers here.

Scotland has an enviable position as a nation that punches above its weight in many sectors, including Computer Science but for now, we do not have critical mass to be noticed relative to our English colleague institutions. Cyber Security Centre of Excellence awards have been bestowed by GCHQ/EPSRC in 2011 and will be again in 2012. No institution in Scotland has received this accolade and it means that a Cyber Security research divide is starting to open between Scotland and England. It is not hard to imagine a scenario where being a Centre of Excellence

will be pivotal in receiving grant funding. If this occurs, a vicious circle in Cyber underfunding may begin. Scotland does have Cyber Security strength with 65+ Cyber Security researchers currently engaged but to compete on the world stage and achieve excellence, we need more focus in this area; especially research with likely impact in the short to medium term and each institution having a strategy to meet the criteria.

SICSA, through their Business Development Executive in charge of Cyber Security (Dr Martin Beaton), is pursuing the goal of centre excellence as one of their mid-term goals. If you would like to discuss any aspect of Cyber Security please do get in contact with Martin on martin.beaton@ed.ac.uk. Also, if you are an academic engaged in Cyber Security research we would encourage you to add yourself to the mailing list (<https://mailman.cs.st-andrews.ac.uk/mailman/listinfo/cybersec>) where we will keep you informed of Cyber opportunities and events. SICSA also have a dedicated Cyber Security twitter feed at: twitter.com/sicsa_cybersec.

Spotlight on Informatics Ventures

Dr Colin Adams - Informatics Ventures



Informatics Ventures is the umbrella program focused on how we can get impact via industrial innovation and developing entrepreneurial talent throughout Scotland from the talent base provided by SICSA. The Program's website is: <http://www.informatics-ventures.com>

Industrial Innovation

There are 2 major programs running here
SMART Tourism, run by Alan Settery - alan.settery@ed.ac.uk
Cyber Security, run by Martin Beaton - martin.beaton@ed.ac.uk

Both of these are aimed at bringing together a community of interest from the SICSA research base and local industry so we can foster closer ties and generate more use of the output of SICSA. The programs run a series of events to look at particular topics and provide a networking opportunity to develop better communication within those areas. Both of them run calls to fund mature research to develop it towards the market.

There is a Cyber Security Meetup 23-25th October in Aberdeen for the academic community and series of industry-academia events are being put together.

Our Annual DEMOfest is being held in the Informatics Forum on 6-November. See elsewhere in this newsletter for details.

Entrepreneurship

We run a number of events to help aspiring entrepreneurs develop their business ideas:

IVenture Tuesday: Last Tuesday of every month in term time, this is a series of talks by Serial Entrepreneurs and Investors going over the elements of what they have found significant in building businesses. These are open to all, check the Informatics Ventures site for details. The 2013 events are being finalised, but the current schedule is available to view in the events diary on the final page of the SICSA newsletter and also on the SICSA online events calendar.

Engage, Invest, Exploit: We run one of the largest investor conferences in the technology area in the UK – Engage, Invest, Exploit. The next event will be held on 9-May-13 in the Assembly Rooms in Edinburgh. Keynote Speakers will include: Sir Tom Hunter and Sherry Coutu (Silicon Valley Comes to the UK)

This is an ideal event to showcase your start-up, with a number of investors from all over Europe attending. Please sign up on the Informatics Ventures website, places are limited.

Life's a Pitch: Articulating your company's value proposition is a major requirement for any start-up. We have a specific set of classes addressing that in the run up to EIE-13. Bill Joos (aka the Pitch Doctor) from Silicon Valley will be running a series of master classes both in Edinburgh (25-Oct-12) and Glasgow (28-Oct-12). There will also be a Spring-2013 series of classes, check out the Informatics Ventures website or contact: Danny Helson - danny@informatics-ventures.com

CEO Master Classes: These are half day seminars lead by a serial entrepreneur on particular aspects of how to start, develop and run a technology based business: The audience is between a dozen and 2 dozen CEO's and aspiring CEO's from over Scotland. For details or to sign up, please contact Danny Helson- danny@informatics-ventures.com Next Event is: 6-Nov-12, Hugh Campbell (GP Bullhound), 'What Investors Really Want', Edinburgh.

Bursaries: We allocate a number of bursaries to 2 of the most highly regarded entrepreneurship workshops – the MIT EDP series in January each year and Ignite program in Cambridge. These allocated from a competition, for details, please contact: Danny Helson - danny@informatics-ventures.com

Mobile Apps Meet-ups: We are in the process of setting up Mobile Apps meet-ups to encourage people to try running their own business. These will be in Glasgow, Edinburgh, Dundee and Aberdeen. For details, please contact Alan Settery - alan.settery@ed.ac.uk.

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.



SICSA and Informatics Ventures Events

Autumn/Winter 2012

October 2012

Thu Oct 25, 2012, 8:30am - 6pm, iVentures: "Life's a Pitch" 1 - with the Pitch Doctor, Bill Joos, University of Edinburgh, Informatics Forum, 10 Crichton St, Edinburgh EH8 9AB

Thu Oct 25, 2012, 6pm - 9pm, CoderDojo event, Scottish Parliament, Edinburgh

Fri Oct 26, 2012, 8:30am - 6pm, iVentures: "Life's a Pitch" 1 - with the Pitch Doctor, Bill Joos, Collin's Senate Suite, Collin's Building 22 Richmond St, Uni of Strathclyde, Glasgow G1 1XQ

Tue Oct 30, 2012, 5:45pm - 8:45pm, iTuesday - Venture Capital: views from both sides of the "Pond", Bill Jos and Callum Paterson, McCance Lecture Theatre 1, University of Strathclyde 16 Richmond St, Glasgow G1 1XQ

November 2012

Tue Nov 6, 2012, 11am - 8:30pm, SICSA DEMOfest 2012, University of Edinburgh, Informatics Forum, 10 Crichton Street, Edinburgh, EH8 9AB

Thu Nov 8, 2012, 1pm-5pm, CEO Masterclass with Hugh Campbell, GP Bullhound, "What investors really want". University of Edinburgh, Informatics Forum, 10 Crichton Street, Edinburgh, EH8 9AB

Thu Nov 15, 2012, 9am - 12pm, SICSA DVF Prof.Wyatt Newman Master class: Robotic Compliant Motion Control: Analysis and Design, University of Edinburgh, Informatics Forum, 4.31

Fri Nov 16, 2012, 11am - 2pm, SICSA DVF Prof.Wyatt Newman Master class: Robotic Compliant Motion Control: Analysis and Design, University of Edinburgh, Informatics Forum, 4.31

Wed Nov 21, 2012, All day, SICSA Qualitative Data Event, Edinburgh Napier University

Mon Nov 26, 2012, 10:30am - 4:30pm, SICSA Prize Studentship Induction Day 2012, University of Edinburgh, Informatics Forum, G.07

Tue Nov 27, 2012, 5:45pm - 8:45pm, iTuesday - The Sky's the limit or is it?, Gareth Williams (Skyscanner), University of Edinburgh Business School, 29 Buccleuch Place, Edinburgh EH8 9JS

December 2012

Mon Dec 3, 2012, 12pm - 4pm, SICSA Education: All-Hands Meeting, Informatics Forum, University of Edinburgh, Crichton Street, Edinburgh, EH9 8AB

Further events during autumn and winter 2012 will be advertised at www.sicsa.ac.uk/events as and when they are confirmed. Please check regularly for details.

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.