

# The Scottish Informatics and Computer Science Alliance (SICSA) Annual Collaborative Progress Report 2012

## Purpose of this document

This document contains the report to the Scottish Funding Council on the activities of SICSA during 2011/12. Facts and figures associated with key performance indicators are included in the Appendices.

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## **1. Annual Collaborative Progress Report 2012: Executive Summary**

The fourth year of operation, 2011/12, has been a very positive and successful year for SICSA across all areas of activity. During the reporting period The University of the Highlands joined SICSA as an Associate Member with the result that all Scottish universities involved in Computing Science and Informatics research and teaching are now SICSA members.

### **1.1 Recruitment**

Recruitment of academic staff has been in line with the original plans and all posts have now been filled. Full details of SICSA staff and their activities throughout the period can be found in Appendices I and II.

### **1.2 Research activities**

Developing and expanding the research community is an important goal for SICSA, and to promote this there have been a large number of events organised and sponsored by SICSA throughout the reporting period. Events vary from research theme workshops and seminars to student training/summer school activities, the PhD Conference and knowledge exchange events. During 2011/12 there were a total of 30 events that received significant funding and/or organisational support from the 4 SICSA research themes.

### **1.3 SICSA Prize Studentships**

The final round of SICSA Prize Studentship applications took place in May 2012 and applicants were generally of a high quality and represented a broad geographical spread. A total of 17 Prize studentships were offered, with 15 having taken up their places to-date. Studentship recruitment is now almost complete for all universities, apart from University of Abertay and University of St Andrews, which are both on course to recruit their final student each in winter 2012/13.

### **1.4 PhD Conference**

The SICSA PhD Conference took place in June 2012 over three days at Glasgow Caledonian University (a recently joined SICSA member). This was the first year that the conference was held in Glasgow. As in previous years the conference was extremely well subscribed, with over 180 delegates in attendance, representing all of the SICSA institutions. The conference was organised by a committee comprising of SICSA appointees (SICSA lecturer, Dr Guido Sanguinetti); members of the SICSA Executive; and most importantly, a group of current Computing Science PhD students from across Scotland. The conference was themed, allowing delegates to attend a range of interactive workshop sessions as well a number of transferable skills workshops. An event evaluation was undertaken immediately after the conference and feedback from delegates was, on the whole, very positive.

### **1.5 Distinguished Visitors and Summer Schools**

During the reporting period SICSA has attracted a number of Distinguished Visitors to Scotland from around the world, who have been involved in a range of lectures, seminars and workshops across a number of the SICSA institutions. Furthermore, the SICSA Distinguished Visitor, Professor Ursula Martin CBE gave a keynote presentation at the SICSA PhD Conference in June 2012. The Distinguished Visitors have been invaluable in supporting research activities, as well as providing excellent networking opportunities for research staff and PhD students across SICSA and increasing the potential for future collaborative work.

SICSA has sponsored and supported the organisation of a number of Summer Schools nationwide as well as providing funding for individual SICSA PhD students to attend international conferences. During the reporting period there were a total of 4 SICSA sponsored summer schools, attracting a total of 100 students.

### **1.6 KE Activities**

SICSA has continued to work with and support the technology transfer offices (TTOs) and entrepreneurial education programs within SICSA member Universities in order to fulfil its objective to inspire, equip and nurture researchers in Scotland, at all levels. SICSA has worked in partnership with the AspeKT programme and Informatics Ventures to deliver a range of entrepreneurial training events and the annual DEMOfest event, which took place in November 2011 and was attended by over 200 delegates and exhibitors. SICSA has recently reviewed and updated its KE strategy, which can be found in Appendix V.

### **1.7 Education**

The SICSA Education group is now well established and has members from all of the SICSA institutions. After a successful launch meeting in December 2011, the group has been very active in sponsoring and organising education related events and activities throughout Scotland. In April 2012 the Education group funded and organised “Engaging the Next Generation: A Showcase of Computing Science Education”, held at the University of Glasgow. This event which was aimed at promoting Computing Science education to industry representatives was a great success, with exhibitors from all of the SICSA institutions and a wide range of industry guests in attendance. The event received positive feedback from both the University exhibitors and industry guests. Planning for the next event has already commenced and the 2013 event is likely to take place in April in Edinburgh.

### **1.8 Sponsorship of conferences**

During the reporting period, the SICSA Directorate made the decision to allocate funding to provide support to large scale international conferences being held within Scotland. In 2011/12 SICSA funded 2 such conferences:

- International Conference on Machine Learning (ICML) 2012 (£3500)
- The Milner Symposium 2012 (£1800)

### **1.9 Staff, Directorate and Research Theme Leader Rotation**

During the final few months of the reporting period the SICSA Executive began preparing for a rotation of the SICSA Directorate and a number of changes to research theme leadership. The changes to the Directorate and Theme Leadership took effect in August 2012 and they will be reported fully within the report for academic year 2012/13. Executive staffing changes are detailed in Section 9 of the main report below.

## **2. Research**

SICSA has focused on specific areas of research where Scottish researchers were already known, but where further investment could deliver new, globally competitive activity, generate new collaborations among existing groups, and use critical mass to access new sources of funding. These research areas are:

- Next Generation Internet;
- Multimodal Interaction;
- Modelling and Abstraction;

- Complex Systems Engineering.

SICSA is pleased to be able to report that the International Advisory Board (which met during March 2012) is happy with the progress of the SICSA research themes and the achievements made during 2011/12.

During 2011/12 there has been significant activity in support of the research themes with numerous meetings and events and the recruitment of high quality staff and SICSA Prize PhD Students. Attendance of SICSA research staff and PhD students at conferences; in contributing to peer reviewed publications and cross-institutional funding applications; and various other esteem activities has been high, as demonstrated in the KPI data (see Appendix II).

## **2.1 Recruitment**

SICSA has the strategic aim to further enhance the quality of research in Informatics and Computer Science. Recruitment of new talent was integral in achieving this aim.

To this end SICSA has been investing in new staff with the aim of introducing unique expertise to stimulate broader collaboration within the research themes. The recruitment strategy ensures that in all cases Scottish ICS will be significantly enhanced in both the short and long term.

The original plans involved the recruitment of 5 Chair level appointments, 25 reader/lecturer appointments and 7 SICSA Advanced Fellow (SAF) appointments.

Recruitment has proceeded in accordance with plans and all SICSA staff are now in place with 6 Chairs, 27 readers/lecturers and 5 SAFs in position.

During the reporting period a number of previously recruited staff left their positions and were replaced by other appointees. These include:

- Dr John Thomson replaced Dr Mirco Musolesi (St Andrews)
- Dr Andreas Lignau replaced Dr Andrew Coles (University of Strathclyde)

Further to this, Professor Andrew Gordon was recruited as Chair at the University of Edinburgh in the period 2011/12.

Appendix I provides complete details of the SICSA staff appointments.

Throughout the period 2011/12 the SICSA appointments were very productive and complete information on activities/outputs for each appointee is provided in Appendix II.

## 2.2 Research Theme Activities

During 2011/12 there were 30 events which were either primarily organised and funded through the research themes, or which had specific elements that were research theme funded. These events were as follows:

Event Title	Date/s	Location
Scottish Argumentation Day	15-Aug-11	University of Aberdeen
Information Systems Development - ISD2011	24-Aug-11	University of Edinburgh
CSE Theme: 5 Day Lecture Series	15-Aug-2011 - 19-Aug-2011	Edinburgh / Glasgow
SICSA Workshop on Technology for Health and Wellbeing	12-Oct-11	Glasgow Caledonian University
Second Workshop on Biological Networks: Theory and Applications	21-Oct-11	University of Edinburgh
International Society for Presence Research (ISPR) 2011	26-Oct-2011 - 28-Oct-2011	University of Edinburgh
Scottish Programming Languages Seminar (SPLS)	11-Nov-11	University of Glasgow
SICSA Workshop on Computational Logic: In honour of Roy Dyckhoff	18-Nov-11	University of St Andrews
Multimodal Interaction Theme: All Hands Meeting	15-Dec-11	University of Edinburgh
2nd SICSA SEABIS Workshop 11-12 Jan 2011	11-Jan-12	Edinburgh-Napier
SICSA MMI Mobile Interaction workshop	20-Jan-12	University of Glasgow
Scottish Theorem Provers Meeting	10-Feb-12	University of Glasgow
NGI Theme: SCONE meeting	24-Feb-12	University of St Andrews
SICSA MMI Affective Computing Workshop	29-Feb-12	Abertay University Dundee
SICSA Sponsored Scottish Programming Languages Seminar (SPLS)	15-Mar-12	University of Glasgow
SICSA MMI User Experience (UX) Workshop	26-Mar-12	University of Glasgow
Milner Symposium 15-18 April 2012	15-Apr-12	University of Edinburgh
Maths and Computer Proof Discussion Day	15-Apr-12	University of Edinburgh
Symposium "Influencing People with Information"	25-Apr-12	University of Aberdeen
Workshop on Research Directions in Parametricity	02-May-12	University of Strathclyde
Atlas Informatics Workshop	15-May-12	University of Edinburgh
SICSA Cybersecurity Meetup	18-May-12	University of Edinburgh
'Biology + Computing = ??' - a joint SICSA CSE:SEABIS and ModAbs meeting	21-May-12	University of Stirling
Scottish Category Theory Seminar	25-May-12	University of Strathclyde
Multimodal Interaction and Museum Installation Design	30-May-12	University of Strathclyde
SICSA Modelling and Abstraction Workshop 2012	11-Jun-12	University of Stirling
Trends in Functional Programming 2012 (TFP12) 12-14 June 2012	12-Jun-12	University of St Andrews
75 Years of $\lambda$ -Calculus	15-Jun-12	University of St Andrews
MMI Theme: Doctoral Colloquium	19-Jun-12	Glasgow Caledonian University
UK Performance Engineering Workshop	02-Jul-12	University of Edinburgh

### 2.2.1 Complex Systems Engineering

The Complex Systems Engineering theme activity continued to thrive during 2011/12. The research theme continues to support national and international events across Scotland, often in synergies with other SICSA themes, in particular Modelling and Abstraction.

During the period 2011/12 the overall leadership of the Complex Systems Engineering theme changed from Professor Greg Michaelson (Heriot-Watt University) to Professor John McCall (Robert Gordon University). Supporting Professor John McCall is deputy theme leader, Professor Neil Ghani (University of Strathclyde). As reported elsewhere, Professor Michaelson has continued his work with SICSA by undertaking the role of SICSA Director of Education.

Highlights of Complex Systems Engineering theme activity for the Period 2011/12 include:

- Sponsorship of the 2012 Symposium on Trends in Functional Programming (TFP 2012), University of St Andrews on June 12-14, 2012. The three-day symposium formed the centrepiece of an eight day event focusing on advanced programming language research, including a SICSA-sponsored summer school on types in programming; a one-day workshop celebrating 75 years of the Lambda Calculus that brought key researchers to St Andrews; plus three other workshops covering educational trends, Many-Core

computing, and the Erlang language. The keynote address was given by Professor David Turner (University of Kent). In all, over 150 students and researchers visited St Andrews for TFP and the associated events.

- Sponsorship of the International Workshop on 75 Years of the  $\lambda$ -Calculus, University of St Andrews, 15<sup>th</sup> June 2012. There were 31 participants from across SICSA.
- Sponsorship of the 28th UK Performance Engineering Workshop, University of Edinburgh, 2<sup>nd</sup> July 2012. UKPEW is the leading UK forum for the presentation of all aspects of performance modelling and analysis of computer and telecommunication systems. It is the primary event at which the UK performance community can get together to present and discuss their work. This year the workshop displayed the usual range of themes across modelling, modelling languages, analysis techniques, simulation, measurement, and case studies to illustrate these. The workshop was attended by 23 delegates in total.

There were a number of SICSA Distinguished Visitors during the period whose research is closely aligned to the Complex Systems Engineering theme including; Professor Ursula Martin CBE and Professor Martin Campbell-Kelly. Details of their talks are available in Appendix IV.

Furthermore, a sponsored Summer School on Types and Programming Languages was held at the University of St Andrews from 7<sup>th</sup> June – 9<sup>th</sup> June 2012. The Summer School, which had relevance to a number of the SICSA themes including Complex Systems Engineering attracted total of 27 delegates, of which 16 of these were from SICSA institutions.

### **2.2.2 Modelling & Abstraction**

The Modelling & Abstraction theme has been very active throughout the reporting period, providing funding support to a broad range of events across Scotland.

As previously reported, the theme has demonstrated synergies with other SICSA research themes, including both Complex Systems Engineering (though collaboration on the 75 years of Lambda Calculus celebrations) and with Next Generation Internet (through collaboration on the 28th UK Performance Engineering Workshop – detailed above).

Other highlights included:

- Organisation of Modelling: Challenges and Perspectives workshop, University of Stirling, 11<sup>th</sup> June 2012. The workshop featured three technical invited speakers, a number of contributed short talks, a talk given by an EPSRC representative, a Modelling Exercise and a final discussion. The workshop was opened by SICSA Distinguished Visitor, Professor Alberto Policriti (University of Udine, Italy), who gave a presentation on "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 event attracted 24 participants from across SICSA and other European institutions.
- Organisation of Biology + Computing =?? Workshop, University of Stirling, 21<sup>st</sup> May 2012. This event brought together members of the Modelling and Abstraction community

with the “self-organising, emergent, autonomous, biologically inspired systems (SEABIS)” community (associated with Complex Systems Engineering theme). Speakers included Dr Vashti Galpin of University of Edinburgh and Professor Yaochu Jin of University of Surrey. Furthermore, Professor Leslie Smith of University of Stirling gave a particularly thought-provoking presentation on synthetic neural systems, raising questions about brain: computer interfaces.

- Organisation of the Maths and Computer Proof discussion day (alongside the Complex Systems Engineering theme), University of Edinburgh, 15<sup>th</sup> April. Speakers included Sir Michael Atiyah (Honorary Professor at University of Edinburgh) on the topic of mathematical intelligence; John Harrison (Intel) on the subject of formalizing mathematical proofs by computer; and Georges Gonthier (Microsoft Research), who spoke about the applications of formalisation, describing the background and architecture of his work on automating the proof of the odd-order theorem. The event was attended by 24 participants from across the UK.

At the end of the period 2011/12, Professor Jane Hillston stepped down from the position of Theme Leader for Modelling and Abstraction and is replaced by Dr Carron Shankland (University of Stirling).

### **2.2.3 Multimodal Interaction**

There have been a range of varied activities within the Multimodal Interaction research theme over the course of the reporting period; including workshops; a successful SICSA sponsored Summer School; and the first Doctoral Colloquium organised by a SICSA Research Theme.

Of particular note were:

- SICSA workshop on Technology for Health and Wellbeing, Glasgow Caledonian University, 12<sup>th</sup> October 2011. The SICSA research working groups identified "Technology for Health and Wellbeing" as being an important sub-topic of the Multimodal Interaction' theme and as a result a workshop was proposed in this area to the wider Multimodal Interaction theme members. Speakers included Professor Vicki Hanson, University of Dundee on the topic of “Inclusive Design of Healthcare Technologies”; Nessa Barry, Scottish Centre for Telehealth and Telecare (SCTT) on the subject of sustainable telehealth and telecare; and Dr Chris Burton, University of Edinburgh, who spoke about interpretation of telemonitoring data and the development of the next generation of interactive e-health interventions for common psychological disorders. The event was extremely well attended with 57 participants from a wide variety of backgrounds, which included SME's, Scottish Government agencies, Scottish Government officials, NHS staff, Scottish Enterprise, local government officials and community groups. Just over half of the participants were academics (e.g. 33) with 9 of the SICSA universities being represented.
- SICSA Multimodal Interaction Doctoral Colloquium, 19<sup>th</sup> June 2012, University of Glasgow. This was the first event of its kind to be supported by a SICSA Research Theme and participant feedback demonstrates that it was an overwhelming success.

Students appreciated the opportunity to learn how to present an overview of their research for their entire PhD thesis, as opposed to traditional paper presentations that are more focussed. Students also appreciated the detailed feedback they received from other students and panel members. There were a large number of applicants for places on the DC, but spaces were limited to 8 students, who represented 4 of the SICSA institutions. The panel was made up of 4 academics, representing 4 of the SICSA institutions. The success of the 2012 event has meant that a further event will take place in the summer of 2013, linked to the SICSA PhD Conference. Other research theme leaders are being encouraged to organise a similar event for their own themes in 2013.

- SICSA Summer School on Inference and Dynamics in Interaction, 11-15<sup>th</sup> June 2012, University of Glasgow. Featuring 9 speakers from across Europe, the school covered a wide range of useful and interesting material, and formed a coherent programme covering modern topics in the intersection between mathematical modelling and human computer interaction. There were 24 student participants in total, representing 9 of the SICSA institutions and also a number of European universities.

#### **2.2.4 Next Generation Internet**

The Next Generation Internet theme has been active in organising and supporting events across Scotland during the reporting period. The “Scottish Networking Event” (SCONE) group is now well established and there were 2 meetings of the group held in 2011/12.

Other highlights included:

- Organisation of Cyber-Security workshop, 18<sup>th</sup> May 2012, University of Edinburgh.
- Co-sponsorship (with Complex Systems Engineering) of the 28th UK Performance Engineering Workshop, University of Edinburgh, 2nd July 2012.

### **3. Graduate Academy**

A core goal for SICSA was to create an internationally recognised Graduate School in informatics and computer science, recruiting high quality SICSA Prize Scholars and offer world-leading advanced post-graduate training and research via a focus on our selected research themes and a coordinated programme of activities (including summer schools, graduate conferences, postgraduate training courses and distinguished visitors). The Graduate Academy has continued to be extremely active in the Period 2011/12, as demonstrated below.

#### **3.1 Prize Studentships**

SICSA established prize studentships as a key method in enhancing the quality of research within Scotland and to attract the very best Informatics and Computer Science researchers from across the world.

The reporting period 2011/12 marked the final recruitment call for SICSA PhD Studentships and recruitment was completed in May 2012. The numbers of applications and geographical spread of applicants is detailed fully within Appendix III (Section 13).

As in previous years, the recruitment process was rigorous, with applicants being first shortlisted by the relevant SICSA institutions and then the shortlisted candidates reviewed by members of

the SICSA Graduate Academy Board. Finally, candidates were selected at the SICSA Graduate Academy Board meeting in May 2012.

The studentship competition for the cohort starting in 2012 was very successful with a total of 17 awards being offered. Of those, 15 students have taken up their places to date. The prize students are playing an active role within their institutions, and are increasingly playing a central role in cross-site activities, such as the SICSA PhD Conference. Furthermore, a number of prize students were involved in presenting their work to the SICSA International Advisory Board in March 2012, which was considered a highlight of the meeting by some of the IAB members.

Recruitment of SICSA Prize Students is almost complete across all SICSA institutions. The University of Abertay and the University of St Andrews are still to recruit one further student each and this is planned for winter 2012.

### 3.2 Summer Schools

Summer Schools lead to international links and professional relationships which can foster long running international collaborations. SICSA provides funding and organisational support for Summer Schools which encompass both research intensive workshops and the successful format of one- and two-week residential schools.

#### 3.2.1 SICSA Sponsored Events

SICSA provided sponsorship and organisational support for the following Summer Schools in 2011/12:

Event Title	Dates	Location	Number of Delegates
Advanced techniques in computer algebra systems development	29-Aug-2011 to 02-Sept-2011	University of St Andrews	9
Inference and dynamical modelling in human-computer interaction	11-Jun-2011 to 15-Jun-2011	University of Glasgow	24
RSE and SICSA Scottish Turing Centenary event	09-May-2011 to 10-May-2011	University of Edinburgh	40
Summer School on Types and Programming Languages	07-Jun-2011 to 9-Jun-2011	University of St Andrews	27

#### 3.2.2 Support for SICSA Students

SICSA also provides limited funding for Scottish-based Computing Science PhD students to attend international summer schools. This funding is limited to a total of £500 for each student, to cover the Summer School registration fee and accommodation only. During 2011/12, SICSA granted funding to 8 students who attended Summer Schools in Spain (4), UK (2) and Italy (2).

### 3.3 International Conferences

During the reporting period 2011/12, the SICSA Directorate agreed that it would be beneficial for the Informatics and Computing Science community in Scotland to offer financial support for the organisation of high profile, international Computing Science conferences being held within Scotland. The main objective of this is to attract a greater number of large international conferences to Scotland. To that end, the SICSA Directors agreed to allocate a total of £10K per year for the Periods 2011/12, 2012/13 and 2013/14 for this purpose.

The SICSA Executive has established a structured application procedure for those wishing to apply for this funding and all applications are reviewed by the SICSA Graduate Academy Board (SGA). Funding is conditional on a number of free places being created for Scottish-based Computing Science PhD students. This funding therefore has the two-fold advantage of encouraging high-profile conferences to Scotland and giving the opportunity to SICSA students to attend free of charge.

In the reporting period 2011/12, SICSA granted a total of £5300 towards the sponsorship of international conferences. These were as follows:

- International Conference on Machine Learning (ICML) 2012, University of Edinburgh, 26<sup>th</sup> June-1<sup>st</sup> July 2012. This conference attracted a total of 744 delegates, including 304 students, of whom 32 were Scottish-based PhD students (funded £3500)
- Milner Symposium University of Edinburgh, 16<sup>th</sup>-18<sup>th</sup> April 2012. This conference attracted a total of 202 delegates, 15 of whom were Scottish-based PhD students (funded £1800)

### **3.4 The SICSA PhD Conference 2012**

The main student focussed event of the year was the fourth Annual SICSA PhD Conference which was held for the first time in Glasgow at Glasgow Caledonian University, from the 20th to the 22nd June 2012. This was a sell-out event attracting over 180 registrations from across SICSA institutions. The subsequent feedback demonstrated that the conference was extremely well received by delegates.

The conference was organised by a committee comprising members of the SICSA Executive; one member of staff from Glasgow Caledonian University; and 11 PhD students (representing 9 of the SICSA Universities). The committee was chaired by SICSA Reader/Lecturer, Dr Guido Sanguinetti (University of Edinburgh).

SICSA places a great deal of importance on involving current students in the organisation of the SICSA PhD Conference. Involvement in the organising committee provides the opportunity for students to gain first-hand experience in organising scientific events and to develop useful transferable skills. The process also allows students from across Scotland to work closely with other students in their field; to build relationships with each other; and to gain experience of working with academics from institutions other than their own.

Key themes for this year's event were:

- Computing and how it changes people's lives;
- Maths and statistical computing;
- Large scale experiments and modelling;
- Distributed and parallel computing.

These themes were represented in a range of plenary sessions and interactive workshops during the conference. Plenary talks were provided by academics from across the UK, including:

- Dr Vince Miller (University of Kent);
- Professor Philip Wadler (University of Edinburgh);
- Professor Jane Hillston (University of Edinburgh);
- Professor Paul Watson (University of Newcastle);
- Professor Ursula Martin CBE (Queen Mary University of London) - It is of some note that Professor Martin was visiting Scotland at the time of the conference as a SICSA Distinguished Visiting Fellow.

The conference also featured a variety of transferable skills workshops, aimed at developing skills in subjects such as:

- Progression after PhD;
- Presenting research;
- Novel writing up techniques;
- Sharing data/software;
- Postgraduate Demonstrators Workshop, facilitated by the Higher Education Academy.

The conference featured two poster sessions and as in previous years there was a competition for best poster. Over 80 research posters were presented over the duration of the conference and these were judged by a panel of academics, which comprised SICSA Directors; keynote speakers; and the two academics present on the organising committee. The extremely high quality of the posters submitted in 2012 meant that there were five prize winners overall, three of whom were SICSA funded students.

### 3.5 Other Student Training/Courses

SICSA has been successful in providing and supporting a number of courses which are specifically tailored to students in Informatics and Computer Science and which were available to all ICS PhD students within Scotland. There have been a wide variety of courses available, including the Studentship Induction and PG Demonstrators workshop organised by the SICSA Graduate Academy, as well as a number of events aimed at involving PhD students in knowledge exchange and entrepreneurship activities. For these latter types of courses, funding support from Informatics Ventures has been instrumental.

An example of the rapid assimilation of new members into SICSA is that one of the courses held during 2011/12 was held at Glasgow Caledonian University, one of the new associate members of SICSA.

The courses provided/supported during 2011/12 were as follows:

Event Title	Date	Location
Appathon - SVc2UK, 8-9 October 2011, Edinburgh	08-Oct-11	University of Edinburgh
SICSA Prize Studentship Induction Event 2011	28-Nov-11	University of Glasgow
Bill Joos - Entrepreneur Pitch Presentation Workshop	06-Feb-12	University of Edinburgh
Bill Joos - Entrepreneur Pitch Presentation Workshop	07-Feb-12	University of Glasgow
MMI Theme: Doctoral Colloquium	19-Jun-12	University of Glasgow
PG Demonstrators Workshop	22-Jun-12	Glasgow Caledonian University
Research Ventures	8-Jun-2012 - 20-Jun-2012	University of Glasgow

### 3.6 Distinguished Visiting Fellows

The very best research laboratories attract distinguished visitors, and the presence of these world leaders inspires young researchers, leading to extended collaborations, and improving the connectivity of both researchers and their departments.

The SICSA Distinguished Visiting Fellowship scheme continues to attract quality applications and the fellows appointed during 2011/12 are detailed below (note that some visits will take place within the 2012/13 academic year):

- Professor Mari Ostendorf (University of Washington). 2 week visit 18 November - 2 December 2012. Hosted by University of Edinburgh.
- Professor Wyatt Newman, (Case Western Reserve University, Cleveland). 15 week visit proposed 27th August–14th December 2012. Hosted by University of Edinburgh.
- Prof Barry O'Sullivan (University College Cork). Three proposed 1 week visits during AY12/13 to Edinburgh, Glasgow and St Andrews/Dundee. Hosted by University of St Andrews.
- Dr Apu Kapadia (Indiana University). 2 week visit proposed to both Glasgow and St Andrews during 1st two weeks of August 2012. Hosted by University of St Andrews.
- Professor Scott Aaronson (MIT). 2 week visit from 6 July 2012 onwards. Hosted by University of Edinburgh.
- Professor Alberto Policriti (Udine University, Italy). 10 day visit proposed in 2012. Hosted by University of Edinburgh.
- Professor Richard Schulz (Quality of Life Technology Center (QoLT), Carnegie Mellon/University of Pittsburgh). 1 week visit proposed 2012. Hosted by University of Dundee.
- Professor Giorgio Satta (University of Padua, Italy). 2 week visit late August/September 2012. Hosted by University of Edinburgh.
- Dr Bartholomew Baddeley, (University of Sussex). 1 week visit proposed 5th-9th December, 2011. Hosted by University of Edinburgh.
- Professor Eric Monteiro (University of Oslo). Proposed 2 week visit to take place during first half of 2012. Hosted by University of Edinburgh.
- Professor Martin Campbell-Kelly (Warwick University). Proposed 1 week visit in June/July 2012. Hosted by University of Glasgow.
- Professor Ursula Martin CBE, (Queen Mary University of London). Proposed 6 month visit from Jan - June 2012. Hosted by University of Edinburgh.

During their time in Scotland Visiting Fellows are asked to take part in events and activities that will allow researchers from across Scotland to benefit. A complete list of activities which took place during 2011/12 is featured within Appendix IV.

#### **4. Pools Engagement in European Research (PEER)**

During 2011/12, Scottish Funding Council granted £22,308 to SICSA for Pools Engagement in European Research (PEER) in order to extend participation across the ICS community in European Framework Programme 7 (FP7) projects.

During 2011/12 there were no applications for PEER funding and as a result there are no Equality Monitoring Statistics to report at the current time.

Given the lack of applications during 2011/12, SICSA is taking steps to promote this funding more widely throughout the ICS community.

## 5. Post-doctoral and Early Career Researcher Exchange (PECE)

During 2011/12, Scottish Funding Council granted £25,000 to SICSA for Post-Doctoral and Early Career Researcher Exchanges (PECE) in order to provide research training and development opportunities for early career researchers and to build experience of international collaboration with academia and/or industry.

During 2011/12 there was one application for funding and this was granted after review by the SICSA Graduate Academy Board to:

- Dr Adam Barker, University of St Andrews: Visit to Algorithms, Machines and People (AMP) Lab at the University of California, Berkeley, 20 July 2012 until 31 August 2012.

## 6. Knowledge Exchange Activities

### 6.1 KE Events

There has been significant progress over the year with SICSA extending its visibility across the Scottish ICT community through a range of activities.

Key Knowledge Exchange events during 2011/12 were as follows:

Event Title	Dates	Location
IBM Smarter Planet	20-Sep-11	University of Edinburgh
Appathon - SVC2UK	08-Oct-11	University of Edinburgh
Smart Tourism Challengefest - Navigation	31-Oct-11	University of Edinburgh
DemoFest 2011, 8 November, University of Edinburgh	08-Nov-11	University of Edinburgh
IBM SmartCamp	17-Nov-11	University of Edinburgh
iVenture Tuesday - Sir Tom Farmer	29-Nov-11	University of Edinburgh
CEO Master Class with Ian Ritchie	24-Jan-12	University of Edinburgh
iVenture Tuesday - Dr David Milne	31-Jan-12	University of Edinburgh
Bill Joos - Entrepreneur Pitch Presentation Workshop	06-Feb-12	University of Edinburgh
Bill Joos - Entrepreneur Pitch Presentation Workshop	07-Feb-12	University of Glasgow
iVenture Tuesday - David Sibbald	28-Feb-12	University of Edinburgh
Rural Needs in Scotland - Smart Tourism Event	16-Mar-12	University of Aberdeen
CEO Master Class - Angela Mathis	18-Apr-12	University of Edinburgh
iVenture Tuesday - "What Investors Really Want"	24-Apr-12	Edinburgh Napier
Engage Invest Exploit 2012	10-May-12	University of Edinburgh
CEO Master Class with David Farquhar	22-May-12	University of Edinburgh
iVenture Tuesday - Jim McColl	29-May-12	University of Strathclyde
Research Ventures	18-Jun-12 - 20-Jun-12	University of Glasgow

### 6.2 KE Strategy

SICSA has recently reviewed and updated its Knowledge Exchange Strategy in order to continue to deliver the most effective KE programme, with the resources that are currently available. A full version of the revised KE strategy is included as Appendix V. The strategy is led by 4 main principles, as follows:

**Inspire: Entrepreneurial awareness**

For inspiring entrepreneurial awareness, SICSA-wide KE activity has concentrated on exploiting the ProspeKT and now AspeKT program in Edinburgh. This has focused on entrepreneurship, company formation, and business development, with theme-based, market focused, business development executives (BDEs) located close to researchers.

Concrete examples of this include the iVenture Tuesday Seminars, CEO Master Class, and promotion of outputs from DemoFest. ProspeKT itself exceeded reasonable expectations: in four years, it has supported 33 spin outs and start ups, which have won £4.6M in investment, generated £1.9M in revenue, and created over 80 new jobs and nearly 90 new products. SICSA directed events include entrepreneurial elements in our summer school program, annual PhD conference, PhD induction and theme events. In addition, SICSA raises awareness and promotes individual University level entrepreneurial activities and training such as the Abertay Dare to be Digital—with national and international reach, or the Converge business formation competition from Heriot-Watt.

**Equip: Entrepreneurial training**

An important element of SICSA-wide KE has been the training available through Informatics Ventures, which has delivered almost 24,000 hours of entrepreneurship education to over 870 participants in academia and industry. As well as hosting annual Demofests linking national academia and industry, SICSA has encouraged PhDs across Scotland to participate in entrepreneurial training via Informatics Ventures, on the understanding that we can help increase the proportion of our people who have the drive and skills to commercialise research. Further examples of this include the CEO Master Class, EDP/Ignite bursaries and Startup Summer School. A new program is the Mobile Apps meet ups in each of the major cities to help get some of our students experience in running their own businesses. By connecting some of the larger platform players and local companies into these groups it provides a different way to engage externally.

**Nurture: Business development support**

Within SICSA KE both the Tourism and Cyber Security programs have organised events to bring relevant researchers and local industry together. They also help in achieving industrial connections when larger grant proposals are being developed.

**Exchange: Early career researchers' engagement with business and industry**

Looking ahead, it is hoped that restored pooling funding will enable SICSA to deliver a comprehensive programme facilitate early career researchers' exchanges with business and industry, both within Scotland and internationally.

Progress in this area will be reported in more detail in the annual report for the period 2012/13.

**7. Education**

Following discussion with SFC, SICSA's remit was expanded in September 2011 to encompass Education, incorporating many of the activities of the informal Scottish Heads of Computing group. Facilitated by the careful management of the SICSA central funding, a budget comparable to that for the SICSA research themes (£5000 per annum) was allocated for Education activities. Professor Greg Michaelson (Heriot-Watt University) became the first SICSA Director of Education, joining the SICSA Board.

An All-Hands launch meeting was held at the University of Dundee in January 2012, attended by representatives of all the SICSA member institutions. It was agreed that SICSA Education would necessarily be lean and lightweight rather than all-encompassing, with a focus on enhancing collaboration across the core activities of undergraduate and postgraduate provision. It was also agreed that SICSA Education should also seek to represent common interests to government, to employer, professional and practitioner organisations, and to the wider education sectors. These include resourcing for University Computing programmes, secondary school qualifications, the transition from school to University, and graduate skills. Finally, it was agreed that All-Hands group might co-opt representatives from beyond SICSA, for example from Computing in Schools (Scotland) and ScotlandIS.

The first major event, the SICSA Education Showcase (“Engaging the Next Generation”), was held at the University of Glasgow in April 2012. By analogy with the well-established SICSA Research Showcase (Demofest), this event was aimed at providing employers with information about taught programme outcomes and graduate skills. All of the SICSA institutions presented posters on their activities and there was good attendance from employers. Post event evaluation suggests that the Showcase was a success and it is planned to hold a further event in Edinburgh in 2013.

In 2011/12, SICSA Education has provided financial support for a Women in Science event at the University of Dundee; a Women in Computing event at the University of Edinburgh; and the Royal Society of Edinburgh/British Computer Society Curriculum for Excellence Computing Exemplification Project.

SICSA is now well embedded in the Scottish secondary school sector with representatives on the Scottish Qualifications Authority “Technology” Curriculum Area Review Group and the “Computing” Qualifications Development Team, and on the RSE/BCS Exemplification Project Advisory group Advisory group.

**An outline of activities during 2011/12 is provided in the table below:**

Activity	Date	Location
SICSA Education Launch meeting	05-Dec-11	University of Dundee
How to Have a Successful Academic Career as a Woman in Science: Seminar	16-Mar-12	University of Dundee
Sponsorship for "Learning Through Technology", Holyrood Magazine event	24-Apr-12	Our Dynamic Earth, Edinburgh
Engaging the Next Generation: A Scottish Computing Graduate Recruitment Showcase	26-Apr-12	University of Glasgow
Women in Computing	10-May-12	University of Edinburgh
Support for RSE/BCS Computing Science Exemplification Project	May-12	Heriot-Watt University

## **8. Sustainability/Relationship building**

### **8.1 Horizon Projects**

SICSA was awarded three SFC Horizon Fund projects during the previous reporting period (2010/11). The three projects are in the highly relevant and cross-cutting themes of “smart tourism”, “cloud services” and “sensor systems”. A short report on the progress of these projects during the reporting period 2011/12 follows:

#### **Smart Tourism**

The Smart Tourism programme aims to deliver innovative approaches and technology solutions to enhance the Scottish Tourism sector’s technology base. This is a three-way collaboration between problem holders (with information assets in culture and heritage), companies (servicing the tourism sector), and academics (with mature technology solutions). As well as supporting applied research projects the programme also aims to introduce network activities connecting

these communities and overall to help Scottish SMEs grow their products, processes and services, and to develop new businesses leading to increased employment and sustainable economic growth

The SICSA institutions involved in this programme are Glasgow, Robert Gordon, Edinburgh, St. Andrews and Glasgow Caledonian.

Achievements and activities during the reporting period include:

- Smart Tourism Navigation Challengefest, 31<sup>st</sup> October 2011, University of Edinburgh. Talks were provided SICSA researchers and a representative from Historic Scotland.
- Rural Needs in Scotland, 16<sup>th</sup> March 2012, University of Aberdeen (in partnership with dot.rural Digital Economy Hub)

Funded projects include:

- The Shape of the Festivals, led by Matthew Chalmers and Don McMillan, University of Glasgow
- Large Augmented Digital Displays for Interactive Experiences of Historic Sites (LADDIE), led by Aaron Quigley and Miguel Nacenta, University of St Andrews.
- SMART, led by Aaron Quigley, University of St Andrews, Sarah Hammond, MUSA, St Andrews, and Kate Ho, Interface3, Edinburgh.
- LIVING HISTORY, led by Susan Craw and Stewart Massie, Robert Gordon University, Ayşe Göker & Hans Myrhaug, AmbieSense Ltd, and Linda Kong, Kari Coghill & Lorna Ewan, Historic Scotland (HS)
- MINERVA: Using Digital Technology to Connect Stewarded and Un-Stewarded Historical Sites. Participants include: David McGookin (University of Glasgow), Stephen Brewster (University of Glasgow), Jon Oberlander (Edinburgh University), Katie Dargie (or representative, Glasgow City Council), Peter McCormack (or representative, East Dunbartonshire Leisure and Culture Trust), Jim Devine (or representative, Interpretive Media), and Matthew Aylett (CereProc)
- Historical Echoes, led by Professor David Benyon, Centre for interaction Design, Edinburgh Napier University

Further information about the above projects can be found at the project portal <http://www.smarttourism.org/home>.

### ***Services to the Cloud***

The Cloud project aims to work with companies in development of high-value software services and, from this engagement, develop a body of transferable knowledge, for the Scottish software community as a whole. The core group of the project includes HEIs and companies, all of which have successful software products. The focus is on developing a set of experience-based case studies illustrating the issues of migrating high value products to services, generic issues (dependability, security, compliance, costing, billing, etc.) and the development of core product functionality as services. The project is particularly relevant to SMEs who currently offer high-value software products and this project aims to accelerate their product evolution and increase their competitiveness. The SICSA institutions involved in this project are St. Andrews and Robert Gordon.

Achievements and activities during the reporting period include:

- Ian Sommerville and Horacio Gonzalez-Velez both presented at the RGU organised symposium “Walking on the cloud: An introduction to cloud computing” (March 2011).
- The project co-organised an open Cloud Enterprise day in Edinburgh (June 2011). This was part of the SICSA-funded Cloud Computing Summer School that was held in St Andrews.
- Gordon Baxter and Derek Wang presented posters at the SICSA Demofest (November 2011).
- Horacio Gonzalez-Velez gave a talk “Deploying Enterprise Applications in the Cloud: A Researcher's View” to the BCS Switzerland Branch (November 2011).
- Ian Sommerville gave a talk “The cloud adoption toolkit: Supporting cloud adoption decisions in the enterprise” at the JISC Workshop “Cloud and shared service solutions” (December 2011).
- Gordon Baxter gave a talk “The Forecast is Cloudy” at the CIMA student day in Glasgow (January 2012).
- The Scottish Cloud Network mailing list now has seven subscribers over and above the initial membership.
- White papers/technical reports on the subjects of security and privacy issues have been added to the project portal.
- Slide sets on building applications in the cloud (for managers, and for developers) have been added to the project portal.
- The internship with PiSys investigated some of the issues associated with migrating one of the company’s existing products to the cloud. PiSys are now developing this work further, and have subsequently employed the intern as a full time member of staff.

### **Scottish Sensor Systems Centre**

The Scottish Sensor Systems Centre (SSSC) aims to create a world leading Centre of Excellence in intelligent sensor systems and applications driven by forward looking user needs. The SSSC has been established to fund and encourage sensor systems projects developed in collaboration between academia and industry. The role of the new Centre is to deliver Knowledge Exchange between industry and academia in order to facilitate the next generation of intelligent sensors and sensor systems for a range of applications in sectors including Subsea, Infrastructure, Energy, Environment and Defence. The SSSC focuses specifically on short-term R&D projects delivered in partnership with industry aligned with a strategic roadmap developed through dialogue between the industry and academic partners aimed at the timely development and deployment of new and upcoming sensor system technologies. The SSSC aims to become the primary resource in Scotland for global companies seeking to define the future of sensor systems and deliver commercially attractive solutions against this roadmap.

The SICSA institutions involved in this programme are Glasgow, Aberdeen, Robert Gordon, Dundee, Strathclyde, Edinburgh, Heriot Watt and St. Andrews

An overview of recent activities can be found at <http://sensorsystems.org.uk/>

### **8.2 Involvement in IC Bids**

SICSA is involved in the Sensors IC (IC-SIS), and will make direct contributions to higher levels of the ‘sensor stack’ in the IC-SIS programme. Furthermore SICSA will share its technology for expert finding, and its entrepreneurial programme best practice with the IC-SIS team.

### **8.3 SICSA Communications Strategy**

As a national organisation working on a range of areas in Scottish Informatics and Computing Science, it is important that SICSA is able to provide coordinated and consistent communication about its activities and achievements to its broad range of stakeholders. It was therefore deemed necessary during the reporting period 2011/12 to undertake a full review of the organisational communications strategy. A report was published in September 2011 and the full version can be downloaded from the SICSA web site. The principle objective of the SICSA communications strategy is to plan and co-ordinate effective communications methods and devices in order to ensure that the right messages reach the right audiences through the most appropriate channels at the most appropriate times. SICSA places an emphasis on good practice in this area and values the importance of good internal and external communication in achieving its founding objectives, encouraging long-lasting relationships and working towards future sustainability.

A full evaluation of the communications strategy is currently underway and the data will not be available until November/December 2012. An update on this will be provided in the annual report 2012/13.

### **8.4 Future sustainability beyond 2015**

As a result of careful financial management throughout the last 4 years of operation, the SICSA “shared-costs” budget held at the University of Edinburgh, University of Glasgow and University of St Andrews is currently in a very healthy position. We are therefore very pleased to report that SICSA will be able to continue its core activities (such as summer schools, Distinguished Visitors, PhD Conference, Theme Activities etc.) into 2013/14 and 2014/15, after payments to the SICSA “shared costs” budget cease. In summary, SICSA will be in a position to continue all activities to some extent until shortly before the final report is due for submission to SFC in summer 2015.

However, in light of the perceived success of SICSA, the SICSA Committee is very keen to explore possibilities for a continuation of SICSA in some capacity beyond the current SFC grant. We can report that the consensus in the SICSA Committee is to continue SICSA in a self-financing mode, and they are currently discussing the details about potential models for SICSA beyond 2015. At the current time, the SICSA Committee is keen to examine a wide range of options to attract external funding in order to maintain the scale and build upon the achievements of SICSA to date.

## **9. Management and Governance**

### **9.1 International Advisory Board**

The third meeting of the International Advisory Board (IAB) took place in March 2012 at which the board confirmed SICSA activities are in line with planned targets.

The full minutes of the IAB meeting in March 2012 are included in Appendix VI.

### **9.2 SICSA Research Committee**

Due to the expansion of the remit of SICSA, the Research Committee voted in favour of changing its name to the SICSA Committee from February 2012.

The SICSA Committee met three times during 2011/12, with a focus on discussing recent activities for the research themes; the SGA; the Education group, as well as including reports on SICSA KE activity. The other main focus was on sustainability related activities and the more

formal aspects relating to the management of SICSA. The minutes for all three SICSA Committee meetings are included in Appendix VI.

### **9.3 SICSA Executive**

In relation to the management of SICSA, the whole Executive support team underwent changes during the period 2011/12 as follows:

- Executive Officer Dominique Balharry left SICSA in April 2012 and was replaced by Steven Kendrick, University of Glasgow (formerly SICSA Executive Assistant).
- Nicola Hogg, University of Edinburgh, replaced Steven Kendrick as Executive Assistant.
- Thea de Joode, University of Edinburgh, commenced maternity leave in June 2012.

During the final few months of the reporting period 2011/12, the SICSA Executive commenced plans for a Directorate rotation and a number of changes to theme leadership, commencing August 2012. These changes will be detailed in full in the annual report for the period 2012/13.

**Submitted on behalf of the SICSA Board of Governance comprising:**



Professor Ian Diamond, Principal, University of Aberdeen



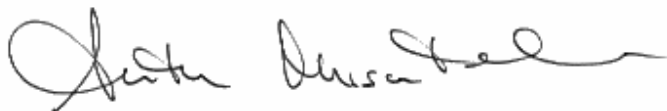
Professor Nigel Seaton, Principal, Abertay University



Professor Pete Downes, Principal, University of Dundee



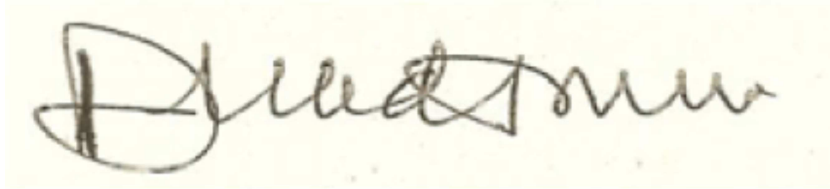
Professor Sir Timothy O'Shea, Principal, University of Edinburgh



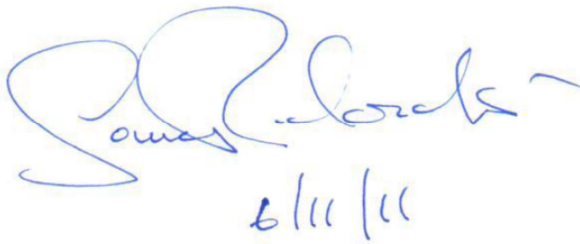
Professor Anton Muscatelli, Principal, University of Glasgow



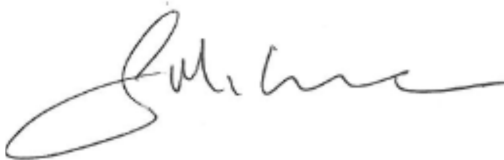
Professor Steve Chapman, Heriot-Watt University



Professor Ferdinand von Prondzynski, Principal, Robert Gordon University



Professor Louise Richardson, Principal, University of St Andrews



Professor Gerry McCormac, Principal, University of Stirling



Professor Sir Jim McDonald, Principal, University of Strathclyde

**SICSA Funded Staff****University of Aberdeen**

Matthew Collinson, Reader/Lecturer, from HP Labs  
 David Pym, Chair, from University of Bath  
 Advait Siddharthan, Reader/Lecturer, from University of Cambridge

**University of Abertay**

Alexey Goltsov, Reader/Lecturer, from University of Edinburgh  
 Mark Showman, Reader/Lecturer, from University of Abertay

**University of Edinburgh**

Vincent Danos, Chair, from CNRS, Paris  
 Sharon Goldwater, Reader/Lecturer, from Stanford University  
 Andrew Gordon, Chair, from Microsoft Research, Cambridge  
 Michael Herrmann, Reader/Lecturer, from Max-Planck Institute for Dynamics and Self-Organization  
 Elham Kashefi, Reader/Lecturer, from University of Oxford  
 Victor Lavrenko, Reader/Lecturer, from University of Massachusetts Amherst  
 Richard Mayr, Reader/Lecturer, from North Carolina State University  
 Iain Murray, Reader/Lecturer, from University of Toronto  
 Guido Sanguinetti, Reader/Lecturer, from Sheffield University  
 Rahul Santhanam, Reader/Lecturer, from University of Toronto  
 Charles Sutton, Reader/Lecturer, from University of California Berkeley

**University of Glasgow**

Gethin Norman, Reader/Lecturer, from University of Oxford  
 Dimitrios Pezaros, Reader/Lecturer, from Lancaster University  
 Simon Rogers, Reader/Lecturer, from University of Glasgow  
 Jeremy Singer, Reader/Lecturer, from University of Manchester  
 Fung Po Tso, SAF, from City University of Hong Kong  
 Alessandro Vinciarelli, Reader/Lecturer, from IDIAP, Martigny  
 David White, SAF, from University of York  
 John Williamson, SAF, from University of Glasgow

**Heriot Watt University**

Oliver Lemon, Chair, from University of Edinburgh  
 Hans-Wolfgang Loidl, Reader/Lecturer, from Ludwigs-Maximilians Universität Munich

**University of St Andrews**

Adam Barker, Reader/Lecturer, from University of Melbourne  
 Edwin Brady, SAF, from University of St Andrews  
 Simon Dobson, Chair, from University College Dublin  
 Per Ola Kristensson, Reader/Lecturer, from University of Cambridge  
 Dr John Thomson, Reader/Lecturer, from University of Innsbruck  
 Aaron Quigley, Chair, from University of Tasmania  
 Alex Voss, Reader/Lecturer, from University of Manchester

**University of Stirling**

Andrea Bracciali, Reader/Lecturer, from Istituto di Scienze e Tecnologie dell'Informazione "A. Faedo"  
 Marwan Fayed, Reader/Lecturer, from University of Ottawa

**University of Strathclyde**

Andreas Lingnau, SAF, from University Duisburg-Essen  
 Eva Hornecker, Reader/Lecturer, from Open University  
 Dmitri Roussinov, Reader/Lecturer, from Arizona State University

**SICSA Funded Staff: Activities during the period 2011/12****University of Aberdeen****Matthew Collinson*****Publications and Workshop/Conference Proceedings***

A Discipline of Mathematical Systems Modelling, Matthew Collinson, Brian Monahan and David Pym. Volume 2 in the Systems Thinking and Systems Engineering series, College Publications, 2012.

A Framework for Modelling Security Architectures in Services Ecosystems, Matthew Collinson, David Pym and Barry Taylor. Lecture Notes in Computer Science, 2012, Volume 7592, Service-Oriented and Cloud Computing, pages 64-79.

***Research Grant Applications***

Co-investigator on the project Socio-Economics meets Security, EU FP7-Security, <http://seconomicsproject.eu> . Total project funding: 3,451,096 Euro.

***Other***

Co-chair for Symposium: Influencing people with Information, April 25th 2012, University of Aberdeen.

Co-organizing the Aberdeen centre for the national Young Rewired State children's programming event.

**David Pym*****Publications and Workshop/Conference Proceedings***

A Substructural Logic for Layered Graphs. Joint work Matthew Collinson and Kevin McDonald. Submitted to a conference/journal.

A Framework for Modelling Security Architectures in Services Ecosystems. Joint work with Matthew Collinson and Barry Taylor. To appear, Proc. ESOC 2012. Lecture Notes in Computer Science, 2012, Volume 7592/2012, 64-79

Exploring Information Stewardship with the Cloud Ecosystem Model. Joint work with Adrian Baldwin et al. To appear, Proc. 2012 International Conference on Modeling, Simulation and Visualization Methods (MSV 2012), 2012 World Congress in Computer Science, Computer Engineering, and Applied Computing. Las Vegas, July 2012. Preprint available here.

A Discipline of Mathematical Systems Modelling. College Publications, 2012. Joint work with Matthew Collinson and Brian Monahan.

Contributor to the ENISA report Economics of Security: Facing the Challenges. Luxembourg: Publications Office of the European Union, 2012. ISBN: 978-92-9204-057-4, doi: 10.2824/23063.

A Proof-theoretic Analysis of the Classical Matrix Method. Joint work with Eike Ritter and Edmund Robinson. Submitted to a journal.

Contagion in Cybersecurity Attacks. Joint work with Adrian Baldwin, Iffat Gheyas, Christos Ioannidis, and Julian Williams. Proceedings of WEIS 2012, Berlin.

Information Stewardship in the Cloud. Joint work with Simon Shiu. IISP Pulse 7 Winter 2011: 6-8.

Enterprise information risk management: Dealing with cloud computing. Joint work with Adrian Baldwin and Simon Shiu. To appear: Privacy and Security for Cloud Computing: Selected Topics, Siani Pearson and George Yee (editors), Springer, Computer Communications and Networks series, 2012.

The TSB-funded Trust Economics project Final Report.

Information Stewardship in Cloud Ecosystems: Towards Models, Economics, and Delivery. Joint work with Adrian Baldwin, Martin Sadler, and Simon Shiu. Preprint.

Proc. 2011 Third IEEE International Conference on Cloud Computing Technology and Science (CloudCom 2011), IEEE Digital Library, 784--79, 2011. doi: 10.1109/CloudCom.2011.121 Copyright IEEE, 2011.

### **Research Grant Applications**

GCHQ/EPSRC Science of Security Institute. Joint project with UCL (A. Sasse, PI). £300,000 fEC. Title: Productive Security. (successful - starts 1 Oct 2012).

Second bid to GCHQ Science of Security Call Joint with U. Bath. £600,000 fEC (unsuccessful).

Outline proposal submitted to ESRC/EPSRC CeRES Call. Successful at first stage, full proposal in preparation. Joint with University of Bath. Total fEC c. £1M

EPSRC 'IT as a Utility' Pilot Project, SeRTES. £300K. Various UK partners. PI: Irene Ng, Warwick (successful)

### **Other**

Appointed Honorary Professor, School of Mathematical and Computer Sciences, Heriot-Watt University.

Keynote: SICSA MODABS Group, Annual Workshop, Stirling, June 2012.

Invited Speaker: Microsoft Cybersecurity & Digital Crimes Forum, Brussels, May 2012.

On-going consultancy for HP Labs: Chief Scientist for TSB-funded Cloud Stewardship Economics

Ongoing TSB/EPSRC Project with HP Labs, Oxford, Birmingham, and Perpetuity Group: Trust Domains

Ongoing FP7 Project with various EU partners and National Grid in the UK.

Editor: Journal of Logic and Computation

Editor: Int. J. Service Science, Management, Engineering, and Technology

### **Advaith Siddharthan**

#### **Publications and Workshop/Conference Proceedings**

Advaith Siddharthan and Napoleon Katsos. Offline Sentence Processing Measures for testing Readability with Users. . In Proceedings of the NAACL 2012 Workshop on Predicting and Improving Text Readability (PITR 2012), June 2012, Montreal, Canada.

Advaith Siddharthan, Matthew Green, Kees van Deemter, Chris Mellish and Rene van der Wal. Blogging birds: Generating narratives about reintroduced species to promote public engagement. In Proceedings of the 7th International Natural Language Generation Conference (INLG 2012), June 2012, Utica, IL.

Advaith Siddharthan, Chris Mellish, Hien Nguyen, Cheng Zeng, Imogen Pearce and Rene Van Der Wal. Tell me a story about the birds and the bees: Using NLG to foster public engagement in nature conservation projects . In Proc. Digital Engagement '11 (Digital Economy All Hands Conference). November 2011, Newcastle, UK.

Advaith Siddharthan, Ani Nenkova and Kathleen McKeown. 'Information Status Distinctions and Referring Expressions: An Empirical Study of References to People in News Summaries'. In Computational Linguistics. 37:4 (December 2011), MIT Press.

Advaith Siddharthan. Text Simplification using Typed Dependencies: A Comparison of the Robustness of Different Generation Strategies . In Proceedings of the 13th European Workshop on NLG. September 2011, Nancy, France.

Andrew Walker, Advaith Siddharthan and Andrew Starkey. Investigation into Human Preference between Common and Unambiguous Lexical Substitutions . In Proceedings of the 13th European Workshop on NLG. September 2011, Nancy, France.

### **Research Grant Applications**

Proposal worth 600K on ``The Northern Temperament: Investigating the Communication of Emotions in Northern Cultures." Funded by University of Aberdeen under the research theme "The North" (successful).

Proposal worth 100K ``Lexico-syntactic Text Simplification for improving Information Access." Funded by EPSRC (successful).

Proposal worth 902K, jointly with Univ. of Dundee (EPSRC) (unsuccessful)

Successful PhD Studentship jointly with Univ. of Stirling. Funded by Chief Scientist Office of the Scottish Government Health and Social Care Directorates

### **Other**

Member of Editorial Board of Computational Linguistics, (MIT Press).

Organiser (with Sandra Williams and Ani Nenkova) of NAACL-HLT 2012 Workshop on ``Predicting and improving text readability for target reader populations (PITR2012)", which attracted 23 registered participants.

### **University of Abertay**

#### **Alexey Goltsov**

#### ***Publications and Workshop/Conference Proceedings***

##### **Published papers**

Goltsov A, Faratian D, Langdon SP, Harrison DJ, Bown J. Features of the reversible sensitivity-resistance transition in ERK/PI3K/PTEN/AKT signalling network at HER2 inhibition. Cellular Signalling. 2012 Feb; 24(2):493-504. Epub 2011 Oct 4.

Lebedeva G, Sorokin A, Faratian D, Mullen P, Goltsov A, Langdon SP, Harrison DJ, Goryanin I. Model-based global sensitivity analysis as applied to identification of anti-cancer drug targets and biomarkers of drug resistance in the ErbB2/3 network. Eur J Pharm Sci. 2012, Jul 16;46(4):244-58.

##### **Accepted papers**

Bown J, Andrews PS, Deeni Y, Goltsov A, Idowu M, Polack FAC, Sampson AT, Shovman M, Stepney S. Engineering simulations for cancer systems biology. Current Drug Targets

Hu H, Goltsov A, Bown J, Sims AH, Langdon SP, Harrison DJ, Faratian D. Feedforward and feedback regulation of the MAPK and PI3K oscillatory circuit in breast cancer. Cellular Signalling.

##### **Submitted papers**

Sokolovski1 SG, Zolotovskaya1 SA, Goltsov A, South AP, Rafailov EU. Anomalous singlet oxygen generation in cancer cells triggered by laser pulse irradiation. Nature. Photonics.

Adams R, Clark A, Yamaguchi A, Hanlon N, Tsorman N, Ali S, Lebedeva G, Goltsov A, Stratford K, Sorokin A, Akman OE, Troein C, Millar AJ, Goryanin I, and Gilmore S. SBSI - An extensible software infrastructure for Systems Biology modelling. Bioinformatics

Tummala H, Goltsov A, Khalil HS, Sproul A, Scott F, Mitev V, Zhelev N. Advocating the need of prediction models for individualized prognosis and treatment in B-CLL disease patients. *BioDiscovery*.

### **Conference talks and papers**

Talk: A systems study of the control mechanisms underlying ERK and AKT signalling oscillation in cancer cells. by Goltsov A, Hu H, Bown JL, Sims AH, Langdon SP, Harrison DJ, Faratian D. The Scottish Stem Cell Network (SSCN) Biology Group Meeting, Apex Hotel, Dundee, Feb 23rd, 2012.

Talk: Systems Biology of drug sensitivity-resistance transition in ErbB signaling in cancer by Goltsov A, Faratian D, Langdon SP, Harrison DJ, J Bown. *Biology + Computing=?* A joint SICSA meeting of the CSE:SEABIS group and the ModAbs group. University of Stirling, May, 2012.

Cancer research and personalised medicine: a new approach to modelling time-series data using analytical methods and Half systems. By Idowu MA, Goltsov A, Khalil HS, Tummala H, Zhelev N, Bown J. *Current Opinion in Biotechnology*, Volume 22, Supplement 1, September 2011, Pages S59.

Cancer cells start to generate singlet oxygen once been triggered by 1268-nm laser irradiation: modeling oxidative stress mechanism, Sokolovski SG, Zolotovskaya S, Goltsov A, Pourreynon C, South AP, Rafailov EU. in *Proceedings of SPIE Conference "Biophotonics: Photonic Solutions for Better Health Care"*, Vol. 8427 ,16 - 19 April 2012, Brussels, Belgium.

### **Research Grant Applications**

Research proposal to Northwood Trust. 2 years project devoted to cancer research. Co-Investigator. (Successful)

Cancer Research UK research proposal: "Network adaptation to PI3K/mTOR inhibition in ovarian cancer". Joint proposal of CRISP with the University of Edinburgh and St Andrews. Co-Investigator. (unsuccessful)

Cunningham Trust research proposal: "Systems biology study of the mechanisms underlying anticoagulant drug resistance at the pathological changes of cellular environment at diabetes". Joint proposal of CRISP with the University of Dundee. PI, (unsuccessful).

### **Other**

#### **Collaborative projects**

Development of the visualisation software for 3D visualising cellular signalling processes and anticancer drug effects. Joint project of CRISP with Universities of Edinburgh and St Andrews.

Development of the computational models of the cellular signalling networks and their application to in silico/in vitro study of the new drug effects on different cancer cells. Joint project of CRISP with Universities of Edinburgh and St Andrews.

Computational analysis of microarray data on gene expression following anticancer drug treatment. Joint project of CRISP with Universities of Edinburgh and St Andrews. Supervisor of two MSc projects devoted this topic.

Development of the computational model of laser effect on cancer cells and its application to novel anticancer laser therapy. Joint project of CRISP with 1) Photonics and Nanoscience group, School of Engineering, Physics and Mathematics, University of Dundee and 2) Oncology and Molecular Medicine, Clinical Research Centre, Ninewells Hospital, University of Dundee, Dundee

Computational modelling and visualisation of thrombogenesis and anticoagulant drug effects. Joint project of CRISP with Institute of Arts, Media and Computer Games, University of Abertay Dundee.

#### **Invited talks**

Systems Biology of drug sensitivity-resistance transition in ErbB signaling in cancer. by Goltsov A, Faratian D, Langdon SP, Harrison DJ, J Bown.

Biology + Computing=? A joint SICSA meeting of the CSE:SEABIS group and the ModAbs group. University of Stirling, May, 2012.

**Mark Shovman**

Nothing to report.

**University of Edinburgh**

**Vincent Danos**

***Publications and Workshop/Conference Proceedings***

Rigid geometric constraints for Kappa models (SASB, 2012, Workshop of Static Analysis and Systems Biology) Vincent Danos, Ricardo Honorato-Zimmer, Sebastian Jaramillo-Riveri, Sandro Stucki

Coarse-graining the Dynamics of Ideal Branched Polymers (SASB, 2012, Workshop of Static Analysis and Systems Biology) Vincent Danos, Ricardo Honorato, Sebastian Jaramillo, Sandro Stucki

Combinatorial complexity and compositional drift in protein interaction networks (PloS one, e32032, 2012) Eric Deeds, Jean Krivine, Jerome Feret, Vincent Danos, Walter Fontana

Rewriting and Pathway Reconstruction for Rule-Based Models (FSTTCS 2012) Vincent Danos, Jerome Feret, Walter Fontana, Russell Harmer, Jonathan Hayman, Jean Krivine, Chris Thompson-Walsh, Glynn Winskel

Constraining rule-based dynamics with types (MSCS 2012, to appear) Vincent Danos, Russell Harmer, Glynn Winskel

Cooperative Assembly Systems (DNA 17, 2011, invited paper) Vincent Danos, Heinz Koepl, John Wilson-Kanamori

On the statistical thermodynamics of communicating processes (CALCO'11, invited paper) Giorgio Bacci, Vincent Danos, Ohad Kammar

Energy and Termination II: the case of Petri nets (MSCS 2011, to appear) Vincent Danos, Nicolas Oury

Probabilistic coherence spaces as a model of higher-order probabilistic computation (Information and Computation 209 (6), 966-991, 2011) Vincent Danos, Thomas Ehrhard

***Research Grant Applications***

Co-PI on a platform grant from EPSRC on synthetic biology: the "flowers" consortium with IC, Newcastle and Cambridge

ERC advanced grant - got through to second stage (results to be announced shortly)

***Other***

Keynote: Session on 'Computability, Logical and Physical', [Logic Colloquium 2012](#), Manchester, Jul 12-18, 2012

Keynote: [LSB'12](#) LICS satellite, Dubrovnik, Jun 30, 2012

Keynote: [Newton Institute Workshop](#) on "The Incomputable", Kavli Royal Society International Centre, Chicheley Hall, Jun 12-15, 2012

Keynote: CMACS [Workshop on Systems Biology and Formals Methods](#) (SBFM'12), NYU, Mar 29-30, 2012

Keynote: [NVTI](#) (Nederlandse Vereniging voor Theoretische Informatica), Utrecht, Mar 23, 2012

Keynote: Lorentz Center Workshop, [Bioinformatics and Systems Biology - Bridging the Divide](#), Leiden, Feb 14-17, 2012

Invitation: Dagstuhl Seminar (12352) "Information Flow and its applications", Jul 26-31, 2012

Invitation: Leicester Computer Science seminar on Latest Research Directions, Feb 3, 2012

Director of the Centre for Synthetic and Systems Biology at Edinburgh (SynthSys)

Invited paper for the Samson Abramsky Festschrift

Invited paper to Philosophical Transactions A/Interface, focus for the Turing Centenary

Chair of session on Morphogenesis at the Turing Centenary Symposium, Edinburgh, May 11, 2012

Course: [Workshop on Formal Approaches to Modelling in Systems Biology](#)

Postgraduate course, SynthSys, Edinburgh, Apr 26, 2012

Course: [Computational Biology](#) Undergraduate course, AIV, Paris, Mar 19-22, 2012

PhD: (examiner) Thomas Courtat, Universite Paris Diderot, Jan 30, 2012

Co-chair: FMSB workshop (Formal Methods in Systems Biology)

PC: [CAV 2012](#)

PC: [CMSB 2012](#)

PC: [RC 2012](#)

[DNA 17](#), CalTech, Pasadena, Sept, 2011

Keynote: [CALCO'11](#) Fourth International Conference on Algebra and Coalgebra in Computer Science, Aug 30-Sep 2 2011, Winchester

Best model prize for the Edinburgh team at European finals IGEM, Amsterdam, Oct, 2011

Panelist on the DNA 17 "Hard Problems in DNA Computing and Molecular Programming"

Editorial Board of [Mathematical Structures in Computer Science](#)

Invitation to Home Office Workshop on Synthetic Biology, Royal Society, London, Sept 29, 2011

### **Sharon Goldwater**

#### ***Publications and Workshop/Conference Proceedings***

Formalizing Semantic Parsing with Tree Transducers. Bevan K. Jones, Mark Johnson, Sharon Goldwater. In Proceedings of the Australasian Language Technology Workshop. 2011.

Bootstrapping a Unified Model of Lexical and Phonetic Acquisition.

Micha Elsner, Sharon Goldwater, Jacob Eisenstein. In Proceedings of the 50th Annual Meeting of the Association of Computational Linguistics. 2012.

Semantic Parsing with Bayesian Tree Transducers. Bevan K. Jones, Mark Johnson, Sharon Goldwater. In Proceedings of the 50th Annual Meeting of the Association of Computational Linguistics. 2012.

A Probabilistic Model of Syntactic and Semantic Acquisition from Child-Directed Utterances and their Meanings. Tom Kwiatkowski, Sharon Goldwater, Luke Zettlemoyer, Mark Steedman. In Proceedings of the 13th Conference of the European Chapter of the Association for Computational Linguistics. 2012.

### **Research Grant Applications**

Submitted application to Leverhulme Trust as PI of Research Leadership Award, requesting £900k (awaiting decision).

### **Other**

#### **Conference chairing/editorial**

Area chair, Conference of the European Association for Computational Linguistics, 2012.

Editorial board, Computational Linguistics, 2012-2015.

Action editor, Transactions of the Association for Computational Linguistics, 2012-2014.

#### **Invited talks**

Department of Linguistics, Ohio State University.

Department of Cognitive, Perceptual and Brain Sciences, University College London.

Center for Language and Cognition, University of Groningen.

#### **PhD student supervision**

Bevan Jones (see papers above).

John Pate (no papers during reporting period).

Hosted SICSA Distinguished Visitor, Dr Brian Roark, Oregon Health & Science University, (Sept 2011).

### **Andrew Gordon**

#### **Publications and Workshop/Conference Proceedings**

Mihhail Aizatulin, Andrew D. Gordon, Jan Jürjens: Extracting and verifying cryptographic models from C protocol code by symbolic execution. ACM Conference on Computer and Communications Security 2011: 331-340.

Mihhail Aizatulin, Francois Dupressoir, Andrew D. Gordon, Jan Jürjens: Verifying Cryptographic Code in C: Some Experience and the Csec Challenge. 8<sup>th</sup> International Workshop on Formal Aspects of Security and Trust, September 15-16, 2011, Leuven, Belgium. To appear in LNCS.

Gavin Bierman, Andrew D. Gordon, Catalin Hritcu, David Langworthy: Semantic Subtyping with an SMT Solver, Journal of Functional Programming, January 2012 22: pp 31-105.

### **Other**

Full PC member at POST 2012, CAV 2012, CCS 2012, and external review committee for POPL 2012.

Organiser schedule of visit of Rick Rashid, Chief Research Officer, Microsoft Corporation to Edinburgh University in October, with press coverage. The visit included Rick's public lecture, and a formal dinner with Sir Tim O'Shea the university principal, with guests including the head of Microsoft Scotland and the Chief Scientific Advisor to the Scottish Government.

Organised CryptoForma workshop, over 35 participants, from Microsoft Research (Fournet) and across UK.

Co-organised SICSA Cybersecurity workshop at Edinburgh Informatics, with representatives of all Scottish universities.

Panel member for EPSRC/GCHQ Cyber Research Institute (one of panel of five deciding on £3M).

PhD examiner for Catalin Hritcu (Saarland University) and Thomas Given-Wilson (Sydney University of Technology).

### **Invited presentations**

Experience with Verifying Cryptographic Software in C, FAST, Leuven, September 2011

Experience with Verifying Cryptographic Software in C, OWASP Edinburgh, February 2012

Experience with Verifying Cryptographic Software in C, Newton Institute Cambridge, April 2012

Language-based Security, SICSA Cybersecurity Workshop Edinburgh, May 2012

Types for Security at SICSA Summer School on Programming Languages, St Andrews, June 2012

### **Michael Herrmann**

#### ***Publications and Workshop/Conference Proceedings***

M. Ihrke, J. Behrendt, H. Schrobsdorff, J. M. Herrmann and M. Hasselhorn (2011) Response retrieval and negative priming: Encoding and retrieval-specific effects. *Experimental Psychology*. Vol 58(2), 2011, 154-161.

G. Martius, J. M. Herrmann (2011) Variants of Guided Self-Organization for Robot Control. *Theory in Biosciences*. DOI: 10.1007/s12064-011-0141-0.

G. Martius and J. M. Herrmann (2011) Tipping the scales: Guidance and intrinsically motivated behavior. In *Advances in Artificial Life, ECAL 2011*, 506-513.

M. Ihrke, H. Schrobsdorff, J. M. Herrmann (2011) Recurrence-based estimation of time-distortion functions for ERP waveform reconstruction. *International Journal in Neural Systems* 21:1 65-78.

H. Schrobsdorff, M. Ihrke, J. Behrendt, J. M. Herrmann, M. Hasselhorn (2012) Negative Priming: A Phenomenon of Perception, Recognition or Selection? *PLoS ONE* (accepted).

H. Schrobsdorff, M. Ihrke, J. M. Herrmann (2012) Inhibition in the process of feature binding. *Frontiers in Cognitive Science* (under review).

J. Hass, J. M. Herrmann (2012) The neural representation of time: An information-theoretic perspective. *Neural Computation* 24(6), 1519-1552.

J. Hass, J. M. Herrmann (2012) Cross-modal Distortion of Time Perception: Demerging the Effects of Observed and Performed Motion. *PLoS ONE*.7(6) e38092. doi:10.1371/journal.pone.0038092

Simón C. Smith, J. Michael Herrmann (2012) Homeokinetic Reinforcement Learning. In: F. Schwenker, E. Trentin (Eds.): *Partially Supervised Learning -- First IAPR TC3 Workshop, PSL 2011, Ulm, Germany, September 15-16, 2011. Revised Selected Papers*. LNCS 7081 Springer, 82-91.

**Research Grant Applications**

Application to Leverhulme Trust (under review)

**Other**

Invited speaker: Criticality in Neural Systems Symposium April 30 & May 1, 2012

Programme committee member: Summer school on integrative Computational Neuroscience, Edinburgh 2012, co-funded by ICNF.

**Industry Collaboration:**

Cochlear Ltd. ([www.cochlear.com](http://www.cochlear.com)): Joint research project on "Establishing Auditory Midbrain Prosthetics"  
Otto Bock Healthcare ([www.ottobock.com](http://www.ottobock.com)) Joint research project on "Control of multi-joint multi-sensor hand prostheses"

**Elham Kashefi****Publications and Workshop/Conference Proceedings**

V. Dunjko, E. Kashefi, and A. Leverrier, Universal blind quantum computing with weak coherent pulses, Phys. Rev. Lett., 2012

S. Barz, E. Kashefi, A. Broadbent, J. Fitzsimons, A. Zeilinger, P. Walther, Experimental Realization of Blind Quantum Computing. Science, 2012

V. Dunjko and E. Kashefi, Extended Phase Map Decomposition, Mathematical Structures in Computer Science, 2012

R. D. da Silva, E. F. Galvao, E. Kashefi, Closed time-like curves in measurement-based quantum computation, Phys. Rev. A, 2011

J. Anders, E. Andersson, D. E Browne, E. Kashefi, D. K Oi, Ancilla-driven quantum computation with twisted graph states, Journal of Theoretical Computer Science, 2011

**Research Grant Applications**

PI for a STREP EU joint project with Austria (Experimental Physics), Israel (Computer Science), France (Theory and Experiment). The total amount for the Edinburgh node was €309,262. (under review)

Co-PI for the Carnegie Trust visiting grant for the Quantum Information Scotland (QUISCO) Network.

**Other**

Member of the first group elected to the Young Academy Scotland (Royal Society of Edinburgh) September 2011

Organising committee for the Quantum Theory - Experiment Workshop at the International Institute of Physics, Brazil, 2012

Co-Chair of the seventh Workshop on Developments in Computational Models (DCM 2011)

Invited Speaker for Turing Symposium, Edinburgh, 2012

Invited Speaker for Quantum Information Science Workshop, Oxford, 2012

Invited Speaker for the Isaac Newton Institute workshop on "The Incomputable", UK, 2012

Invited Speaker for Logic and interactions, CRIM, France, 2012

Invited Speaker for Dagstuhl Workshop on Quantum Cryptanalysis, Dagstuhl, Germany, 2011

Invited Speaker for Quantum Computer Science workshop, Montreal, Canada, 2011

Host for the recently awarded EPSRC Doctoral Prize for my student Dr. Dunjko project on Hybrid quantum-classical secure cloud computing.

Founder of ParisTech (Paris Institute of Technology) - Informatics (University of Edinburgh) cooperation initiative 2012

Maitre de Conférences Associé (Affiliated Associate Professor) at Telecom ParisTech, CNRS, France, collaborating on the Hybrid Quantum Information Networks, which is the basis of the STREP project and two recent publications with Dr. Damian Markham.

Co-founder and organiser of the QUISCO (Quantum Information Scotland) Network, that consists of 2 computer science and 3 physics groups working on all aspects of quantum information science. Supervised a joint Ph.D. student \*(Dr. Vedran Dunjko) within the QUISCO, who has successfully submitted his thesis last month with 4 recent publications.

Hosted SICSA Distinguished Visitor Scott Aaronson, TIBCO Career Development Associate Professor of Electrical Engineering and Computer Science, and a member of the Theory of Computation and Complexity Theory groups at MIT, July 6-14, 2012.

### **Victor Lavrenko**

#### ***Publications and Workshop/Conference Proceedings***

"Finding Optimal Tag Sets for Automatic Image Annotation by incorporating Keyword Correlation and Robust Visual Kernels", Moran, S. and Lavrenko, V., submitted to the International Journal of Computer Vision (IJCV), 2012 (under review)

"Towards role detection in virtual worlds", Eickhoff, C. and Lavrenko V., to appear in the ACM Journal of Computers in Entertainment, 2012

"Relevance feedback between hypertext and semantic web search: Frameworks and evaluation", Halpin, H. and Lavrenko, V., Journal of Web Semantics, vol.9, issue 4, pp. 474-489, Elsevier, 2011

"Using paraphrases to improve first story detection", Petrovic, S., Osborne, M. and Lavrenko, V., in Proceedings of the 13th ACM Human Language Technologies Conference of the North American Chapter of the Association for Computational Linguistics (NAACL-HLT), pp. 338-346, 2012

"The BladeMistress Corpus: From Talk to Action in Virtual Worlds", Leuski, A., Eickhoff, C., Ganis, G.P., and Lavrenko, V., in Proceedings of the 8th International Conference on Language Resources and Evaluation (LREC), 2012

"Optimal tag sets for automatic image annotation", Moran, S. and Lavrenko, V., in Proceedings of the 22nd British Machine Vision Conference (BMVC), pp.218-228, 2011

"Relevance Feedback between Web Search and the Semantic Web", Halpin H., and Lavrenko V., in Proceedings of the 22nd International Joint Conference on Artificial Intelligence (IJCAI), vol.3, pp. 2250-2255, 2011

"RT to win! Predicting message propagation in Twitter", Petrovic, S., Osborne, M. and Lavrenko, V., in Proceedings of the 5th international Conference on Web and Social Media (ICWSM), pp.586-589, 2011

### **Other**

Nominated for EUSA teaching awards.

The course "Text Technologies" won runner-up for the University-wide Best Course Award.

### **PhD Student Supervision**

Sharon Givon successfully defended her thesis in 2011:

"Predicting and Using Social Tags to Improve the Accuracy and Transparency of Recommender Systems", Givon, S., The University of Edinburgh PhD Thesis (Informatics), 24 Nov. 2011

Sasa Petrovic (SICSA-funded), publications:

"Using paraphrases to improve first story detection", Petrovic, S., Osborne, M. and Lavrenko, V., in Proceedings of the 13th ACM Human Language Technologies Conference of the North American Chapter of the Association for Computational Linguistics (NAACL-HLT), pp. 338-346, 2012

"RT to win! Predicting message propagation in Twitter", Petrovic, S., Osborne, M. and Lavrenko, V., in Proceedings of the 5th international Conference on Web and Social Media (ICWSM), pp.586-589, 2011

"Improving Twitter Retrieval by Exploiting Structural Information", Luo Z., Osborne M., Petrovic S., Wang T. In AAAI 2012.

"Bieber no more: First Story Detection using Twitter and Wikipedia", Osborne M., Petrovic S., McCreadie R., Macdonald C., Ounis I. In the SIGIR 2012 Workshop on Time-aware Information Access, 2012

Sean Moran, publications:

"Optimal tag sets for automatic image annotation", Moran, S. and Lavrenko, V., in Proceedings of the 22nd British Machine Vision Conference (BMVC), pp218-228, 2011

"A Gaussian mixture modelling approach to the data-driven estimation of atomistic support for continuum stress", Ulz, M., and Moran, S., Modelling and Simulation in Materials Science and Engineering, 2012

"Data driven estimation of atomistic support for continuum stress using the Gaussian mixture model". Moran, S., and Ulz, M., 83rd Annual Meeting of the International Association of Applied Mathematics and Mechanics, Germany, 2012.

"Finding Optimal Tag Sets for Automatic Image Annotation by incorporating Keyword Correlation and Robust Visual Kernels", Moran, S. and Lavrenko, V., submitted to the International Journal of Computer Vision (IJCV), 2012 (under review)

### **Richard Mayr**

#### ***Publications and Workshop/Conference Proceedings***

Parosh Aziz Abdulla, Yu-Fang Chen, Lorenzo Clemente, Lukas Holik, Chih-Duo Hong, Richard Mayr, Tomas Vojnar. Advanced Ramsey-based Buchi Automata Inclusion Testing. Proc. of CONCUR 2011, 22nd International Conference on Concurrency Theory. Aachen, Germany. Sep. 2011. Volume 6901 in Lecture Notes in Computer Science. Springer. 2011.

Steffen Heber, Richard Mayr, Jens Stoye. Common Intervals of Multiple Permutations. Algorithmica 60(2): 175-206 (2011).

### **Research Grant Applications**

Royal Society grant R42253 (International Exchanges 2011/R2) Project title: "Algorithms for computationally hard problems in automata theory". Award Value: £12000. Start Date: 25/03/2012, End Date: 24/03/2014 (successful).

### **Other**

#### **Program committee membership in the following conferences**

LICS 2012. Twenty-Seventh Annual ACM/IEEE Symposium on LOGIC IN COMPUTER SCIENCE, 2012.  
<http://www2.informatik.hu-berlin.de/lics/lics12/>

MEMICS 2011. Annual Doctoral Workshop on Mathematical and Engineering Methods in Computer Science. Oct. 2011. Lecture Notes in Computer Science (LNCS) volume 7119. Springer. 2011.

RP'12. 6th International workshop on Reachability Problems. Lecture Notes in Computer Science volume 7550. Springer. 2012.

Collaborative work:

Analysis of stochastic games on infinite arenas. (Collaboration with Prof. P.A. Abdulla and Dr. S. Sandberg at Uppsala University, Sweden and Dr. L. Clemente, LABRI Bordeaux, France.)

Efficient automata minimization algorithms. (Collaboration with Dr. Yu-Fang Chen and Ming-Hsien Tasi, Academia Sinica, Taiwan.)

Semantic preorders on infinite-state systems. (Collaboration with Piotrek Hofman, Warsaw University.)

### **PhD Student Supervision**

Lorenzo Clemente (graduated in March 2012), publications:

Parosh Aziz Abdulla, Yu-Fang Chen, Lorenzo Clemente, Lukás Holík, Chih-Duo Hong, Richard Mayr, Tomás Vojnar: Advanced Ramsey-Based Büchi Automata Inclusion Testing. CONCUR 2011: 187-202.

Lorenzo Clemente: Büchi Automata Can Have Smaller Quotients.ICALP 2011: 258-270.

Patrick Totzke, publications:

Piotr Hofman and Patrick Totzke. Approximating Weak Bisimilarity of Basic Parallel Processes. 19th International Workshop on Expressiveness in Concurrency. EPTCS 89, DOI: 10.4204/EPTCS.89, ISSN: 2075-2180.

### **Iain Murray**

#### **Publications and Workshop/Conference Proceedings**

How biased are maximum entropy models? Jakob H. Macke, Iain Murray, and Peter E. Latham. Advances in Neural Information Processing Systems 24, 2011.

Discussion of: catching up faster by switching sooner Iain Murray J. Royal Stat. Soc. B, 74(3):409-411, 2012.

### **Research Grant Applications**

As PI: £23,040, CASE studentship funds from Novauris (UK company) Deep Learning for Speech Recognition, with Steve Renals (also at UoE) Dates of grant: 1/10/11 - 31/03/15

### **Other**

#### **Presentations**

ICMS meeting on advances in Monte Carlo methods, Edinburgh, UK, 2012.

Rank Prize Symposium on Machine Learning and Computer Vision, UK, 2012.

Discussant, NIPS workshop on cosmology meets machine learning, Granada, Spain, 2011.

Invited lectures on Monte Carlo and Deep Learning at IPAM summer school, Los Angeles, USA, July 2012.

**Area chair / Senior programme committee**

Neural information processing systems (NIPS)

Uncertainty in Artificial Intelligence (UAI)

Volunteer chair and part of local organization team at International Conference on Machine Learning (ICML), Edinburgh 2012.

**Guido Sanguinetti**

***Publications and Workshop/Conference Proceedings***

Andrew Zammit-Mangion, Michael A. Dewar, Visakan Kadirkamanathan and Guido Sanguinetti, Point Process Modelling of the Afghan War Diary, Proceedings of the National Academy of Sciences of the USA (PNAS), Early Edition July 16th 2012

Matthew D. Rolfe, Andrea Ocone, Melanie R. Stapleton, Simon Hall, Eleanor W. Trotter, Robert K. Poole, Guido Sanguinetti and Jeffrey Green, Systems analysis of transcription factor activities in environments with stable and dynamic O<sub>2</sub> concentrations, Royal Society Open Biology, in press (2012)

Grigorios Skolidis, Katja Hansen, Guido Sanguinetti and Matthias Rupp, Multi-task Learning for pKA prediction, Journal of Computer Aided Modelling and Design, in press (2012).

Andrew Zammit-Mangion, Guido Sanguinetti and Visakan Kadirkamanathan, Variational Estimation in Spatiotemporal Systems from Continuous and Point-Process Observations, IEEE Transactions on Signal Processing, in press (2012),

Grigorios Skolidis and Guido Sanguinetti, A Case Study on Meta-Generalising: A Gaussian Processes Approach, Journal of Machine Learning Research 13 (Mar), 691-721, (2012),

Alison I Graham, Guido Sanguinetti, Neil Bramall, Cameron W McLeod and Robert K Poole, Dynamics of a starvation-to-surfeit shift: A transcriptomic and modelling analysis of the bacterial response to zinc reveals transient behaviour of the Fur and SoxS regulators, Microbiology, 158(1), 284-292.

Grigorios Skolidis and Guido Sanguinetti, Bayesian Multitask Classification with Gaussian Process Priors, IEEE Transaction on Neural Networks, 22(12), 2011-2021 (2011),

Eleanor W. Trotter, Matthew D. Rolfe, Andrea M. Hounslow, C. Jeremy Craven, Michael P. Williamson, Guido Sanguinetti, Robert K. Poole and Jeffrey Green, Reprogramming of Escherichia coli K-12 Metabolism during the Initial Phase of Transition from an Anaerobic to a Micro-Aerobic Environment, PLoS One 6(9) (2011)

Andrea Ocone and Guido Sanguinetti, Reconstructing transcription factor activities in hierarchical transcription network motifs, Bioinformatics 27(20):2873-9 (2011),

***Research Grant Applications***

Signal Processing in the Kidneys, joint application with Dr Matt Bailey (University of Edinburgh Medical School) for EPSRC Institutional Sponsorship awards, £10K (awarded)

European Research Council (ERC) Starting Grant, Machine Learning for Computational Science: statistical and formal modelling of biological systems, EUR 1.4M (2012-17), (awarded).

BBSRC: Research Grant The Road to Recovery: Global Bacterial Responses to Survival after Nitrosative and Oxidative Assaults BB/K003747/1 (Joint with University of Sheffield), £ 500K (unsuccessful).

FP7-PEOPLE-2011-IEF 299192, Epigene Informatics, EUR 200K (awarded)

European Molecular Biology Organisation (EMBO), EMBO ALTF 1554-2011, Epigene Informatics, EUR ~100K, awarded (combined with the previous one in a single 3 year grant using the joint Marie Curie/EMBO scheme).

**Other**

Chair SICSA PhD Conference 2012

Co-hosted SICSA Distinguished Visitor, Prof Alberto Policriti University of Udine.

Joined editorial board for international journal Statistical Applications in Genetics and Molecular Biology (SAGMB), ranked 11th (out of >100) in Statistics.

Invited speaker at Imperial College and Southampton University.

Invited lecturer at the Biology and Computing Interface Summer School (Udine, Italy).

**Rahul Santhanam**

Nothing to report.

**Charles Sutton**

***Publications and Workshop/Conference Proceedings***

Yichuan Zhang and Charles Sutton. Quasi-Newton Markov chain Monte Carlo. In Advances in Neural Information Processing Systems (NIPS), 2011.

***Research Grant Applications***

Fast, Locally Adaptive Inference for Machine Learning in Graphical Models, EPSRC grant EP/J00104X/1, 2011-2014. £100k (successful)

Data Driven Development Tools: Statistical Language Processing for Programming Language Text. Microsoft Research PhD Scholarship. 2012–2015. 3 year PhD studentship (successful).

Amazon Web Services Research Credit. £5k in kind donation of EC2 credit from Amazon (successful).

**Other**

Area Chair at International Conference on Artificial Intelligence and Statistics (AISTATS 2012)

Conference of the European Chapter of the Association for Computational Linguistics (EACL 2012)

Local Arrangements Chair, International Conference on Machine Learning (ICML) 2012, Edinburgh

**PhD student supervision**

Krzysztof Geras: Published paper - Isoelastic Agents and Wealth Updates in Machine Learning Markets. Amos Storkey, Jono Millin, and Krzysztof Geras, International Conference on Machine Learning (ICML), 2012

## **University of Glasgow**

### **Gethin Norman**

#### ***Publications and Workshop/Conference Proceedings***

P. Biro and G. Norman, Analysis of stochastic matching markets. In Proc. 3rd Workshop Cooperative Games in Multiagent Systems (CoopMAS-2012). June, 2012.

M. Kwiatkowska, G. Norman and D. Parker. Probabilistic Verification of Herman's Self-Stabilisation Algorithm. Formal Aspects of Computing, 24(4), pages 661-670, Springer. July 2012

J. Júlvez, M. Kwiatkowska, G. Norman and D. Parker. Evaluation of Sustained Stochastic Oscillations by Means of a System of Differential Equations. International Journal of Computers and Applications (IJCA), 19(2):101-111, 2012

E. M. Hahn, G. Norman, D. Parker, B. Wachter and L. Zhang. Game-based Abstraction and Controller Synthesis for Probabilistic Hybrid Systems. In Proc. 8th International Conference on Quantitative Evaluation of SysTems (QEST'11), pages 69-78, IEEE CS Press. September 2011

#### ***Research Grant Applications***

Grant application to EPSRC as co-investigator (Hardware Acceleration of Automated Formal Verification Techniques). Value: £1,471,892.93 (unsuccessful)

#### ***Other***

Steering committee member at Conference on the Quantitative Evaluation of Systems (QEST) Workshop on Quantitative Aspects of Programming Languages (QAPL)

Tutorial chair at Eighth International Conference on the Quantitative Evaluation of Systems (QEST 2011)

#### ***Programme committees***

Sixth Workshop on Membrane Computing and Biologically Inspired Process Calculi (MeCBIC 2012)

Third International Workshop on Static Analysis and Systems Biology (SASB 2012)

Eleventh International Workshop on Parallel and Distributed Methods in Verification (PDMC 2012)

Tenth Workshop on Quantitative Aspects of Programming Languages (QAPL 2012)

Third International Workshop on Computer Science to Systems Biology (CS2Bio12)

Fifth Workshop on Membrane Computing and Biologically Inspired Process Calculi (MeCBIC 2011)

Second International Workshop on Static Analysis and Systems Biology (SASB 2011)

Eighth International Conference on the Quantitative Evaluation of Systems (QEST 2011)

#### ***Workshop proceedings editorship***

Mieke Massink and Gethin Norman (editors) Proceedings of the 9th Workshop on Quantitative Aspects of Programming Languages (QAPL'11). Volume 57 of Electronic Proceedings in Theoretical Computer Science. EPTCS. 2011

#### ***Journal Editorship***

A. Di Pierro and G. Norman (editors). Quantitative Aspects of Programming Languages. Theoretical Computer Science, Volume 413, Elsevier. January, 2012

Organiser of a workshop in Stirling (on Modelling: Challenges and Perspectives) 11th June 2012.

## **Dimitrios Pezaros**

### ***Publications and Workshop/Conference Proceedings***

Hamilton, G., and Pezaros, D. (2012) *A service-oriented measurement infrastructure for cloud computing environments*. In: 14th IEEE International Conference on High Performance Computing and Communications (HPCC 2012), 25-27 June 2012, Liverpool, UK.

White, K.J.S., Pezaros, D.P. , and Johnson, C.W. (2012) *Increasing resilience of ATM networks using traffic monitoring and automated anomaly analysis*. In: 2nd International Conference on Application and Theory of Automation in Command and Control Systems, 29-31 May 2012, Imperial College, London.

Ellis, M., Pezaros, D. , and Perkins, C. (2012) *Performance analysis of AL-FEC for RTP-based streaming video traffic to residential users*. In: 19th International Packet Video Workshop, May 2012, Munich, Germany.

Twigg, N.A., Fayed, M., Perkins, C. , Pezaros, D. , and Tso, F. P. (2012) *User-level Data Center Tomography*, In: ACM SIGCOMM 2012, pp. 101-102, 13-17 August 2012, Helsinki, Finland.

Bernardi, G., Feancci, D., Marina, M. K., and Pezaros, D. (2012) *BSense: A Flexible and Open-Source Broadband Mapping Framework*, In: IFIP/TC6 Networking 2012, 21-25 May 2012, Prague, Czech Republic.

Ellis, M. , Pezaros, D. , Kypraios, T., and Perkins, C. (2012) *Modelling Packet Loss in RTP-based Streaming Video for Residential Users*, In: IEEE Conference on Local Computer Networks (LCN), pp. 318-321, 22-25 October 2012, Clearwater, Florida, USA.

### ***Research Grant Applications***

Resilient, Self-Optimised Next Generation Network Architecture (with M. Fayed<sup>1</sup> and C.S. Perkins), DSTL UK PhD Programme, application PhD student funding (September 2011), Value: £76,623, GU ownership 100%.

User-level Data Centre Tomography (with M. Fayed<sup>1</sup> and C.S. Perkins), EPSRC responsive mode, Value: TBD, GU ownership 50%. [in preparation].

IMC2, EPSRC first grant scheme, Value: £125,000, GU ownership 100% [in preparation].

Generic Multi-Sensing Networks for Smart Cities. Sensor Networks PhD Funding Initiative, College of Science and Engineering, University of Glasgow, Value: £97,473, GU ownership 100%.

The Glasgow Raspberry Pi Cloud, submitted to Chancellor's Fund, University of Glasgow (June 2012), Value: £9,000, GU ownership 25% [awarded].

### ***Other***

Collaboration with Dr Mahesh Marina, University of Edinburgh has resulted in a joint publication in a top-tier conference in networking.

Collaboration with Dr Marwan Fayed, University of Stirling has resulted in a joint publication in the flagship conference of data communications.

Collaboration with Dr Konstantinos Oikonomou, Ionian University, GR, has resulted in joint paper submission to the flagship conference in networking (IEEE Infocom 2013).

Collaboration with Dr Theodore Kypraios, University of Nottingham, has resulted in a joint publication in the flagship conference in local computer networks [6].

Directly involved in the EPSRC Homework project.

Initiated an EU consortium formation for a project proposal in the area of programmable and adaptive data centre networks.

Initiated a UK consortium formation in the area of network instrumentation and measurement.

Session Chair: Network Measurement, IFIP/TC6 Networking 2012, May 2012, Prague Czech Republic.

Guest lecturer, Lancaster University: Taught two block-mode units (whole day) on network measurement and performance evaluation for the MSc in Advanced Computer Science.

Fellow, Higher Education Academy

Member, IEEE, ACM

### **PhD student supervision**

Currently supervising one SICSA-funded PhD student (Kyle White; started October 2011) with whom we have published one article on network resilience for air traffic control networks.

Supervising one DTA-funded PhD student (Gregg Hamilton; started October 2011) with whom we have published an article on measurement infrastructures for Data Centre networks.

PhD supervisee (Martin Ellis) has submitted his thesis and awaiting viva.

### **Simon Rogers**

#### ***Publications and Workshop/Conference Proceedings***

##### **Book publication**

"First Course in Machine Learning", S. Rogers and M. Girolami, Chapman&Hall/CRC.

##### **Workshop publications**

Mixture Model Clustering for Peak Filtering in Metabolomics. Simon Rogers, Rónán Daly and Rainer Breitling. Proceedings of the 9th International Workshop on Computational Systems Biology, WCSB 2012.

Parameter Inference in Mechanistic Models of Cellular Regulation and Signalling Pathways Using Gradient Matching. Frank Dondelinger, Simon Rogers, Maurizio Filippone, Roberta Cretella, Tim Palmer and Dirk Husmeier. Proceedings of the 9th International Workshop on Computational Systems Biology, WCSB 2012.

##### **Conference publication**

A user-specific Machine Learning approach for improving touch accuracy on mobile devices. Daryl Weir, Simon Rogers, Markus Löchtefeld and Roderick Murray-Smith. UIST 2012.

##### **Research Grant Applications**

SPECSTAT: Integrative statistical tools for mass spectrometry-based proteomics and metabolomics. (Dates: 1/3/2012-28/2/2015 Value: £690,373 Percentage: 50.0%) (unsuccessful).

CoSound - A Cognitive Systems Approach to Enriched and Actionable Information from Audio Streams (Dates: 01/01/2012-31/12/2015 Value: £36,983 Percentage: 15.0%) (successful).

Development of a unified metabolomics analysis framework (Dates: 1/1/2013-31/12/2015 Value: £556,114 Percentage: 40.0%) (decision pending).

The integration of probabilistic prediction and mechanistic modelling within a computational and systems biology context (Dates: 01/01/2012-01/07/2012 Value: £68,205 Percentage: 0.0%)

**Other****Invited speaker**

Department of Computer Science, University of Birmingham

Department of Computer Science, University of St. Andrews

ICS Seminar, Aalto University, Finland

HIIT Seminar, University of Helsinki, Finland

ICS Visiting Professor for one month, HIIT & Aalto University, Helsinki, Finland

SICSA PhD Conference 2012, "Life after PhD" discussion panel member.

**Editorial board membership**

PLoS One

**Programme Committee Membership**

PRIB 2012, MLSB 2012.

**PhD Student Supervision**

Daryl Weir: Paper accepted to UIST 2012. Accepted on the Doctoral Symposium for UIST 2012.

Hosted SICSA Distinguished Visitor Prof. Samuel Kaski, HIIT & Aalto University in Jan/Feb 2012.

Co-organiser, SICSA Summer School on Inference and Dynamics in Interaction, Glasgow, Summer 2012.

**Jeremy Singer*****Publications and Workshop/Conference Proceedings***

A Literate Experimentation Manifesto. Jeremy Singer. In Proceedings of the SPLASH/Onward! Conference . Oct 2011.

***Research Grant Applications***

EPSRC Outline Proposal "Anyscale Applications", £ 1.5M, joint with Glasgow, Edinburgh and Manchester (awaiting decision)

London Mathematical Society, Computer Science Small Grant. £ 0.5K (successful).

EPSRC Research in the Wild. "Efficient Resource Allocation in the Cloud", £ 150K. (unsuccessful).

**Other**

Hosted SICSA Distinguished Visitor Prof Martin Campbell-Kelly, University of Warwick (April 2012).

**Memberships**

Steering Committee member of the UK Memory Management Network.

Joint-chair of the 2012 workshop on Runtime Environments, Systems and Layered Virtual Environments (RESOLVE)

Organizing Committee member of the ASPLOS 2013 conference.

Reviewer for the 2012 BCS Distinguished Dissertation Awards.

**Fung Po (Posco) Tso*****Publications and Workshop/Conference Proceedings***

## **Journal**

Fung Po Tso, Lin Cui, Lizhuo Zhang, Weijia Jia, Di Yao, Jin Teng, Dong Xuan, "DragonNet: A Robust Mobile Internet Services System for Long Distance Trains", to appear in IEEE Transactions on Mobile Computing (IEEE TMC).

Lin Cui, Fung Po Tso, Di Yao, Weijia Jia, "WeFiLab: A Web-based Wi-Fi Laboratory Platform for Wireless Networking Education", to appear in IEEE Transactions on Learning Technologies (IEEE TLT).

Weijia Jia, Fung Po Tso, Zhen Ling, Xinwen Fu, Dong Xuan and Wei Yu, "Blind detection of spread spectrum flow watermarks", Security Comm. Networks (2012).

Fung Po Tso, Jin Teng, Weijia Jia, Dong Xuan, "Mobility: A Double-Edged Sword for HSPA Networks", IEEE Transactions on Parallel and Distributed Systems (IEEE TPDS).

## **Conference Publications:**

Neil Alexander Twigg, Marwan Fayed, Colin Perkins, Dimitrios Pezaros, Posco Tso, "User-level Data Center Tomography", Poster, in ACM SIGCOMM 2012

## **Research Grant Applications**

*Co-I for the University of Glasgow Chancellor's Fund funded project "The Glasgow Raspberry Pi Cloud"*

## **Other**

Currently working on a project combining the areas of software defined networking (SDN) and cloud computing. The initial work has yielded a testbed consisting of 4 NetFPGA based programmable switches and 4 end hosts.

## **Industry Collaboration:**

Initial contact with Onyx Group, a UK-based cloud computing service provider, to seek for potential collaboration opportunities with the industry.

## **Alessandro Vinciarelli**

### ***Publications and Workshop/Conference Proceedings***

#### **Journal Publications**

G.Mohammadi and A.Vinciarelli, "Automatic Personality Perception: Prediction of Trait Attribution Based on Prosodic Features", accepted for publications by IEEE Transactions on Affective Computing, to appear, 2012

A.Pesarin, M.Cristani, V.Murino and A.Vinciarelli, "Conversation Analysis at Work: Detection of Conflict in Competitive Discussions through Automatic Turn-Organization Analysis", Cognitive Processing, Vol. 13, no. 2, pp. 533-540, 2012

A.Vinciarelli, M.Pantic, D.Heylen, C.Pelachaud, I.Poggi, F.D'Errico and M.Schroeder, "Bridging the Gap Between Social Animal and Unsocial Machine: A Survey of Social Signal Processing", IEEE Transactions on Affective Computing, Vol. 3, no. 1, pp. 69-87, 2012

H.Salamin and A.Vinciarelli, "Automatic Role Recognition in Multiparty Conversations: an Approach Based on Turn Organization, Prosody and Conditional Random Fields", IEEE Transactions on Multimedia, Vol. 14, no. 2, pp. 338-345, 2012

#### **Conference Publications**

S.Kim, M.Filippone, F.Valente and A.Vinciarelli, "Predicting the Conflict Level in Television Political Debates: an Approach Based on Crowdsourcing, Nonverbal Communication and Gaussian Processes", Proceedings of ACM International Conference on Multimedia, Nara, 2012.

G.Mohammadi, A.Origlia, M.Filippone and A.Vinciarelli, "From Speech to Personality: Mapping Voice Quality and Intonation into Personality Differences", Proceedings of ACM International Conference on Multimedia, Nara, 2012.

M.Cristani, L.Bazzani, G.Roffo, A.Vinciarelli, C.Segalin, V.Murino, "Con conversationally-inspired Stylometric Features for Authorship Attribution in Instant Messaging", Proceedings of ACM International Conference on Multimedia, Nara, 2012.

T.Polzehl, K.Schoenenberg, S.Moeller, F.Metze, G.Mohammadi, and A.Vinciarelli, "On Speaker-Independent Personality Perception and Prediction from Speech" Proceedings of Interspeech, Portland, 2012.

B.Schuller, S.Steidl, A.Batliner, E.Noeth, A.Vinciarelli, F.Burkhardt, R.van Son, F.Weninger, F.Eyben, T.Bocklet, G.Mohammadi, B.Weiss, "The INTERSPEECH 2012 Speaker Trait Challenge" Proceedings of Interspeech, Portland, 2012.

S.Kim, F.Valente and A.Vinciarelli, "Automatic Detection of Conflicts in Spoken Conversations: Ratings and Analysis of Broadcast Political debates", Proceedings of IEEE International Conference on Audio, Speech and Signal Processing, to be presented, pp. 5089-5092, 2012.

A.Vinciarelli, S.Kim, F.Valente and H.Salamin, "Collecting Data for Socially Intelligent Surveillance and Monitoring Approaches: The Case of Conflict in Competitive Conversations", Proceedings of International Symposium on Communications, Control and Signal Processing, 2012.

M.Cristani, G.Paggetti, A.Vinciarelli, L.Bazzani, G.Menegaz and V.Murino, "Towards Computational Proxemics: Inferring Social Relations from Interpersonal Distances", Proceedings of IEEE International Conference on Social Computing, pp. 290-297, 2011.

F.Valente and A.Vinciarelli, "Language-Independent Socio-Emotional Role Recognition in the AMI Meetings Corpus", Proceedings of Interspeech, pp. 3077-3080, 2011.

G.Mohammadi and A.Vinciarelli, "Humans as Feature Extractors: Combining Prosody and Personality Perception for Improved Speaking Style Recognition", Proceedings of the IEEE International Conference on Systems, Man and Cybernetics, pp. 363-366, 2011.

F.Valente, A.Vinciarelli, S.H.Yella and A.Sapru, "Understanding Social Signals in Multi-party Conversations: Automatic Recognition of Socio-Emotional Roles in the AMI Meeting Corpus", Proceedings of the IEEE International Conference on Systems, Man and Cybernetics, pp. 374-379, 2011.

A.A.Salah, M.Pantic and A.Vinciarelli, "Recent Developments in Social Signal Processing", Proceedings of the IEEE International Conference on Systems, Man and Cybernetics, pp. 380-385, 2011.

### **Research Grant Applications**

Brains in dialogue: cerebral processing of speech in conversation, Kelvin-Smith Scholarship at the University of Glasgow, 1 PhD student for 4 years (£55K) (successful)

### **Other Editorships**

Associate Editor for the Social Sciences of IEEE Signal Processing Magazine

Associate Editor of Discourse, Context and Media

### **Invited Speeches**

Sep. 13-15 invited speaker at the International Conference on Cross-Cultural Communication (Washington DC, USA)

May 21, 2012 - Invited speaker at the Conference on Brain Decoding, organized by Carlo Morabito (Messina, Italy).

May 16-18, 2012 - Invited speaker at the Workshop Italiano Reti Neurali 2012, organized by Anna Esposito (Vietri sul Mare, Italy).

Aug. 14-20, 2011 - Invited lecturer at the National Swedish Research School for Cognitive Science, organized by Jens Allwood, Marston Hill, Mullsjo (Sweden).

### **Event organization**

Sep. 3-5, 2012 General Chair of IEEE International Conference on Social Computing (Amsterdam, the Netherlands)

Aug. 30, 2012 - Co-Chair of the Special Session on Engagement at Measuring Behavior 2012, in collaboration with Anton Nijholt (Utrecht, the Netherlands).

Dec. 1, 2011 - Chair of Third International Workshop on Social Signal Processing, in collaboration with Maja Pantic and Alex Pentland, Scottsdale (USA).

Nov. 12, 2011 - Chair of Second International Workshop on Socially Intelligent Surveillance and Monitoring, in collaboration with Marco Cristani and Vittorio Murino, Scottsdale (USA).

Oct. 9-11, 2011 - Program Chair of IEEE Conference on Social Computing, in collaboration with Maja Pantic and Justin Zhan, Boston (USA).

Oct. 9-12, 2011 - Chair of Special Session on Social Signal Processing at the IEEE Conference on Systems, Man and Cybernetics, in collaboration with Maja Pantic, Anchorage (USA).

Industrial collaboration

Co-founder of Klewel, a knowledge management company recognised with several national and international awards ([www.klewel.com](http://www.klewel.com)).

### **David White**

#### ***Publications and Workshop/Conference Proceedings***

Software review: the ECJ toolkit, Genetic Programming and Evolvable Machines, 2011.

Genetic Programming Needs Better Benchmarks James McDermott, David R. White, Sean Luke, Luca Manzoni, Mauro Castelli, Leonardo Vanneschi, Wojciech Jaśkowski, Krzysztof Krawiec, Robin Harper, Kenneth De Jong, Una-May O'Reilly. GECCO 2012.

Automated Heap Sizing in the Poly/ML Runtime David R. White, Jeremy Singer, Jonathan M. Aitken, and David Matthews. Trends in Functional Programming 2012. (Final version to appear).

Searching for Pareto-optimal Randomised Algorithms Alan G. Millard, David R. White and John A. Clark SSBSE 2012. (To appear. Nominated for a best paper award).

The GISMOE challenge: Constructing the Pareto Program Surface Using Genetic Programming to Find Better Programs (Keynote paper at ASE 2012) Mark Harman, William B. Langdon, Yue Jia, David R. White, Andrea Arcuri, John A. Clark ASE 2012 Keynote Paper.

Cloud Engineering is Search Based Optimization too (Invited Paper) Mark Harmana, Kiran Lakhotiaa, Jeremy Singer, David R. White, Shin Yooa Submitted to Journal of Systems and Software.

### **Research Grant Applications**

Submitted an expression of interest, along with SICSA Lecturer Jeremy Singer and David Matthews of Prolingua (who maintain PolyML), to the EPSRC's "Research in the Wild" scheme for £148k. The project was to deploy a control-theoretic method of heap resizing in commercial virtual machines (unsuccessful).

Application to University of Glasgow's "Chancellor's Fund" for £9k to build a cluster of Raspberry Pi machines for learning and research purposes (successful).

### **Other**

Conference presentation: Genetic Programming Needs Better Benchmarks. GECCO 2012.

### **Industry collaboration**

Collaboration with David Matthews at Prolingua on heap sizing in PolyML.

### **John Williamson**

#### **Publications and Workshop/Conference Proceedings**

Williamson, J., and Murray-Smith, R., Rewarding the original: explorations in joint user-sensor motion spaces. In: ACM Annual Conference on Human Factors in Computing Systems, 5-10 May 2012, Austin, Texas

S. Robinson, M. Jones, J. Williamson, R. Murray-Smith, P. Eslambolchilar, M. Lindborg, Navigation Your Way: From Spontaneous Independent Exploration to Dynamic Social Journeys, Personal and Ubiquitous Computing, 2012

Switching between Manual Control and Brain-Computer Interface Using Long Term and Short Term Quality Measures A Kreiling, V Kaiser, C Breitwieser, J Williamson, C Neuper, GR Müller-Putz Frontiers In Neuroscience:5, 2011

Visually multimodal vs. classic unimodal feedback approach for SMR-BCIs: a comparison study T Kaufmann, J Williamson, E Hammer, R Murray-Smith, A Kübler Int. J. Bioelectromagn:13 2011

Optimized stimulation events for a visual ERP BCI M Tangermann, M Schreuder, S Dähne, J Höhne, S Regler, A Ramsey, M Queck, J Williamson, R Murray-Smith Int. J. Bioelectromagn:13 2011

### **Other**

#### **Conference presentations**

Full paper presentation at ACM SIGCHI 2012; paper received Honourable Mention award; Interactivity demo session at ACM SIGCHI 2012.

### **Organization of Summer Schools**

Co-organized the SICSA summer school on Inference, Dynamics and Interaction. 25 PhD students attended, with 15 SICSA student attendees and 10 attendees from throughout Europe (England, France, Italy, Czech Republic). 6 invited external speakers from across Europe spoke at the summer school.

### **Industrial Collaboration**

13 days industrial consultancy for a legal firm in October/November 2011, providing expert opinion in a patent dispute.

## **Heriot Watt University**

**Oliver Lemon**

### ***Publications and Workshop/Conference Proceedings***

#### **Book Publications:**

Co-author, 2011: Verena Rieser and Oliver Lemon "Reinforcement Learning for Adaptive Dialogue Systems: A Data-driven Methodology for Dialogue Management and Natural Language Generation" Book Series: Theory and Applications of Natural Language Processing, Springer, November 2011 (ISBN 978-3-642-24941-9)

Co-editor Book to appear 2012: Oliver Lemon and Olivier Pietquin (eds.) "Data-driven Methods for Adaptive Spoken Dialogue Systems: Computational Learning for Conversational Interfaces", Springer (to appear Nov 2012)

#### **Conferences/workshops**

Paul A. Crook, Brieuc Roblin, Hans-Wolfgang Loidl and Oliver Lemon. Parallel Computing and Practical Constraints when applying the Standard POMDP Belief Update Formalism to Spoken Dialogue Management". International Workshop Series on Spoken Dialogue Systems Technology (IWSDS) 2011

Paul A. Crook and Oliver Lemon. "Lossless Value Directed Compression of Complex User Goal States for Statistical Spoken Dialogue Systems". Interspeech 2011

Zhuoran Wang and Oliver Lemon "Time-Dependent Infinite POMDPs for Planning Real-World Multimodal Interactions", Formal and Computational approaches to Multimodal Communication, ESSLLI 2012.

Paul A. Crook, Zhuoran Wang, Xingkun Liu and Oliver Lemon, "A Statistical Spoken Dialogue System using Complex User Goals and Value Directed Compression", EACL 2012

Srinivasan Janarthanam, Oliver Lemon, Xingkun Liu, Phil Bartie, William Mackaness, Tiphaine Dalmas, and Jana Goetze, "Integrating Location, Visibility, and Question-Answering in a Spoken Dialogue System for Pedestrian City Exploration", Proc. SIGDIAL 2012

Nina Dethlefs, Helen Hastie, Verena Rieser and Oliver Lemon "Optimising Incremental Dialogue Decisions Using Information Density for Interactive Systems" EMNLP-CONLL 2012

Srinivasan Janarthanam, Oliver Lemon, and Xingkun Liu, "A Web-based Evaluation Framework for Spatial Instruction-Giving Systems", ACL 2012.

Nina Dethlefs, Helen Hastie, Verena Rieser, and Oliver Lemon. "Optimising Incremental Generation for Spoken Dialogue Systems: Reducing the Need for Fillers by Optimising Waiting Time and Content Re-ordering", INLG 2012

Helen Hastie, Oliver Lemon and Nina Dethlefs "Incremental Spoken Dialogue Systems: Tools and Data", NAACL-HLT 2012

Mary Ellen Foster, Simon Keizer, Zhuoran Wang and Oliver Lemon, "Machine Learning of Social States and Skills for Multi-Party Human-Robot Interaction", Proc. Machine Learning for Interactive Systems (MLIS), 2012 (august 2012)

Nina Dethlefs, Verena Rieser, Helen Hastie and Oliver Lemon, "Towards Optimising Modality Allocation for Multimodal Output Generation in Incremental Dialogue", Proc. Machine Learning for Interactive Systems (MLIS), 2012 (august 2012)

Srinivasan Janarthanam, Oliver Lemon, Xingkun Liu, Phil Bartie, William Mackaness, Tiphaine Dalmas and Jana Goetze, "Conversational Natural Language interaction for Place-related Knowledge Acquisition", Spatial Cognition, P-KAR workshop, 2012 (august 2012)

Verena Rieser, Oliver Lemon, and Simon Keizer. "Opponent Modelling for Optimising Strategic Dialogue". The 16th workshop on the Semantics and Pragmatics of Dialogue (SeineDial'12). Paris, 2012. (to appear September 2012)

N. Asher, A. Lascarides, O. Lemon, M. Guhe, V. Rieser, P. Muller, S. Afantenos, F. Benamara, L. Vieu and P. Denis, S. Paul, S. Keizer and C. Degremont. "Modelling Strategic Conversation: the STAC project". The 16th workshop on the Semantics and Pragmatics of Dialogue (SeineDial'12). Paris, 2012. (to appear September 2012)

Srini Janarthanam, Oliver Lemon, Xingkun Liu, Phil Bartie, William Mackaness, Tiphaine Dalmas and Jana Goetze, "A spoken dialogue system for pedestrian city exploration: integrating navigation, visibility, and Question-Answering", (demonstration system), The 16th workshop on the Semantics and Pragmatics of Dialogue (SeineDial'12). Paris, 2012. (to appear September 2012)

#### **Journal papers**

K. Porayska-Pomsta, C. Frauenberger, H. Pain, G. Rajendran, T. Smith, R. Menzies, M. E. Foster, A. Alcorn, S. Wass, S. Bernardini, K. Avramides, W. Keay-Bright, J. Chen, A. Waller, K. Guldborg, J. Good, and O. Lemon, "Developing technology for autism: an interdisciplinary approach". Journal of Personal and Ubiquitous Computing, 16(2), 2012

#### **Research Grant Applications**

Involved in 3 EU FP7 proposals for the January 2012 deadline:

Resonate (unsuccessful)

Emiliea (unsuccessful)

EMOTE (successful - £600K)

#### **Other**

Invited speaker at ENLG 2011, September 2011

Invited speaker at ECAI 2012 workshop on machine learning for interactive systems

Joined Editorial Board of ACM Transactions in Interactive Intelligent Systems in May 2012.

#### **Ongoing work in funded projects**

Help4Mood (EC FP7)

JAMES (EC FP7)

SpaceBook (EC FP7)

STAC (EC ERC)

PARLANCE (EC FP7)

ABC-POMDP (EPSRC)

ECHOES (ESRC/EPSC)

### **Industrial Collaboration**

Collaboration with Yahoo! within the PARLANCE project.

### **Hans-Wolfgang Loidl**

#### ***Publications and Workshop/Conference Proceedings***

Prabhat Tooto, Hans-Wolfgang Loidl. "Parallel Haskell implementations of the n-body problem" In Concurrency: Practice and Experience, Special Issue on the SICSA Multicore Challenge. To appear.

M.Kh. Aswad, P.W. Trinder, Hans-Wolfgang Loidl. "Architecture Aware Parallel Programming in Glasgow Parallel Haskell (GPH)". In ICCS12: International Conference on Computational Science, Omaha, Nebraska, June 4-6, 2012.

P.W. Trinder, M. I. Cole, K. Hammond, H-W. Loidl and G.J. Michaelson. "Resource Analyses for Parallel and Distributed Coordination" To appear in Concurrency: Practice and Experience.

Prabhat Tooto, Pantazis Deligiannis, Hans-Wolfgang Loidl. "Haskell vs. F# vs. Scala: A High-level Language Features and Parallelism Support Comparison". In FHPC'12: Workshop on Functional High-Performance Computing, Copenhagen, Denmark, September 15, 2012.

Pantazis Deligiannis, Hans-Wolfgang Loidl, Evangelia Kouidi."Improving the Diagnosis of Mild Hypertrophic Cardiomyopathy with MapReduce" In The Third International Workshop on MapReduce and its Applications (MAPREDUCE'12), June 18-19, 2012 HPDC'2012, Delft, the Netherlands.

Evgenij Belikov, Hans-Wolfgang Loidl, Greg Michaelson, Phil Trinder."Architecture-Aware Cost Modelling for Parallel Performance Portability". In ATPS'12: Arbeitstagung Programmiersprachen, Berlin, February 2012.

#### ***Research Grant Applications***

"CALCIUM: Computer Algebra on Cloud Infrastructures", a project funded as part of the EU infrastructure project "VenusC", promoting the development of cloud infrastructures for parallel computation. This pilot project ran from September 2011 to May 2012

EU FP7 proposal to the OpenFET track on "ParaForm: Forming Parallel Haskell Programs Using Advanced Refactorings". Joint submission with the University of St Andrews and four European partners.

Proposal on "Architecture-transparent control of parallelism" to the recent EPSRC Call on "System Approaches to Distributed and Embedded Architectures (SADEA)".

#### ***Other***

Sub-theme leader of SEMANTICS within the CSE theme of SICSA, I am coordinating the SICSA multi-core challenge

PC chair TFP'12: the Symposium on Trends in Functional Programming, June 2012, University of St Andrews

Presented poster on "High-level Parallel Programming" at the SICSA Demorest, November 2011

### **PhD Student Supervision**

Pantazis Deligiannis: "Exploiting Clusters of Multi-Cores: Nested Data Parallelism in Hadoop MapReduce"

Prabhat Tootoo: "Inherently Parallel Data Structures"

Evgenij Belikov on "Architecture-transparent Control of Parallelism Using Cost Models".

Second supervisor for Malak Aljabri and Mustafa Aswad (passed viva in May 2012).

### **University of St Andrews**

#### **Adam Barker**

##### ***Publications and Workshop/Conference Proceedings***

Adam Barker, Jon B. Weissman and Jano I. van Hemert. Reducing Data Transfer in Service-Oriented Architectures: The Circulate Approach, Services Computing, IEEE Transactions on , vol.5, no.3, pp.437-449.

Jonathan Stuart Ward and Adam Barker. Semantic Based Data Collection for Large Scale Cloud Systems. To appear in the 5th International Workshop on Data Intensive Distributed Computing (DIDC 2012), in conjunction with HPDC'12: The 21st International Symposium on High Performance Distributed Computing.

##### ***Other***

Honorary Fellowship for 3 years at the School of Informatics, University of Edinburgh.

SICSA grant for one month visit at the University of California Berkeley.

Selection to the competitive Scottish Crucible 2012 scheme.

Co-organised the NSF PIRE Open Science Data Cloud Workshop.

Nominated to the Technical Programme Committee for HPDC 2012

#### **Edwin Brady**

##### ***Publications and Workshop/Conference Proceedings***

Edwin Brady, Epic: a library for generating compilers. In proceedings of Trends in Functional Programming 2012

Edwin Brady and Kevin Hammond, Resource-safe Systems Programming with Embedded Domain Specific Languages. In Practical Aspects of Declarative Languages 2012

##### ***Research Grant Applications***

PSSCS: Platform for safe and secure cloud services, submitted to EU FP7, requested £427,042 (unsuccessful)

EnSure: Enforcing Security through Effective Type Analysis, submitted to EU FP7, requested £503,716 (unsuccessful)

##### ***Other***

Leading the development of the Idris programming language (<http://idris-lang.org>)

Invited speaker: Dependently Typed Programming 2011 Co-chair of the 2012 ICFP Programming Contest

Programme committee member: Workshop on Rigorous Protocol Engineering 2011

Programme committee member: Trends in Functional Programming 2012

Hosted the SICSA Summer School on Types and Programming Languages, June 7<sup>th</sup> to 9<sup>th</sup> 2012

### **Simon Dobson**

#### ***Publications and Workshop/Conference Proceedings***

Decentralized and optimal control of shared resource pools. Loureiro, E. , Nixon, P. & Dobson, S. A. 2012 In : ACM TRANSACTIONS ON AUTONOMOUS AND ADAPTIVE SYSTEMS. 7

Healthcare in a pervasive world. Dobson, S. A. & Quigley, A. J. 2012 In: This pervasive day: the potentials and perils of pervasive computing. Pitt, J. (ed.). Imperial College Press

High accuracy reference-free ultrasonic location estimation

Saad, M., Bleakley, C., Ballal, T. & Dobson, S. A. 2012 in: IEEE Transactions on Instrumentation and Measurement. 61, 6, p. 1561.

#### **Forthcoming**

Packet-Level Attestation (PLA): a framework for in-network sensor-data reliability. Kamal, A. R. M. , Bleakley, C. & Dobson, S. A. 2012 In : ACM Transactions on Sensor Networks.

Situation identification techniques in pervasive computing: a review. Ye, J. , Dobson, S. A. & McKeever, S. 2012 In : Pervasive and Mobile Computing. 8, 1, p. 36-66.

#### **Research Grant Applications**

Applied for EPSRC Programme Award in a consortium involving Glasgow, £4m (under review)

#### **Other**

Associate editor of ACM Transactions on Autonomous and Adaptive Systems

Invited talk at the IDEAS Institute on sensor systems.

Engaged with physics, medical and engineering Schools between University of St Andrews and University of Glasgow in work on 3d printing

Engaged with University of St Andrews School of Chemistry in preparing a proposal on applying computer science to understanding the chemical roots of biological complexity.

#### **PhD student supervision**

Leo Fang (research student) won a best poster award at IWSOS

### **Per Ola Kristensson**

#### ***Publications and Workshop/Conference Proceedings***

##### **Journal articles**

Zhai, S., Kristensson, P.O., Appert, C., Andersen, T.H. and Cao, X. 2013. Foundational issues in touch-surface stroke gesture design - an integrative review. Foundations and Trends in Human-Computer Interaction: forthcoming. Invited.

Dostal, J., Kristensson, P.O. and Quigley, A.2013. Estimating and using absolute and relative viewing distance in interactive systems. Pervasive and Mobile Computing: forthcoming.

Zhai, S. and Kristensson, P.O. 2012. The word-gesture keyboard: reimagining keyboard interaction. Communications of the ACM 55(9): 91-101. Invited. (Research Highlights). Also features an introduction by Bill Buxton in the same journal issue.

### **Conference papers**

Trinh, H., Waller, A., Vertanen, K., Kristensson, P.O. and Hanson, V.L. 2012. iSCAN: a phoneme-based predictive communication aid for nonspeaking individuals. In Proceedings of the 14th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2012). ACM Press: forthcoming.

Vertanen, K. and Kristensson, P.O. 2012. Spelling as a complementary strategy for speech recognition. In Proceedings of the 13th Annual Conference of the International Speech Communication Association (Interspeech 2012). ISCA: forthcoming.

Kristensson, P.O. and Vertanen, K. 2012. The potential of dwell-free eye-typing for fast assistive gaze communication. In Proceedings of the 7th ACM Symposium on Eye-Tracking Research & Applications (ETRA 2012). ACM Press: 241-244. Honourable mention.

Kristensson, P.O., Nicholson, T.F.W. and Quigley, A. 2012. Continuous recognition of one-handed and two-handed gestures using 3D full-body motion tracking sensors. In Proceedings of the 17th ACM International Conference on Intelligent User Interfaces (IUI 2012). ACM Press: 89-92.

Kristensson, P.O. and Vertanen, K. 2012. Performance comparisons of phrase sets and presentation styles for text entry evaluations. In Proceedings of the 17th ACM International Conference on Intelligent User Interfaces (IUI 2012). ACM Press: 29-32.

Coyle, D., Moore, J., Kristensson, P.O., Fletcher, P. and Blackwell, A. 2012. I did that! Measuring users' experience of agency in their own actions. In Proceedings of the 30th ACM Conference on Human Factors in Computing Systems (CHI 2012). ACM Press: 2025-2034. Honourable mention.

Kristensson, P.O. and Denby, L.C. 2011. Continuous recognition and visualization of pen strokes and touch-screen gestures. In Proceedings of the 8th Eurographics Symposium on Sketch-Based Interfaces and Modeling (SBIM 2011). ACM Press: 95-102.

Kristensson, P.O. and Vertanen, K. 2011. Asynchronous multimodal text entry using speech and gesture keyboards. In Proceedings of the 12th Annual Conference of the International Speech Communication Association (Interspeech 2011). ISCA: 581-584.

Vertanen, K. and Kristensson, P.O. 2011. The imagination of crowds: conversational AAC language modeling using crowdsourcing and large data sources. In Proceedings of the 2011 Conference on Empirical Methods in Natural Language Processing (EMNLP 2011). ACL: 700-711.

Vertanen, K. and Kristensson, P.O. 2011. A versatile dataset for text entry evaluations based on genuine mobile emails. In Proceedings of the 13th ACM International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI 2011). ACM Press: 295-298.

### **Workshop papers**

Trinh, H., Waller, A., Vertanen, K., Kristensson, P.O. and Hanson, V.L. 2012. Applying prediction techniques to phoneme-based AAC systems. In Proceedings of the 3rd Workshop on Speech and Language Processing for Assistive Technologies (SLPAT 2012). ACL: 19-27.

Kristensson, P.O., Clawson, J., Dunlop, M., Isokoski, P., Roark, B., Vertanen, K., Waller, A. and Wobbrock, J.O. 2012. Designing and evaluating text entry methods. In Extended Abstracts of the 30th ACM Conference on Human Factors in Computing Systems (CHI 2012). (Workshops). ACM Press: 2747-2750.

### **Research Grant Applications**

Joint EC proposal bid with University of Edinburgh (EC FP7 FET Open Call). Edinburgh contact: Professor Jon Oberlander (unsuccessful).

Joint EC proposal bid with University of Glasgow (EC FP7 ICT Call). Glasgow contact: Professor Stephen Brewster. (unsuccessful)

**Other**

Lead organiser for the CHI 2012 Workshop on Designing and Evaluating Text Entry Methods. Other SICSA institutions involved were University of Strathclyde (Dr Mark Dunlop) and University of Dundee (Dr Annalu Waller). Foreign co-organising institutions were University of Washington, Georgia Institute of Technology, Oregon Health & Science University, University of Tampere and Montana Tech of the University of Montana.

Collaboration with University of Dundee's accessibility team leading to two outputs (a workshop paper at SLPAT 2012 and a full conference paper at ACM ASSETS 2012).

Best Paper Honourable Mention, 7th ACM Conference on Eye-Tracking Research & Applications (ETRA 2012).

Best Paper Honourable Mention, 30th ACM Conference on Human Factors in Computing Systems (CHI 2012).

Associate Chair, 31st ACM Conference on Human Factors in Computing Systems (CHI 2013).

Senior Program Committee Member, 18th ACM International Conference on Intelligent User Interfaces (IUI 2013).

Workshop Co-Chair, 15th ACM International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI 2013).

Demo Co-Chair, 26th ACM Symposium on User Interface Software and Technology (UIST 2013). Senior Program Committee Member, 18th ACM International Conference on Intelligent User Interfaces (IUI 2013).

Local Arrangements Chair, 7th ACM International Conference on Interactive Tabletops and Surfaces (ITS 2013).

Associate Chair, 7th Nordic Conference on Human-Computer Interaction (NordiCHI 2012).

Associate Chair, 14th ACM International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI 2012).

Co-Organiser, CHI 2012 Workshop on Designing and Evaluating Text Entry Methods, held in conjunction with the 30th ACM Conference on Human Factors in Computing Systems (CHI 2012).

Faculty Member, CHI 2012 Doctoral Consortium, at the 30th ACM Conference on Human Factors in Computing Systems (CHI 2012).

Associate Chair, 30th ACM Conference on Human Factors in Computing Systems (CHI 2012).

Judge, CHI 2012 Student Research Competition (part of the ACM Student Research Competition), at the 30th ACM Conference on Human Factors in Computing Systems (CHI 2012).

Workshop Co-Chair, 17th ACM International Conference on Intelligent User Interfaces (IUI 2012).

Short Papers Co-Chair, British Computer Society (BCS) 26th Conference on Human-Computer Interaction (HCI 2012).

Program Committee Member, 3rd Workshop on Speech and Language Processing for Assistive Technologies (SLPAT 2012), held in conjunction with the 2012 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-HLT 2012).

Press coverage in New Scientist: "Crowdsourcing improves predictive texting". New Scientist, pages 24-25, Duncan Graham-Rowe, February 22, 2012. Syndicated to ca. 20 international media outlets, such as United Press International and the Yahoo! News network.

Wellcome Trust feature for CHI 2012 paper: "In Ctrl: How much help do you want from your computer?" Wellcome Trust Blog. Michael Regnier, August 9, 2012.

Co-organiser and Panellist, SICSA MMI Doctoral Consortium, University of Glasgow, June 19, 2012. Eight students attended the events from the University of Dundee, University of Glasgow, University of Strathclyde and University of St Andrews.

Co-Organiser and Lecturer, SICSA Summer School on Inference and Dynamics in Interaction, University of Glasgow, June 11-15, 2012.

Co-Organiser, SICSA Workshop on Mobile Interaction, University of Glasgow, January 20, 2012. Professor Stephen Brewster at the University of Glasgow holds the data for the event.

#### **Dr John Thomson**

##### ***Publications and Workshop/Conference Proceedings***

Automatic OpenCL Device Characterization: Guiding Optimized Kernel Design. Peter Thoman, Klaus Kofler and John Thomson, In the proceedings the 17<sup>th</sup> International Conference on Parallel and Distributed Computing, Euro-Par, 2011

##### ***Research Grant Applications***

Submitted as Co-I to the EPSRC MACDAS call, EP/K015176/1 (under review)

##### ***Other***

Member (by invitation) to the HiPEAC European network of excellence for systems

Several invited talks to the ICSA group at University of Edinburgh

#### **Aaron Quigley**

##### ***Publications and Workshop/Conference Proceedings***

Grid and Pervasive Computing Workshops, International Workshops, S3E, HWTS, Doctoral Colloquium, Held in Conjunction with GPC 2011, Oulu, Finland, May 11-13, 2011. Revised Selected Papers, Rautiainen M., Korhonen T., Mutafungwa E., Ovaska E., Katasonov A., Evesti A., Ailisto H., Quigley A., Häkkinen J. and Milic-Frayling N., et al. LNCS Volume 7096, 2012, DOI: 10.1007/978-3-642-27916-4

Dostal, J. and Kristensson, P. O. and Quigley, A., Estimating and using absolute and relative viewing distance in interactive systems, Journal of Pervasive and Mobile Computing, 2012

##### ***Book Chapters***

Farrugia, M., Hurley, N. & Quigley, A. J., SAINT: Supervised Actor Identification for Network Tuning, Studies in Mining Social Networks and Security Informatics. Springer-Verlag, 2012

Farrugia M., Hurley N., Payne D. and Quigley A. Social Network Construction in the Information Age: Views and Perspectives in Social Network Mining, Analysis and Research Trends: Techniques and Applications, DOI: 10.4018/978-1-61350-513-7, 2012

Dobson S and Quigley A., Healthcare in a pervasive world in This Pervasive Day: The Potential and Perils of Pervasive Computing, ISBN-13: 978-1848167483, 2011

**Research Grant Applications**

Edinburgh/St Andrews/York (Canada), JISC Digging into Data, Trading Consequences (successful)

St Andrews/MUSA/Interface3, Scotland's Museums Augmented Reality Tourism, Smart Tourism (SFC Horizon grant) award (successful)

Historic Scotland/St Andrews/ADS, Large Augmented Digital Display for Interactive Environments (SFC Horizon grant) award (successful)

Edinburgh/St Andrews, European Culture Cloud, FP7 FET Open (unsuccessful)

**Other**

Editor-in-Chief for the Journal Computers

Scottish Chair of the BCS Interaction Specialist Group

Associate Editor for the International Journal of People-Oriented Programming - IJPOP

External member of the IDEAS Research Institute executive committee in Robert Gordon University Scotland

Editorial Board member of the JPCC - International Journal of Pervasive Computing and Communications

Committee Member for the Joint Steering Committee for UbiComp and Pervasive

Board of Experts Member for the Bridging Research in Ageing and ICT development - EU FP7

**Coordinating Action**

Workshop Co-Chair of PPD'12 - Workshop on infrastructure and design challenges of coupled display visual interfaces in conjunction with AVI 2012, Capri Italy, 25th May 2012

Doctoral Colloquium Co-Chair of Pervasive 2012 - 10th International Conference on Pervasive Computing, Newcastle UK, 18 - 22 June 2012

Short Paper Co Chair of HCI 2012 - 26th Annual Conference of the Specialist HCI group of the BCS, the BCS Interaction SG, Birmingham UK, PC meeting July

Associate Chair of the ACM MobileHCI 2012 Program Committee - 14th International Conference on Human-Computer Interaction with Mobile Devices and Services, San Francisco USA, PC meeting in Jan

Tutorials Co Chair for the ACM MobileHCI 2012 Program Committee - 14th International Conference on Human-Computer Interaction with Mobile Devices and Services, San Francisco USA, Decisions in Feb

Doctoral Colloquium Chair, 6th International Conference on Grid and Pervasive Computing, Oulu, Finland, 2011

Steering Committee Chair, International Conference Series on Pervasive Computing, 2011

Program Committee Member, AutoUI 2011 - 3rd International Conference on Automotive User Interfaces and Interactive Vehicular Applications, Salzburg, November 29th – December 2nd 2011

Program Committee Member, MobiQuitous 2011 - The 8th International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services, Dec, Copenhagen, Denmark

Program Committee Member, CONTEXT '11 - The 7th International and Interdisciplinary Conference on Modeling and Using Context, Sept. 26.-30, Karlsruhe Germany

Program Committee Member, MobileHCI 2011 - 13th International Conference on Human-Computer Interaction with Mobile Devices and Services, Aug 30th - Sept 2nd, Stockholm Sweden

Program Committee Member, TEI 2012 - SIGCHI 6th International Conference on Tangible and Embedded Interaction, Kingston, ON Canada, February 19-22

Program Committee Member, PerCom 2012 - IEEE 10th International Conference on Pervasive Computing and Communications, Lugano Switzerland, March 19 -23

Program Committee Member, WCMCW 2012, When the City Meets the Citizens Workshop in conjunction with the International AAAI Conference on Weblogs and Social Media, Dublin Ireland, June 4

Program Committee Member, PURBA 2012, The Second Workshop on Pervasive Urban Applications in conjunction with Pervasive Computing 2012, Newcastle, UK, June 18

Program Committee Member, MDC 2012, The Mobile Data Challenge in conjunction with Pervasive Computing 2012, Newcastle, UK, June 18

Successfully awarded right to host UIST 2013 and ITS 2013 in St Andrews (involving academics from 4 SICSA departments (Glasgow, Strathclyde, Napier, St Andrews) in chairing roles)

General Co-Chair of UIST 2013, the 26th ACM Symposium on User Interface Software and Technology

General Co-Chair of ITS 2013, the ACM Interactive Tabletops and Surfaces conference

Appointed Visiting Professor in Robert Gordon University

Appointed Visitor University of Edinburgh

### **Alex Voss**

#### ***Publications and Workshop/Conference Proceedings***

##### **Book Publications**

Research data management: opportunities and challenges for HEIs Procter, R. , Halfpenny, P. & Voss, A. 2012 In: Managing Research Data. Pryor, G. (ed.). Facet Publishing p. 135-150.

##### *Research Grant Applications*

JISC funded proposal "Twitter analysis workbench development". £156k budget. Bid also involves Edinburgh (successful)

##### **Other**

Work on the Summer Riots won in the Visualisation and Storytelling category of data journalism award, organised by the Global Editors Network and supported by Google.

Collaboration with the Guardian on the Olympics. Twitter analysis drives the timeline in their Second Screen application, see <http://second-screen.guardian.co.uk/olympics-2012> and currently working on a journalists' workbench.

Collaboration with the Open University, Manchester and the BBC World Service on a study of the BBC World Service language programmes and their use of social media.

## **University of Stirling**

### **Andrea Bracciali**

#### ***Publications and Workshop/Conference Proceedings***

P. Degano and A. Bracciali, "Process calculi, Systems Biology and Artificial Chemistry". In G. Rozenberg, T.H.W. Bäck, and J.N. Kok editors Handbook of Natural Computing. Springer. 2012. (ISBN: 978-3-540-92911-6).

M. Massink, D. Latella, A. Bracciali, M. D. Harrison and J. Hillston. "Scalable Context-dependent Analysis of Emergency Egress Models". Formal Aspects of Computing, 2012. (DOI: 10.1007/s00165-011-0188-1).

#### ***Research Grant Applications***

Visiting Professor Grant at the Math and Informatics Department of the University of Cagliari (£3K) (successful).

Application to DSTL National UK PhD programme (August 2011) for a PhD grant (withdrawn)

Application to EPSRC Sandpit "Predictive Modelling for Healthcare Technologies through Maths" (July 2012) (unsuccessful).

Stirling Enhancement of Learning Fund (SELF) awarded by Stirling University (£1K) (successful)

#### ***Other***

Multidisciplinary collaboration with Dr. Michaël Bekaert of the Institute of Aquaculture (School of Natural Sciences) at Stirling on Computational models for pathways properties analysis (for duplicate genome species).

Ongoing collaborations with the University of Pisa and Cambridge are proceeding on computational models for biological systems.

Member of the Programme Committee of Symposium on Theory of Modeling and Simulation (TMS'12) March 26-29 2012 Orlando, FL, USA.

Organization of Modelling: Challenges and Perspectives, The SICSA ModAbs 2012 Workshop Stirling, 11th June 2012,

Contribution to the creation of the first Erasmus Programme links of the Computing Science and Mathematics division at Stirling University;

Contribution to a major revision of the undergraduate teaching programme for the Computing degrees at Stirling University.

### **Marwan Fayed**

#### ***Publications and Workshop/Conference Proceedings***

Maher Heal and Marwan Fayed, Ad hoc Networks Routing: Shortest Path is Enough," International Conference on Wireless Networks (ICWN), Las Vegas, NV, USA, 2012.

Marwan Fayed and David Cairns and Hussein T. Mouftah, "Revisiting the Planarity Assumption for Position-Based Routing in Wireless Networks". (Under Major Revision).

Neil Alexander Twigg, Marwan Fayed, Colin Perkins, Dimitrios Pezaros and Posco Tso "User-level Data Center Tomography," in ACM SIGCOMM, Helsinki, Finland, 2012.

David Cairns, Marwan Fayed, and Hussein T. Mouftah, "Towards Position-based Routing for Mobile Environments," ACM 10th International Conference on Mobile Systems, Applications and Services (MobiSys), Low Wood Bay, UK, 2012.

### **Research Grant Applications**

PI for Carnegie Trust of Scotland, Larger Grant "HUBS: Highspeed Ubiquitous Broadband for Scotland". Co-Is: Peter Buneman (Edi), Mahesh Marina (Edi), Alan Hughes (UHI), Frans de Vries (Stirling), Richard Simmons (Stirling). £40K (successful)

### **Other**

Invited speaker: University of St Andrews 2012

Supervision of project that made it to finals of "ACM Best Undergraduate Research Poster" competition.

### **Collaborative projects**

"User-level Data Center Tomography," with Colin Perkins (University of Glasgow), Dimitrios Pezaros (University of Glasgow), Posco Tso (University of Glasgow), Neil Twigg (University of Stirling Student). We are currently working on a grant. Poster of the same title appeared at ACM SIGCOMM Conference, 2012.

"A Re-Evaluation of Position-based Routing for Wireless Networks," with David Cairns (University of Stirling) and Hussein Mouftah (UOttawa, Canada). Poster appeared at ACM Mobisys 2012. No funding planned, but full publication in the works.

"Grondaia Architecture" with Mahesh Marina (Edi) and Luca Boccassi (Edi/Cisco). This was a joint MSc supervision. Results being gathered and submission is being prepared.

### **Programme Committees**

Technical Program Committee, IEEE Globecom, NGN Track. 2012

Publicity Chair, ICST AdHocNets, 2012

Technical Program Committee, IEEE WinMee. 2011

Technical Program Committee, IEEE ICC, Future Internet Track 2012

### **PhD Student Supervision**

SICSA supervisor for Paul Jakma (University of Glasgow). After 1st year he was awarded an internship in industry.

### **Industry Collaboration:**

Link established with Iain Davidson at Freescale (East Kilbride). We are currently negotiating a grant application in which Freescale may play a supportive role.

## **University of Strathclyde**

### **Andreas Lingnau**

#### ***Publications and Workshop/Conference Proceedings***

Lingnau, A., Dijk, B. van, Ruthven, I., Kuckelkorn, H., & Schmuch, J. (2012). Enriching children's experiences during and after a museum visit. 2012 IEEE 12th International Conference on Advanced Learning Technologies.

Ruthven, I., Landoni, M., & Lingnau, A. (2012). Children and digital libraries. In M. Dobрева, A. O'Dwyer, & P. Feliciati (Eds.), *User Studies for Digital Library Development*. Facet publishing.

van Dijk, E. M. A. G., Lingnau, A., & Kuckelkorn, H. (2012). Measuring Enjoyment of an Interactive Museum Experience. *Proceedings of 14th ACM International Conference on Multimodal Interaction (to appear)*.

#### ***Research Grant Applications***

SICSA Smart Tourism: Disruptive Innovation Challenge (unsuccessful)

NESTA: Destination Local (unsuccessful)

#### ***Other***

Conference presentation at ICALT 2012, Rome, 4-6 July 2012

#### **Programme committee membership**

IEEE International Conference on Advanced Learning Technologies (ICALT) 2012

European Conference on Technology Enhanced Learning (EC-TEL) 2012

International Conference on Computer Supported Education (CSEDU): 2012

International Science Learning Conference eLearning Baltics (ELBA) 2012

Symposium on Human-Computer Interaction and Information Retrieval (HCIR) 2012

SCiLearn workshop on Learning within and from the smart cities, in conjunction with ICWL 2012

### **Eva Hornecker**

#### ***Publications and Workshop/Conference Proceedings***

##### **Accepted**

Trevor Hogan, Eva Hornecker. How Does Representation Modality Affect User-Experience of Data Artifacts? Full paper accepted for publication at HAID'12. The Seventh International Workshop on Haptic and Audio Interaction Design. August 23-24, Lund, Sweden. Springer LNCS

Paul Marshall, Eva Hornecker. Theories of Embodiment in HCI. to appear in: *The SAGE Handbook of Digital Technology Research*, edited by Carey Jewitt, Sara Price and Barry Brown

Frøy Birte Bjørneseth, Sathiya Kumar Renganayagalu, Sashidharan Komandur, Mark D. Dunlop and Eva Hornecker. Towards an Experimental Design Framework for Evaluation of Dynamic Workload and Situational Awareness in Safety Critical Maritime Settings. Accepted for British HCI Conference Work in Progress.

##### **Published**

Frøy Birte Bjørneseth, Mark D. Dunlop, Eva Hornecker. Assessing the Effectiveness of Direct Gesture Interaction for a Safety Critical Maritime Application. *International Journal of Human-Computer Studies (IJHCS)* special issue on Development, Evaluation and Deployment of Multi-touch Systems. (online first published)

Eva Hornecker, Emma Nicol. What Do Lab-based User Studies Tell Us About In-the-Wild Behavior? Insights from a Study of Museum Interactives. full paper. Proc. of Designing Interactive Systems (DIS'12), ACM 2012, Newcastle.

Patrick Tobias Fischer, Eva Hornecker. Urban HCI: Spatial Aspects in the Design of Shared Encounters for Media Façades. Proc. of ACM CHI'2012, pp. 307-316

Eva Hornecker. Beyond Affordance: Tangibles' Hybrid Nature. Procedures of TEI 2012, ACM, pp. 17-182  
BEST PAPER AWARD

Emma Nicol, Eva Hornecker. Using children's drawings to elicit feedback on interactive museum prototypes. Proc. of ACM IDC 2012, pp. 276-279 (poster paper)

Trevor Hogan, Eva Hornecker. Beyond Data Visualisations. to appear in: Beyond Data. Baltan Laboratories and Kitchen Budapest. book launch at the upcoming Dutch Electronic Art Festival in May

Trevor Hogan, Eva Hornecker. Data Modality and the Repertory Grid Technique. Poster at Designing Interactive Systems (DIS'12), ACM 2012, Newcastle.

Patrick Tobias Fischer, Eva Hornecker. Towards Urban HCI. Position Paper for CHI 2012 workshop Architecture

Patrick Tobias Fischer, Eva Hornecker. Urban HCI – Interaction Patterns in the Built Environment. Doctoral Consortium contribution at BritishHCI 2011 / BCS-HCI'11, pp. 531-534, British Computer Society / ACM DL

Eva Hornecker. Commentary on 'Philosophy of Interaction' by Dag Svanaes. In: Soegaard, Mads and Dam, Rikke Friis (eds.). "Encyclopaedia of Human-Computer Interaction". Available online at Interaction-Design.org:[http://www.interaction-design.org/encyclopedia/philosophy\\_of\\_interaction.html#eva+hornecker](http://www.interaction-design.org/encyclopedia/philosophy_of_interaction.html#eva+hornecker) (Dec. 2011)

Eva Hornecker, Stuart Swindells, Mark Dunlop. A Mobile Guide for Serendipitous Exploration of Cities. (Poster). Proceedings of ACM MobileHCI 2011, ACM Press, 557-562

### **Research Grant Applications**

EU DigiCult program. meSch IP project. Total amount requested for entire project: £4,798,463 (successful)

Increasing Safety of Demanding Offshore Operations through Usability. (started autumn 2011) Co-investigator together with Dr. Mark Dunlop on a new project led by former PhD student Frøy Birte Bjørneseth at Rolls Royce Marine AS in Norway, funded by the Norwegian Funding Council. (The Strathclyde part of the grant is 220 000 Norwegian Kroner (£25,507) (successful)

Application to Nesta Destination Local competition. The PI was 3tfn radio, and we (Dr. Mark Dunlop, Dr. Andreas Lingnau and Dr. Eva Hornecker, University of Strathclyde) were the core partner for research and development. Requested £50,000 (unsuccessful)

Museums and Multimodal Interaction – Supporting Engagement and Learning with Novel Museum Technologies. PhD project funded by the University of Strathclyde, started October 2011. PHD scholarship £52,260 (successful)

Bridging the Gap Researcher-led investigation grant. 8th August 2011. (Eva Hornecker, Tobias Fischer, Mike Anusas (DMEM faculty)) £1000 (successful)

Application for the Leverhulme Trust Leadership Award (each University may only submit one project). Requested approx. £1m for 5 years. Nominated by Faculty of Science, but was not selected at University level.

**Other**

Collaboration with Prof. Dr. Lynne Baillie at Glasgow Caledonian University. Joint supervision of a final year project that is part of the 'EMMI: Enhancing the user experience by employing innovative Methods for Multimodal Input and output' project funded by Orange. Publications planned

Collaboration with Dr. Andreas Dünser and Prof. Ian Ruthven (University of Strathclyde), PuppyIR EU project. joint supervision of a final year project with publication anticipated

ACM CHI 2012 Interactivity Explorations Chair

Poster Chair for ITS'12 (Interactive Tabletops and Surfaces) in Boston

Theme Chair on the Processes theme for ACM DIS'12 (Designing Interactive Systems) in June 2012 in Newcastle, UK

Forum editor for 'Tangible and Embodied Interaction' for ACM interactions magazine

Interacting with Computer's Computer Science's Special Editorial Board

Committee member of TEI 2012 TPC

Best Paper Award at TEI 2012

**Invited talks**

Investigating visitor behaviours around interactive tables in museums. Keynote, Workshop on 'Integrating Multi-Touch and Interactive Surfaces into the Research Environment' at the Oxford e- Research Centre. 6-7.09.2011

Engagement and interaction with museum installations. International symposium "From Understanding the Present to Envisioning the Future" TU Vienna, Austria, celebrating Prof. Ina Wagner's retirement 22-23.09.2011.

**PhD student supervision**

Currently supervising Patrick Tobias Fischer.

**Notable achievements of PhD Student:**

CHI'12 paper. Patrick Tobias Fischer, Eva Hornecker. Urban HCI: Spatial Aspects in the Design of Shared Encounters for Media Façades. Proc. of ACM CHI'2012, pp. 307-316

Workshop paper. Patrick Tobias Fischer, Eva Hornecker. Towards Urban HCI. Position Paper for CHI 2012 workshop Ar-chi-tecture

Doctoral Consortia accepted for and attended: Patrick Tobias Fischer was accepted to and took part at the ACM CHI 2012 Doctoral Consortium.

Patrick Tobias Fischer, Eva Hornecker. Urban HCI – Interaction Patterns in the Built Environment. Doctoral Consortium contribution at BritishHCI 2011 / BCS-HCI'11, pp. 531-534, British Computer Society / ACM DL

Book article. Fischer P.T. and Christian Zoellner. Auf ins digitale Material! in Prototype! Joerg Petruschat and Julian Adenauer (Eds.). July 2012.

SICSA PhD Conference. 2012 – Poster submission.

**Exhibitions of the SMSlingshot project:**

Invited Exhibition of SMSlingshot at CROMAfest in Mexico City 8.2.2012, Urbanize Festival in Vienna 5.-14. October 2012

Solstice Festival Cleveland Museum of Art. Cleveland, Ohio, US. June/July 2012

Marsatac Festival. Marseille, France. 29th Sept. - 1st October 2011.

Today's Art. Brussels, Belgium. 29.-30. Sept. 2011.

Today's Art. Den Haag, Netherlands. 23rd -24th September 2011.

Incubate Festival. Tilburg, Netherland. 11.-18. September 2011.

**Talks**

University of Technology Berlin, Telekom Labs Talk. Urban HCI: spatial aspects in the design of shared encounters for media facades. 26th June 2012.

Gist Talk. Spatial Aspects in the Design of shared Encounter. 26th April 2012 - University of Glasgow, UK.

**Organization of SICSA theme activities**

30 May 2012. SISCA Museum Workshop Multimodal interaction and museum installation design. University of Strathclyde.

Other:

**Dmitri Roussinov**

***Publications and Workshop/Conference Proceedings***

Roussinov, D., Towards Semantic Category Verification with Arbitrary Precision. Advances in Information Retrieval Theory (ICTIR) Conference, September 2011, pp. 274-284

Robles-Flores, José Antonio and Roussinov, Dmitri (2012) "Examining Question-Answering Technology from the Task Technology Fit Perspective," Communications of the Association for Information Systems: Vol. 30, Article 26.

***Research Grant Applications***

EPSRC proposal, "Recognizing Implicit Aspects in Text For Security Informatics and General Applications", submitted in January 2012, for £179,645 (unsuccessful).

"Helping Freebase by Relation Mining with Arbitrary Precision" for Google Research Awards, submitted in April 2012, for £87,887 (unsuccessful)

***Other***

Presented a seminar at the University of Glasgow, Information Retrieval Group.

Hosted SICSA Distinguished Visitor Professor Tong Zhang, Rutgers University (July 2011)

**Industrial collaboration**

2 month research visit to Hewlett Packard, research laboratory in St. Petersburg, Russia.

## KPI Information

It should be noted that there is no single management information system for the collection of KPI information across SICSA. Making use of information which is already held by institutions is therefore reasonable and sensible for the appropriate KPIs (1-5). A number of KPIs however rely on the manual collection of information from key staff members over the summer. Whilst every attempt has been made to provide complete information it remains the case that the information provided in some of the KPIs (6 – 10) is unlikely to be a complete record. Efforts are on-going to try to improve and enhance SICSA information gathering activities.

### 1) Quality profile

Annual data will not be provided. Rather a comparison between RAE 2008 and REF data will be provided when the latter becomes available. This will allow a suitable time period for changes to be monitored and will allow for existing/anticipated mechanisms to be used.

### 2) Research income

*Research income from biennial Other Activity Indicator (OAI) submission to the SFC (but only for Unit of Assessment 23).*

<b>Institution</b>	<b>Total 06/07</b>	<b>Total 08/09</b>	<b>Total 10/11</b>
Aberdeen	893,967	1,209,761	1,637,750
Dundee	1,187,226	1,770,242	1,891,409
Edinburgh	17,222,036	11,987,655	9,015,001
Glasgow	2,285,309	3,637,452	2,585,063
Heriot-Watt	769,005	1,193,394	1,322,000
Robert Gordon	295,157	377,504	443,417
St Andrews	1,110,229	1,377,019	1,453,857
Stirling	327,050	541,327	350,154
Strathclyde	1,067,560	683,600	937,731
<b>TOTAL</b>	<b>25,157,539</b>	<b>22,777,954</b>	<b>19,636,382</b>

Abertay: No return to UoA 23

### 3) Research assistants

Research assistants from biennial Other Activity Indicator (OAI) submission to the SFC (but only for Unit of Assessment 23).

	Research assistants FTE at 31 July 2007	Research assistants FTE at 31 July 2009	Research assistants FTE at 31 July 2011
Aberdeen	13	15	16.8
Dundee	29.64	25.4	21.8
Edinburgh	83.42	100.64	72.34
Glasgow	30	40	22.6
Heriot-Watt	14.25	20.3	30.0
Robert Gordon	3	5.7	6.9
St Andrews	17.5	16	16
Stirling	9.3	5.2	3.1
Strathclyde	9.9	7	10.3
<b>TOTAL</b>	<b>210.01</b>	<b>235.24</b>	<b>199.84</b>

Abertay: No return to UoA 23

### 4) Research students

Research students from biennial Other Activity Indicator (OAI) submission to the SFC (but only for Unit of Assessment 23).

Institution	Total FTE as at 31 July 2007	Total FTE as at 31 July 2009	Total FTE as at 31 July 2011
Aberdeen	21.05	15	28
Dundee	24.33	22.4	17.4
Edinburgh	153.95	105.1	137.86
Glasgow	74.75	59.8	51.7
Heriot-Watt	40	40.5	35.5
Robert Gordon	17.42	15.4	16.7
St Andrews	25.5	22.5	22.5
Stirling	10.75	8	14.5
Strathclyde	22	28.5	21.0
<b>TOTAL</b>	<b>389.75</b>	<b>317.2</b>	<b>345.16</b>

Abertay: No return to UoA 23

## 5) SFC KT metrics

Knowledge Transfer Income Metrics submission to the SFC (but only for Unit of Assessment 23)

Institution	KT Metric Income December 2008	KT Metric Income December 2009	KT Metric Income December 2010	KT Metric Income December 2011
Aberdeen		10,801	225,910	1,150,807
Dundee			49,595	43,938
Edinburgh	4,677,069	4,669,357	6,163,255	4,071,619
Glasgow	1,233,204	1,280,276	869,272	1,756,760
Heriot-Watt		258,000	213,240	369,672
Robert Gordon	253,434	377,504	201,360	311,227
St Andrews	58,310	130,450	126,033	81,276
Stirling				38,072
Strathclyde				1,538,110
<b>TOTAL</b>	<b>6,222,017</b>	<b>6,726,388</b>	<b>7,848,665</b>	<b>9,361,481</b>

Abertay: No return to UoA 23

## 6) Start-up/Spin out, Jobs created

During the census period: Numbers of new start-ups, spin outs, patents, licenses, Proof of Concept projects, SMART projects, KTP awards and other notable awards e.g. Intermediate Technology Institutes, Enterprise Fellowships (for UoA 23 or for the department/school if UoA 23 specific data not possible).

### Aberdeen:

- Spin out (in 2009) Technabling Ltd-new FTEs for census period: 1
- Spin out (in 2009) Data2Text Ltd; new FTEs in census period: 3 (total FTE = 8.5)

### Abertay:

Abertay University's Prototype Fund has now received applications from over 250 SMEs and funded 47 projects across the UK (20 in Scotland), totalling £1,125,000 (£500,000 in Scotland). It has also organised three UK funding contests with the Technology Strategy Board involving partners such as EMI, National Geographic, Tate, Turbulenz, Antix, BFI and Lionsgate.

### Patents / New IP:

- UK Registered Trademarks No UK 2611415 and UK 2611416 granted 25 May 2012 and 1 June 2012 respectively. Madrid Protocol Trademark Application designating EU, Japan, Singapore and the USA filed 2 July 2012. Indian National Trademark Application No 2357397 filed 3 July 2012.
- GB Provisional Application No GB1114189.2 filed 17 August 2011
- GB Provisional Application No GB1205044.9 filed 22 March 2012
- GB Provisional Application No GB1215353.2 filed 2 September 2011
- European Regional Phase Patent Application EP 107722395.0 derived from PCT Application No WO2010/136786 filed 16 November 2011

### Other KE activity:

- 3 NCR projects
- The SFC funded Moving Targets KEAs conducted a number of SME interventions (6) under the business voucher scheme. UAD staff have undertaken 1 Business voucher on behalf of the Institute for Capitalising on Creativity at St Andrews University.
- Trust funding for the scientific evaluation (psycho-physiological evaluation and structured task-based performance assessment) of computer games developed by SMEs.
- Food and Drink Innovation funding for IT development in F&D sector
- Virgin Media Games development Project

- CASE Studentship through ESRC with Denki Ltd.

**Dundee:**

- Invention disclosures: 21
- Enterprise Fellowships: 1
- New patent applications: 1
- On-going patent protection: 22
- Licences (software): 3
- Spin-outs: 1
- Start-ups: 1

**Edinburgh:**

- 3 start-ups: Quorate Technology, Infactics, Social Artisan Ltd
- 1 KTP award: France Telecom R&D UK Ltd
- 12 licences: Navaho Technologies Ltd, AdInsight Ltd, Google, Interface3, National Institute of Information and Communications Technology (Japan), Noble Systems Corporation, IVONA Software, Illumina Digital Ltd, Vocal Ltd, Microwatt Ezone Ltd, France Telecom R&D UK Ltd, Kansai Technology
- 2 Proof of Concept: Coffers, Samsung Electronics
- Sponsorship: ARM Ltd (1 studentship, x3 student projects)
- Sponsorship: Microsoft Research Ltd (x4 studentships)

**Glasgow:**

There are no spin-outs and start-ups, or jobs directly created from these, in the census period. However, there are a number of other notable awards in Computing Science at Glasgow.

- 1 EPSRC Programme Grant.
- 3 European Commission research grants, including one FP7 EU collaborative small or medium scale research project.
- 2 Smart Tourism awards funded by the SFC.
- 2 Horizon Fund for Universities awards from UK Government Agencies.
- 6 industrially supported studentships, including Strathclyde Police.
- 1 industrial research donation.
- 5 consultancies, including the Defence Science and Technology Laboratory (DSTL).
- 3 KTA research grants supported internally to promote collaboration and commercialisation activity.
- 1 licence with overseas industry on Java Implementation of Passive Stereo Technology C3D Suite with single pod masking.

Please note that the identity of industrial partners cannot be provided as the contracts have confidentiality provisions which prohibit disclosure. The DSTL consultancy, identified above, is named only to demonstrate impact.

**Heriot-Watt:**

- 1 KTP award HWU CS / Hydrafact Ltd – Scottish SME, awarded 05/2012 to Frisco (HWU CS)

**RGU:**

- 3 KTP awards: WML, James Jones, POLARIS

**St Andrews:**

- 6 Licences

**Stirling:**

- 1 short KTP (1 Oct 2011 to 31 Dec 2011)

**Strathclyde:**

- 3 Licences
- 1 Consultancy (£46,750)
- Collaborative research: 11 contracts worth £1,491,360

## **7) Esteem indicators, e.g. Fellowships, Invitations, Conference Chairing etc. and 8) Prizes**

*In each department: Fellowships of learned societies, personal research fellowships (e.g. EPSRC), notable prizes (awarded to staff and students) and any other notable esteem indicators.*

### **Aberdeen:**

#### **Fellowships of learned societies**

- ECCAI Fellow (Mellish)
- FIMA, FBCS (Pym)
- FIET (Coghill)

#### **Journal Editorships**

- Editor JLC (Pym)
- Editor IJSSMET (Pym)
- Editorial Board Member UMUI (Masthoff)  
Editor of IJSWIS (Pan)
- Editorial Board member of JWS (Pan)
- Editorial Board member of AAI (Pan)
- Editorial Board of Computational Linguistics Journal (Siddharthan)  
Associate Editor of TopiCS (van Deemter)
- Editorial Board member of JAIR (van Deemter)

#### **Conference Chairing**

- Programme Chair of UKCI 2012 (Coghill)  
Program Chair of the Joint International Semantic Technology Conference (JIST 2011), Hangzhou, China (Pan)
- Chair of ISWC Workshop on Semantic Web Enabled Software Engineering (SWESE 2011), Bonn, Germany (Pan)
- Track Chair, Semantic Web Track, IEEE International Computer Software and Applications Conference (COMPSAC 2012) (Pan)
- Programme Chair of UMAP 2012, Montreal, Canada (Masthoff)
- Chair of Coorganised NAACL Workshop on Predicting and Improving Text Readability (PITR 2012) (Siddharthan)
- Co-Chair of HIT-MSRA Summer School (2011-2012) (van Deemter)
- Co-Chair of Workshop "Production of Referring Expressions" (PRE) 2011 (van Deemter)

#### **Keynote addresses**

- Keynote at WebIST 2012 (Pan)
- Keynote at WIMS 2012 (Pan)

#### **Other**

- CESG Academic Advisory Board (Pym)
- Advisor to ENISA (Pym)
- Panel Member for EPSRC strategic evaluation of IDEAS Factory programme (Edwards)
- Senior Programme Committee AAMAS 2012 (Sensoy)
- Director of UM INC (Masthoff)  
W3C AC Rep (Pan)
- Board member of STI International (Pan)

### **Abertay:**

- A member of staff in the Institute of Arts, Media and Computer Games has secured a Royal Society of Edinburgh Scottish Enterprise Fellowship. The project title is "Cutting-edge virtual cinematography technology using games technology".
- A member of staff in the School of Engineering, Computing and Applied Mathematics has secured a Royal Academy of Engineering Industrial Secondment to NCR Financial Solutions Group Limited. The project title is "The Application of Human-like Agents in Self-service Technology".
- Editorial board of International Journal on Universal Access in the Information Society
- Editorial board of Journal of Interaction Science.

- Co-organised the CoSMoS 2011 a satellite event of the [European Conference on Artificial Life \(ECAL11\)](#) in Paris, 8th August 2011.
- Organised and hosted Communicating Process Architectures 2012, the 34th WoTUG conference on concurrent and parallel programming. Proceedings (ISBN 978-0-9565409-5-9); (<http://wotug.org/cpa2012/>).
- Editorial board member of Applied Intelligence Journal.
- Plenary talk, European Biotechnology Congress 2011, Turkey, September, 2011.
- Invited talk, European Biotechnology Congress 2011, Turkey, September, 2011.

**Dundee:**

No information provided

**Edinburgh:**

- Invited talk at: Department of Linguistics, Ohio State University (Goldwater)
- Invited talk at: Department of Cognitive, Perceptual and Brain Sciences, University College London (Goldwater)
- Invited talk at: Center for Language and Cognition, University of Groningen (Goldwater)
- Invited talk at: EMNLP Workshop on Unsupervised Learning in Natural Language Processing (Goldwater)
- Invited talk at: Graduate Summer School on Probabilistic Models of Cognition at the UCLA Institute for Pure and Applied Mathematics (Goldwater)
- Journal editorial board: item Computational Linguistics, 2012-2015. (Goldwater)
- Journal editorial board: item Transactions of the Association for Computational Linguistics, 2012-2014. (Goldwater)
- Program Co-Chair for ACL Hadoop Hackathon (Dublin) (Osbourne)
- Invited speaker (Prague Winter School on Computational Linguistics) (Osbourne)
- Abby Levenberg (my PhD student) won the EAMT Best These Award 2012 (Osbourne)
- Co-editor-in-chief of ACM Transactions on Speech and Language Processing (2010--2013) (Renals)
- Associate editor of IEEE Transactions Audio Speech and Language Processing (2010--2013) (Renals)
- General chair Hands-free Speech Communication and Microphone Array Workshop (Edinburgh, 2011) (Renals)
- Guest editor ACM Trans Information Systems on "Searching Speech" (2012) (Renals)
- Member of ISCA Advisory Council (2011-2014) (Renals)
- Member of advisory board ACM ICMI conference series (2010-date) (Renals)
- Scientific Advisory Board Member Swiss NSF NCCR IM2 (2007-2012) (Renals)
- Member of Scottish Enterprise Advisory Group on Informatics and Computing (2009--date) (Renals)
- Member EPSRC College of Computing (2006-date) (Renals)
- Organizing committee IEEE workshop on Spoken Language Technology (Miami, 2012) (Renals)
- Invited speaker at JST CREST Symposium on Human-Harmonized Information Technology (Kyoto, 2012) (Renals)
- Invited Speaker at Workshop on Innovation and Applications in Speech Technology (Dublin, 2012) (Renals)
- Invited speaker at Workshop on Image and Speech Processing (Hyderabad, 2011) (Renals)
- Invited seminars at: IIT Guwahati (2011); Nagoya Institute of Technology (2011); INESC, Lisbon (2012) (Renals)
- Editorial Board, Journal of Natural Language Engineering, 2012-2014 (Webber)
- Keynote address, North American Summer School on Logic, Language and Information (NASSLLI 2012), Austin TX, June 2012. (Webber)
- Keynote address, ACL Workshop on Extra-Propositional Aspects of Meaning in Computational Linguistics, Jeju Island, South Korea, July 2012. (Webber)
- ICC Summer Global Lecture Series, Korean Advanced Institute for Science and Technology (KAIST), Daejeon, South Korea, July 2012. (Webber)
- Invited Talk: "Hybrid Machine Translation? It's complicated...", EACL ESIRMT-HyTra Workshop, 2012 (Koehn)
- Invited Talk: "Statistical Machine Translation and Language Barriers", WIPO Symposium of IP Authorities, Geneva, Switzerland, 2011 (Koehn)

- Invited Talk: "What is a better translation? Reflections on six years of running evaluation campaigns", Tralogy, Paris, France, 2011 (Koehn)
- Invited Talk: "Factored Models for Morphology", Workshop on Machine Translation and Morphologically-rich Languages, Haifa, Israel, 2011 (Koehn)
- Chairing: ACL Special Interest Group on Machine Translation (SIGMT), president, since 2009 (Koehn)
- Chairing: ACL Special Interest Group on Linguistic Data and Corpus-Based Approaches to NLP (SIGDAT), vice president elect, 2012 (Koehn)
- Editorial Board: Computation Linguistics, 2010-2012 (Koehn)
- Panel member for UK EPSRC ICT Responsive Mode grant proposal reviews, April 2012. (Bednar)
- Technical Committee for International Joint Conference on Neural Networks (IJCNN\*2008, 2010, 2012). (Bednar)
- Programme committee for INCF short course Towards an integrative computational neuroscience, Edinburgh, August 2012. (Bednar)
- Editorial Board for Frontiers in Neuroinformatics. (Bednar)
- Editorial Board for Frontiers in Computational Neuroscience, since 2012. (Bednar)
- Review committee for the Computational Neuroscience Conference (CNS 2005, 2006, 2008, 2011, 2012). (Bednar)
- Invited international presentation at "Building a Comprehensive Model for the Development and Function of the Visual Cortex": Brain Corporation, San Diego, July 9, 2012. (Bednar)
- Co-chair (with Sharon Crook and Hans Ekkehard Plesser), Creating, Documenting, and Sharing Network Models, Edinburgh, UK, September 20-21 2011. (Bednar)
- Reviewing Editor for Brain Research Bulletin (Elsevier). (Hennig)
- Awarded funded scholarship to the Okinawa Summer School. (Sweeney – PhD student)
- Accepted for the Cold Spring Harbor Summer School in Beijing. (Sweeney – PhD student)
- Keynote talk at the Second Workshop on Bayesian Inference for Latent Gaussian Models with Applications, 30 May - 1 June 2012 in, Trondheim, Norway (<http://lgm2012.r-inla.org/>). (Williams)
- Programme Co-Chair for the 2011 ACM CHIMIT Conference – (<http://chimit.acm.org/>). (Anderson)
- Fellow of the Royal Society (FRS), July 13th 2012. (Bundy)
- Commander of the British Empire (CBE), 31st Dec 2011. (Bundy)
- Best student paper award at Usenix LISA 2011 (Herry – PhD student)
- Executive group of the UK Computing Research Committee (Robertson)
- Editor of the Artificial Intelligence Review journal (Robertson)
- Elected to Fellow of the Royal Academy of Engineering (FREng), July 2012. (Tate)
- Member of Advisory Board for IEEE Intelligent Systems Journal. (Tate) 2012 Advisor to Wellcome Trust and MRC Senior Fellowship Committees. (Willshaw)
- DATE track chair 2011, 2012, 2013, (Franke)
- LCTES General Chair 2013, (Franke)
- 3x HiPEAC paper award, (Franke)
- Invited talk at LCC (the 13th workshop on logic & computational complexity), in conjunction with LICS, June 2012, (Libkin)
- Election to fellowship of the Royal Society of Edinburgh, (Libkin)
- Appointed PC chair of the 20th WoLLIC (this is WoLLIC 2013, I was asked to run it this year but the conference itself is next August) , (Libkin)
- Chair of ACM SIGPLAN 2009--2012 (not new, but overlaps period), (Wadler)
- Invited speaker, QCon London, March 2012 , (Wadler)
- Invited speaker, Princeton Turing Centennial Celebration, May 2012, (Wadler)
- Keynote speaker, SICSA conference, Glasgow, June 2012, (Wadler)
- Elected to the Royal Society of Edinburgh's Young Academy in the first intake, (Kashefi)
- Publication of Science paper: "Demonstration of blind quantum computing", S Barz, E Kashefi, A Broadbent, JF Fitzsimons, A Zeilinger and P Walter, Science 335 (6066), 303-308, (Kashefi)
- Invited talk at the CS2Bio workshop in Stockholm in June (16th) 2012 (Hillston)
- European Academy of Sciences, Blaise Pascal Medal in Computational Sciences and Information, 2011, (Plotkin)
- Royal Society Milner Award, 2012. (Announced early July, I will actually get it this coming January) , (Plotkin)

- Member, Scientific Board, IST, Austria, 2012–2017, (Plotkin)
- Visiting Researcher, Microsoft Research Silicon Valley, 2012, (Plotkin)
- Managing Director, Logical Methods in Computer Science , (Plotkin)
- Editor: Theo Comp Sci, Inf and Comp., Math. Methods in Comp. Sci., ACM Trans. Comp. Logic, Electronic Proceedings in Theoretical Computer Science, (Plotkin)
- Advisory Boards, `Conferences: International Conference on Logic in Computer Science, 2009-present, Int. Conf. on Computational Methods in Systems Biology, (Plotkin)
- Journals: Electronic Proceedings in Theoretical Computer Science, Higher Order and Symbolic Logic, (Plotkin)
- Jury Member, Turing Centenary Fellowship Competition, 2011-2012, (Plotkin)
- Memorial Symposium for Robin Milner, 2012, co-chair, (Plotkin)
- Scholar, 111 Project, Ministry of Education and the State Administration of Foreign Expert Affairs of the People's Republic of China, Beihang University, 2012-2016, (Plotkin)
- Invited lectures (2012) Introduction to the algebraic theory of effects (three lectures), Proofs and programs, Logic and interactions, CIRM, Marseille, (Plotkin)
- An algebraic view of bigraphs, Milner symposium. (2012), (Plotkin)
- Best paper award at 8th International Wireless Network Measurements (WinMee) Workshop, May 2012, (Marina)
- NextGen Challenge 2011 Prize for Tegola Project, Nov 2011, (Marina)
- Editor-in-chief of Theoretical Computer Science, responsible for part B (Logic, Semantics and Theory of Programming), January 2001 – present, (Sannella)
- Member of Editorial Board of Computer Science Review, May 2006 - present, (Sannella)
- Member of Advisory Board of EATCS Monographs in Theoretical Computer Science and EATCS Texts in Theoretical Computer Science, Springer, May 2012 - present, (Sannella)
- EATCS representative on ETAPS steering committee, July 2009 - present, (Sannella)
- British Computer Society representative to IFIP TC1, July 2001 - present, (Sannella)
- Vice President of European Association for Theoretical Computer Science, 2008-2012, (Sannella)
- Member of Advisory Board for the Computer Science Department of Harbin Institute of Technology, 2009 - present, (Sannella)
- Appointed program chair of international workshop Bx'13, (Stevens)
- Journal editor Theoretical Computer Science (leading TCS journal; 2008-date) , (Stevens)
- Journal editor Software and Systems Modeling (leading software modeling journal; 2001-date), (Stevens)
- Journal editor Information and Software Technology (term 2001-11), (Stevens)
- Digiteo Scientific Council: one of 8 international experts appointed to oversee the scientific planning and progress of the Digiteo research cluster, which is a 24.8 million Euro programme involving 2600 scientific staff (of whom 1200 are PhD students) in 23 laboratories in France, (Stevens)
- EPSRC: College member, (Stevens)
- Invited Advisory Board of Member for Paraphrase project (EU FP7) , (Cole)
- PC Member CC2012, CISIS 2012 , (Cole)
- Proceedings chair of PVLDB 2013, Vice chair of ICDE 2014, Microsoft PhD Scholarship, (Viglas)
- Elected to the Royal Society of Edinburgh, (Fan)
- NVIDIA Graduate Fellowship, (Grewe)
- Awarded a five-year Royal Academy of Engineering Fellowship, (Fensch)
- Reached the quarter-finals of Robocup, team leader for Edinferno, (Ramamoorthy)
- Invited to the Royal Society Summer Science Exhibition, (Ramamoorthy)
- Talk invitations to MSR and RAEng upcoming, (Ramamoorthy)
- Contest, Demos and Exhibits Co-Chair, Int. Conf. on Pattern Recognition, Tsukuba, Japan, 2012, (Fisher)
- Conference Co-Chair, VII Conf. on Artic. Motion and Deform. Obj. (AMDO2012), Mallorca, Spain, July 2012, (Fisher)
- Publicity Co-Chair, 11th Asian Conf on Computer Vision (ACCV2012), Daejeon, Korea, 2012 , (Fisher)
- Workshop Chair, 2012 Workshop on Visual Analysis of Animal and Insect Behaviour (VAIB12), Tsukuba, Japan, (Fisher)
- Journal Guest Editor: Int. J. of Computer Vision. Vol 97(1), 2012. Special Issue on 3D Data Processing, Visualization and Transmission, (Fisher)

- Scientific Advisory Board, Welsh Research Institute of Visual Computing (RIVIC) , (Fisher)
- Invited conference keynote: Int. Conf. on Image Analysis and Recog., Aveiro, Portugal, "Applications of 3D sensing to novel problems", 2012 , (Fisher)
- Invited to give a talk at Intel research, Braunschweig, (Nagarajan)
- Associate Editor of the Journal of Parallel and Distributed Computing, (Cintra)
- Invited tutorial speaker with a tutorial on "Analysis of Infinite-state probabilistic systems", at the 8th International Conference on Quantitative Evaluation of Systems (QEST), in September 2011, (Etassami)
- Conference Chair: ACM / Eurographics Symposium on Computer Animation 2012 (received a Recognition of Service Award) (Komura)
- Conference Chair: Motion in Games 2011 (Komura)
- Programme Chair: Motion in Games 2010 (Komura)
- Programme Chair: ACM Virtual Reality and Software Technology 2010 (Komura)
- Organization committee of ECCV 2014 (as local arrangement chair) (Ferrari)
- Area Chair for ICCV 2011, ECCV 2012, CVPR 2013, (Ferrari)
- Google Research Award of USD 92k for research in learning visual models from video
- ERC Starting Grant; 1.5M Euro; computer vision in Europe. (Ferrari)
- General Chair: PACT 2013 (O'Boyle)
- Intel Faculty Award (Dubach)

## **Glasgow:**

### **Fellowships and memberships**

- Elected member of UKCRC (Brewster)
- Elected member of UKCRC (Calder)
- Elected member of UKCRC (Murray-Smith)
- Elected member of UKCRC Executive Committee (Sventek)
- Member of Nokia Scientific Board (Murray-Smith)
- Member of IETF Transport Area Directorate (Perkins)
- Member of IFIP Working Group 2.11 on Program Generation (O'Donnell)
- Member of the NASA/ESA/IAASS Sub-Orbital Safety Committee (Johnson)
- Member of Scottish Qualifications Authority's Qualification Design Team for Computing Science (Cutts)
- Secretary of the British Colloquium for Theoretical Computer Science, 2011-12 (Manlove)

### **Editorships**

- Associate Editor of Discourse, Context and Media, Elsevier (Vinciarelli)
- Associate Editor of IEEE Signal Processing Magazine (for the Social Sciences) (Vinciarelli)
- Editor of special issue in Theoretical Computer Science, Volume 413, January 2012 (Norman)
- Editorial board member for Personal and Ubiquitous Computing journal (Brewster)
- Editorial board member for Communications in Mobile Computing journal (Brewster)
- Editorial board member for Universal Access in the Information Society journal (Brewster)
- Editorial board member for The International Journal of Mobile HCI (Brewster)

### **Conferences**

- Chair of Mobile HCI Conference Steering Committee (Brewster)
- Chair of Special Session on Social Signal Processing at the IEEE Conference on Systems, Man and Cybernetics, Anchorage, USA, Oct. 2011 (Vinciarelli)
- Co-Chair of Second International Workshop on Socially Intelligent Surveillance and Monitoring, Barcelona, Spain, Nov. 2011 (Vinciarelli)
- Co-Chair of Third International Workshop on Socially Intelligent Surveillance and Monitoring, Providence, USA, 2011 (Vinciarelli)
- Co-Chair of Third International Workshop on Social Signal Processing, Scottsdale, USA, December 2011 (Vinciarelli)
- Elected member of the Steering Committee of the International Conference on the Quantitative Evaluation of Systems (QUEST) (Norman)
- Elected member of the Steering Committee for the biannual Theory and Applications of Diagrams Conference (Purchase)
- PC co-chair, PLACES Workshop 2012 (Gay)
- Programme Chair, Eurohaptics 2012, Tampere, Finland (Brewster)
- Programme Chair of IEEE Conference on Social Computing, Boston, USA, Oct. 2011 (Vinciarelli)
- Programme Co-Chair of International Conference on Application and Theory of Automation in Command and Control Systems, ATACCS2012 (Johnson)
- Programme Co-Chair of IET International Conference on System Safety and Cybersecurity 2012 (Johnson)
- Programme Co-Chair of ACM Human Factors in Aviation, HCI-Aero (Johnson)
- Tutorial Chair of the Eighth International Conference on the Quantitative Evaluation of Systems (QUEST), 2011 (Norman)
- Vice Chair of the 15th IEEE International Conference on Computational Science and Engineering (O'Donnell)

### **Invited lectures/keynote addresses**

- Glasgow Trades Council annual lecture, Think like a computer: it is good for you, science, your business, and the nation, Glasgow, 2012 (Calder)
- Guest speaker at Mary Erskine School, Commemoration Day, June 2012, (Calder)
- Invited lecturer at the EU Intensive Programme on Information Foraging, August 2011 (Vinciarelli)
- Invited lecturer at the National Swedish Research School for Cognitive Science, August 2011 (Vinciarelli)
- Invited speaker at the Conference on Brain Decoding, May 2012 (Vinciarelli)

- Invited speaker at the LINEARITY Workshop, April 2012 (Gay)
- Invited speaker at the Workshop Italiano Reti Neurali, May 2012 (Vinciarelli)
- Invited speaker at Working on Safety, Sopot, Poland, 2012 (Johnson)
- Invited speaker at the Annual Lecture for Lloyd's Register Educational Trust, Imperial College, 2012 (Johnson)
- Invited speaker at the Second Workshop on Bayesian Inference for Latent Gaussian Models with Applications, Trondheim, Norway, June 2012 (Filippone)
- Keynote address at Conférence Internationale Francophone sur l'Extraction et la Gestion des Connaissances, Bordeaux, 2012 (Purchase)
- Keynote address at the International Conference on Integrated Formal Methods, Pisa, 2012 (Calder)

#### Other

- Chair and member of the Scientific Advisory Committee for the €3 Billion EC SESAR Programme (Johnson)
- Chief Scientific Adviser for Scotland (Calder)
- Interview in Holyrood Magazine, Beautiful minds, June 2012 (Calder)
- Invited peer-reviewer for the Excellence in Research in Australia initiative (Australia's REF-equivalent) (Purchase)
- Member of 2014 Computer Science REF Panel (Sventek)
- Member of panel for DFG (German science funding council) Excellence initiative, allocating €27 for science research in Germany (Brewster)
- Scientific adviser to NATO on Cybersecurity Simulations in the MNE7 programme (Johnson)
- Scientific adviser to the European Railway Agency on Accident Investigation across Member States (Johnson)
- Scientific adviser to the European Network and Information Security Agency on the new European Cyber Incident Reporting System (Johnson)
- Scientific adviser to the Civil Aviation Authority on Future Safety Concerns (Johnson)
- Scientific adviser to EUROCONTROL on Safety and Security (Johnson)
- SICSA Graduate Academy Director (Murray-Smith)
- Prize: Association for Constraint Programming (ACP) research excellence award, 2011 (Prosser)
- Prize: Best paper award and runner up paper, MobileHCI 2011, Stockholm (Brewster)
- Prize: Classification Society Distinguished Dissertation Award, 2012 (Damoulas)
- Prize: Distinguished achievement prize from the World Association for Political Economy, 2012 (Cockshott)
- Prize: Raytheon Cyber Challenge, 2011 (Jouet and White)

#### Heriot-Watt:

- Appointment to EPSRC ICT Strategic Advisory Team (Chantler)
- Appointment to RCUK Digital Economy Advisory Board (Chantler)
- Invited keynote at joint AVA/BMVA Annual meeting 2012 (Chantler)
- Appointment as co-editor (with Singer, Glasgow) of a special issue of "Concurrency: Practice and Experience", summarising the first two phases of the multi-core challenge (Loidl)
- Programme Chair for TFP'12 the Symposium on Trends in Functional Programming which ran 12-14th of June in St Andrews and was supported by SICSA (Loidl)
- Founding member of the Royal Society of Edinburgh Young Academy (Hastie)
- Prof de Wilde became FBCS
- Associate editorship of IEEE Trans. Systems, Man and Cybernetics-B (De Wilde)
- Plenary talk at ISD 2012 (Information Systems Development 2012) in Edinburgh (Taylor)
- Keynote talk at the Sept. 2011: \_ Sixth International Conference on Bio-Inspired Computing: Theories and Applications (BIC-TA 2011) - Penang / Malaysia (Frisco)
- Keynote talk at the Sept. 2011: \_ Sixth International Conference on Bio-Inspired Computing: Theories and Applications (BIC-TA 2011) - Penang / Malaysia (De Wilde)
- Opening talk for the 2011 Dundee Science Festival (Chantler)
- Keynote talk ENLG 2011, (13<sup>th</sup> European Workshop on Natural Language Generation), France, September 2011 (Lemon)
- Invited speaker at ECAI 2012 workshop on machine learning for interactive systems (Lemon)
- Editorial Board of ACM Transactions in Interactive Intelligent Systems (Lemon)
- Co-editor of the SWAT4LS/CSHAL theme of the Journal of Biomedical Semantics (Burger)

- Member of the “Waxholm Space” Task Force of INCF (the International Neuroinformatics Coordination Facility) (Burger)
- Member of the “Representation and Deployment” Task Force of INCF (the International Neuroinformatics Coordination Facility) (Burger)
- Member of the “Digital Aliasing Infrastructure” Task Force of INCF (the International Neuroinformatics Coordination Facility) (Burger)
- Invited speaker at the Workshop on Turing’s Legacy in Mathematics and Computer Science at British Mathematics Colloquium 2012, Canterbury, Kent, 16-19 April 2012 (Michaelson)
- Best Paper prize at BIOMA 2012, the 5th International Conference on Bioinspired Optimization Methods and their Applications (Corne and student H Chantar)

#### **RGU:**

- Chair IEEE Evolutionary Computing Technical Committee Task Force on Probabilistic Modelling (McCall)
- Program Co-Chair UK Computational Intelligence Workshop 2013 (McCall)
- Track Co-Chair (and programme committee member) IFIP Working Group 9.4 12th International Conference on Social Implications of Computers in Developing Countries (Bass)
- Senior Editor of the Electronic Journal for Information Systems in Developing Countries. (Bass)
- Fellow of the Higher Education Academy (Bass).

#### **St Andrews:**

- Invitation to the editorial board for the Journal of Software for Algebra and Geometry (<http://j-sag.org/>) (Konovalov).
- Committee member for the CSEDU 2013 (CS in Education international conference) (Duncan)
- Opening keynote presentation: "Open Virtual Worlds for Exploratory Learning" at the 11th International Conference on Intelligent Tutoring Systems, held in Chania, Crete, in May 2012. Proceedings of ITS 2102 published by Springer in the LNCS series. (Allison)
- Keynote address: REFSQ Conference on Requirements Engineering, Essen, Germany. March 2012 (Requirements Engineering for Enterprise Systems) (Sommerville)
- Led SICSIS (Scottish Innovation Centre in Software-Intensive Systems) bid for SFC Innovation Centres (not successful) with all SICSA members, Thales and ScotlandIS (Sommerville).
- Invited to lead workstream on Platform Requirements for the next-generation of digital learning environment for Scottish schools (Sommerville).
- Chair: Workshop on Infrastructure and Design Challenges of Coupled Display Visual Interfaces (Nacenta)
- Co-Chair: PPD’12 (AVI Workshop) (Nacenta)
- Co-Chair: Second workshop on engineering patterns for multi-touch interfaces (EICS Workshop) (Nacenta)
- Keynote Lecture: Swiss Workshop on Multi-display Environments, Fribourg, Switzerland (Nacenta)
- Keynote Lecture: Integrating multi-touch and interactive surfaces into the research environment workshop. Oxford E-research Centre, England, United Kingdom. (Nacenta)
- Honorary Fellowship for 3 years at the School of Informatics, University of Edinburgh (Barker)
- SICSA PECE grant for exchange at the University of California Berkeley (Barker)
- Selection to the competitive Scottish Crucible 2012 scheme (Barker)
- Co-organiser: NSF PIRE Open Science Data Cloud Workshop (Barker)
- Co-applicant: ERC StREP TOPOSYS. (successful: 5 collaboration nodes, €2.6M) (Vejdemo-Johansson)
- Invited speaker: Computational Topology conference during CG-Week (Vejdemo-Johansson)
- Local organizer: ATMCS 2012 (Vejdemo-Johansson)
- Elected to the coordinating committee for the ATMCS conference series (Vejdemo-Johansson)
- Invited speaker: Workshop on Finite-state Methods in Language Resources and Historical-comparative Linguistics, Düsseldorf, Germany, April 19, 2012 (Nederhof)
- Awarded guest professorship at ENS Cachan, Paris, for the month of June 2012 (Nederhof)
- Guest researcher at University of Dresden, September 5-9, 2011 (Nederhof)

- Organiser of conference: Formal Grammar 2011 (<http://www.cs.st-andrews.ac.uk/%7Emjn/FG11>),
- Ljubljana, Slovenia, August 6-7, 2011 (Nederhof)
- Successful application of SICSA distinguished visitor fellowship (Prof. Giorgio Satta, who will visit Scotland for two weeks in September 2012) (Nederhof)
- Best Paper Honourable Mention, 7th ACM Conference on Eye-Tracking Research & Applications (ETRA 2012) (Kristensson)
- Best Paper Honourable Mention, 30th ACM Conference on Human Factors in Computing Systems (CHI 2012) (Kristensson)
- Associate Chair, 31st ACM Conference on Human Factors in Computing Systems (CHI 2013) (Kristensson)
- Workshop Co-Chair, 15th ACM International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI 2013) (Kristensson)
- Demo Co-Chair, 26th ACM Symposium on User Interface Software and Technology (UIST 2013) (Kristensson)
- Senior Program Committee Member, 18th ACM International Conference on Intelligent User Interfaces (IUI 2013) (Kristensson)
- Local Arrangements Chair, 7th ACM International Conference on Interactive Tabletops and Surfaces (ITS 2013) (Kristensson)
- Associate Chair, 7th Nordic Conference on Human-Computer Interaction (NordiCHI 2012) (Kristensson)
- Associate Chair, 14th ACM International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI 2012) (Kristensson)
- Co-Organiser, CHI 2012 Workshop on Designing and Evaluating Text Entry Methods, held in conjunction with the 30th ACM Conference on Human Factors in Computing Systems (CHI 2012) (Kristensson)
- Faculty Member, CHI 2012 Doctoral Consortium, at the 30th ACM Conference on Human Factors in Computing Systems (CHI 2012) (Kristensson)
- Associate Chair, 30th ACM Conference on Human Factors in Computing Systems (CHI 2012) (Kristensson)
- Judge, CHI 2012 Student Research Competition (part of the ACM Student Research Competition), at the 30th ACM Conference on Human Factors in Computing Systems (CHI 2012) (Kristensson)
- Workshop Co-Chair, 17th ACM International Conference on Intelligent User Interfaces (IUI 2012) (Kristensson)
- Short Papers Co-Chair, British Computer Society (BCS) 26<sup>th</sup> Conference on Human-Computer Interaction (HCI 2012) (Kristensson)
- Program Committee Member, 3rd Workshop on Speech and Language Processing for Assistive Technologies (SLPAT 2012), held in conjunction with the 2012 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-HLT 2012) (Kristensson)
- Press coverage: Crowdsourcing Improves Predictive Texting. ACM Tech News (syndication). February 29, 2012 (Kristensson)
- Press coverage: Crowdsourcing improves smartphone texting. United Press International. February 27, 2012 (Kristensson)
- Press coverage: Crowdsourcing could help improve predictive texting. Forbes (repost from India Talkies). February 26, 2012 (Kristensson)
- Press coverage: Crowdsourcing could help improve predictive texting. Andhra News (syndication). February 26, 2012 (Kristensson)
- Press coverage: Los móviles acertarán más al adivinar lo que queremos escribir. Yahoo! Noticias Espana (repost). February 26, 2012 (Kristensson)
- Press coverage: Los móviles acertarán más al adivinar lo que queremos escribir. El Economista. Emily Turrettini, February 26, 2012 (Kristensson)
- Press coverage: Crowdsourcing could help improve predictive texting. Yahoo! News India (syndication). February 26, 2012 (Kristensson)
- Press coverage: Crowdsourcing improves predictive texting. New Scientist, pages 24-25. Duncan Graham-Rowe, February 22, 2012 (Kristensson)
- Prize: Best Paper Honourable Mention, 7th ACM Conference on Eye-Tracking (Kristensson)
- Prize: Research & Applications (ETRA 2012) (Kristensson)

- Prize: Best Paper Honourable Mention, 30th ACM Conference on Human Factors in Computing Systems (CHI 2012).
- Editor-in-Chief for the Journal Computers (Quigley)
- Scottish Chair of the BCS Interaction Specialist Group (Quigley)
- Associate Editor for the International Journal of People-Oriented Programming – IJPOP (Quigley)
- External member of the IDEAS Research Institute executive committee in Robert Gordon University Scotland (Quigley)
- Editorial Board member of the JPCC - International Journal of Pervasive Computing and Communications (Quigley)
- Committee Member for the Joint Steering Committee for UbiComp and Pervasive (Quigley)
- Board of Experts Member for the Bridging Research in Ageing and ICT development - EU FP7 Coordinating Action (Quigley)
- Workshop Co-Chair of PPD'12 - Workshop on infrastructure and design challenges of coupled display visual interfaces in conjunction with AVI 2012, Capri Italy, 25th May 2012 (Quigley)
- Doctoral Colloquium Co-Chair of Pervasive 2012 - 10th International Conference on Pervasive Computing, Newcastle UK, 18 - 22 June 2012 (Quigley)
- Short Paper Co Chair of HCI 2012 - 26th Annual Conference of the Specialist HCI group of the BCS, the BCS Interaction SG, Birmingham UK, PC meeting July 2012 (Quigley)
- Associate Chair of the ACM MobileHCI 2012 Program Committee - 14th International Conference on Human-Computer Interaction with Mobile Devices and Services, San Francisco USA, PC meeting in Jan 2012 (Quigley)
- Tutorials Co Chair for the ACM MobileHCI 2012 Program Committee - 14th International Conference on Human-Computer Interaction with Mobile Devices and Services, San Francisco USA, Decisions in Feb 2012 (Quigley)
- Doctoral Colloquium Chair, 6th International Conference on Grid and Pervasive Computing, Oulu, Finland, 2011 (Quigley)
- Steering Committee Chair, International Conference Series on Pervasive Computing, 2011 (Quigley)
- Program Committee Member, AutoUI 2011 - 3rd International Conference on Automotive User Interfaces and Interactive Vehicular Applications, Salzburg, November 29th – December 2nd 2011 (Quigley)
- Program Committee Member, MobiQuitous 2011 - The 8th International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services, Dec, Copenhagen, Denmark (Quigley)
- Program Committee Member, CONTEXT '11 - The 7th International and Interdisciplinary Conference on Modeling and Using Context, Sept. 26.-30 2011, Karlsruhe Germany (Quigley)
- Program Committee Member, MobileHCI 2011 - 13th International Conference on Human-Computer Interaction with Mobile Devices and Services, Aug 30th - Sept 2<sup>nd</sup> 2011, Stockholm Sweden (Quigley)
- Program Committee Member, TEI 2012 - SIGCHI 6th International Conference on Tangible and Embedded Interaction, Kingston, ON Canada, February 19-22 2012 (Quigley)
- Program Committee Member, PerCom 2012 - IEEE 10th International Conference on Pervasive Computing and Communications, Lugano Switzerland, March 19 -23 2012 (Quigley)
- Program Committee Member, WCMCW 2012, When the City Meets the Citizens Workshop in conjunction with the International AAAI Conference on Weblogs and Social Media, Dublin Ireland, June 4 2012 (Quigley)
- Program Committee Member, PURBA 2012, The Second Workshop on Pervasive Urban Applications in conjunction with Pervasive Computing 2012, Newcastle, UK, June 18 2012 (Quigley)
- Program Committee Member, MDC 2012, The Mobile Data Challenge in conjunction with Pervasive Computing 2012, Newcastle, UK, June 18 2012 (Quigley)
- Associate editor of ACM Transactions on Autonomous and Adaptive Systems (Dobson)
- Invited talk: IDEAS Institute on sensor systems (Dobson)
- Prize: Work on the Summer Riots won in the Visualisation and Storytelling category of data journalism award, organised by the Global Editors Network and supported by Google (Voss)
- Prize: 2011 Best Paper, Exploring temporal ego networks using small multiples and tree-ring layouts Michael Farrugia, Neil Hurley, Aaron Quigley (Quigley)

- Prize: Leo Fang (research student) won a best poster award at IWSOS (supervised by Dobson)

#### **Stirling:**

- Editor, Consumer Communications and Networking Series, IEEE Communications Magazine (Kolberg)
- Editor-in-Chief of Springer's Cognitive Computation journal (Hussain)
- Editorial Board Member /Associate Editor: IEEE Transactions on Neural Networks (IEEE Press); International Journal of Robotics and Automation (ACTA Press), Control and Intelligent Systems (ACTA Press), World Science Journal (Hindawi), Computational Intelligence Studies (InterScience) (Hussain)
- Associate Editor: Journal of Evolutionary Computation, MIT Press (Ochoa)
- Editor-in-chief of the Journal of Scheduling (Burke)
- Area Editor (for Combinatorial Optimisation) of the Journal of Heuristics (Burke)
- Associate Editor of the INFORMS Journal on Computing (Burke)
- Associate Editor of the IEEE Transactions on Evolutionary Computation (Burke)
- Member of the Editorial Board of Memetic Computing (Burke)
- Steering Committee Member, IEEE Consumer Communications and Networking Conference (Kolberg)
- Program Chair of the 2012 International Conference on Brain Inspired Cognitive Systems (BICS 2012), July 11-14, 2012, Shenyang, China (Hussain)
- Publications Chair for International Symposium on Neural Networks (ISNN'2012), Shenyang, 11-14 July 2012 (China) (Hussain)
- Tutorial Chair: Genetic and Evolutionary Computation Conference (GECCO) 2012, 2013 (Ochoa) Track Proposer and Co-chair: Self-\* Search Genetic and Evolutionary Computation Conference (GECCO) 2011, 2012 (Ochoa)
- Special Session Co-chair: Cross-domain Heuristic Search (LION-CHESC) (Ochoa)
- Learning and Intelligent Optimization (LION 6), 2012 (Ochoa)
- Proposer and Co-organiser: The First Cross-Domain Heuristic Search Challenge (CHeSC 2011) (Ochoa)
- Co-organiser workshop on Integral Biomathics at IJCNN, San Jose, CA, USA (Smith and Simeonov)
- Co-organiser and programme chair of INBIOSA Workshop, Stirling (Smith and Simeonov).
- Organised and chaired Home Care Technologies - A MATCH Project Perspective Colloquium: 26th June 2012, Glasgow (Magill)
- Keynote speaker at the Seventh International Conference on Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP), Adelaide, Australia, 6-8th December 2011 (Graham)
- Keynote speaker at SEMBA/ BioPro meeting Taichung, Taiwan (Smith)
- Invited speaker at INCF Meeting, Kaunas, Lithuania, Jan 2012 (Smith)
- Invited speaker at EU FP7 Workshop on "Signal Processing" Brno, 27-28 October 2011 (Hussain)
- Invited speaker at SIPRA International Workshop on Advanced Signal Processing, Nanjing, China, 15-17 May 2012 (Hussain)
- Prize: Two SUCC students won a UK coding competition organised by Lincoln University, for StirNav, a navigational system for the students of the University of Stirling.

#### **Strathclyde:**

- Conference chair: Permutations Patterns 2012 (Kitaev)
- Co-chair of the ACM Conference on Information Management (CIKM 2011) (Ruthven)
- Associate chair for MobileHCI 2011 and 2012 (Dunlop)
- Associate chair for CHI 2012 (Dunlop)
- Keynote address at Mathematical Foundations of Programming Semantics XXVIII held at University of Bath (Johann)
- Editorial Board: Journal of Discrete Mathematics and Open Journal of Discrete Mathematics (Kitaev)
- Editorial Board: Journal of the American Society for Information Science and Technology (Ruthven)
- Editorial Board: Information Professing and Management (Ruthven)
- Editorial Board: Information Science (Ruthven)

- Editorial Board: Foundations and Trends in Information Retrieval (Ruthven)
- Editorial Board: Higher Order Symbolic Computing (Johann)
- Editorial Board: Empirical Software Engineering Journal (Wood)
- Editorial Board: ACM interactions magazine (Hornecker)
- Editorial Board: Interacting with Computers (Hornecker)
- Associate editor: Journal of Mobile Human Computer Interaction (Dunlop)
- Associate editor: Advances in Human-Computer Interaction (Dunlop)
- Associate editor: Personal and Ubiquitous Computing (Dunlop)
- Editorial Board: International Journal of Meta-heuristics (Levine)
- Editorial Board: Journal of Functional Programming (McBride)
- Editorial Board: Information and Software Technology (Roper)
- Software Testing, Verification and Reliability (Roper)
- Prize: Best paper award at Tangible, Embedded and Embodied Interaction Conference 19/02/12 - 22/02/12 (Hornecker)
- Prize: Notable paper mention award at CHI 2012 (Levine and Dunlop)

## 9) Cross-SICSA institutional research funding

*List specific new awards during each census period for RCUK/Other. Also to highlight any substantial (but unsuccessful) bids for funding.*

### Aberdeen:

- Prof. T. Norman. Selex Galileo, £265k (Aberdeen share) with RGU, "UISBG" (2012-2016)
- Prof. K. van Deemter, EPSRC Research Network, £70k (Aberdeen share) with Edinburgh, "RefNet" (2012-2015)

### Abertay:

- AHRC funded Knowledge Exchange Hub for the Creative Economy. In Scotland, the University of Dundee is leading a consortium that includes all of the Scottish art colleges – Duncan of Jordanstone College of Art & Design (part of the University of Dundee), Edinburgh College of Art, Glasgow School of Art and Robert Gordon University's Gray's School of Art, University of Abertay, University of Dundee and the University of St Andrews.
- University of Abertay has secured another year of funding from the Northwood Trust to continue its research in Cancer Systems Biology in partnership with the Universities of Edinburgh, St Andrews and Dundee. Both SICSA staff are aligned to this project.

### Dundee:

No information provided.

### Edinburgh:

- May 2012- April 2013. Co-PI of Edinburgh based Wellcome Trust Strategic Award applying informatics tools to identify biomedical markers in human embryos. (Willshaw)
- Outline programme grant proposal submitted to EPSRC, July 2012 with Glasgow, Imperial College London, Queen Mary University of London - outline approved, full proposal being prepared, (Wadler)
- Carnegie Trust grant for the Universities of Scotland with University of Stirling and University of Highlands and Islands (Marwan Fayed from Stirling is the PI). Period of the grant: May 2012 - Aug 2013, (Marina)
- Participating in EPSRC proposal with SICSA colleagues in St Andrews (£800k, under review), (Cole)
- 'Real time story detection across multiple massive streams'. EPSRC, £162,000 (1 Year) with partners in Glasgow. A continuation of this award is also under development. (Osbourne)

### Glasgow:

- EPSRC research grant, awarded in partnership with Edinburgh, CROSS: Real-time Story Detection Across Multiple Massive Streams, May 2012 (Ounis)
- EPSRC Programme Grant, outline approved and full proposal submitted in partnership with St Andrews, Verisensor: Analysis and Verification of Reliable Sensor-Driven Systems, July 2012 (Calder)

- EPSRC Programme grant, outline proposal approved with Edinburgh, Imperial and Queen Mary University of London, From Data Types to Session Types – A Basis for Concurrency and Distribution, July 2012 (Gay)

#### **RGU:**

- SFC Innovation Centre - Sensor and Imaging Systems (iC-SiS). Glasgow, Edinburgh, Strathclyde, Heriot Watt, Aberdeen, RGU, Dundee, UWS, GCal, GRPe, ERPem, NRPe, SUPA. To 2nd stage. (Craw)
- Selex Galileo, UISBG Programme with RGU, Aberdeen, Lancaster, Cranfield and Cambridge. RGU UISBG project, Inferential Measurement Systems for Enhanced Situation Awareness, 2012-2014 £180k (Petrovski)
- SFC Horizon Smart Tourism Innovation Project, Living History. RGU, Historic Scotland and AmbieSense, 2012, £37k (Craw)

#### **Stirling:**

- EPSRC Programme Grant: DAASE: Dynamic Adaptive Automated Software Engineering (EP/J017515/1), (CI), 1 June 2012-31 May 2018 (Burke)
- EPSRC Standard research grant: SANDPIT: Integrating and Automating Airport Operations, (EP/H004424/2), (PI), 1 Dec 2011 to 31 Dec 2013. (Burke)
- EPSRC Training Schools-NR1, Maths TCC Follow-on-Fund: A National Taught Course Centre in Operational Research (NATCOR): 2011-2016, (EP/J500938/1), (CI), 1 Oct 2011 to 30 Sept 2016 (Burke)
- EPSRC: transfer of (part of) Platform Grant Towards More Effective Computational Search, (EP/H000968/1) (PI) to Stirling University with transfer of Professor Burke to Stirling University (Burke)
- Carnegie Trust Large Grant: High Speed Universal Broadband (HUBS): serving Scotland's research base, awarded May 2012 (Fayed)
- Vision-based Coordinated Control of Multiple Autonomous Vehicles – RSE funded (May 2012 – Mar 2014, £12k, Dr Hussain PI), in collaboration with: Prof. Bin Luo, Anhui and Peking Universities, China (Hussain)
- Next-generation Neurobiologically inspired Autonomous Visual Surveillance Systems - RSE funded (April 2012 – Mar 2014, £12k, Dr Hussain PI), in collaboration with Prof. Wangjun, Beihang University, Beijing, China (Hussain)
- Application to EPSRC "Predictive Modelling for Healthcare Technologies through Maths" sandpit (unsuccessful) (Bracciali)

#### **Strathclyde:**

- EU DigiCult program. meSch IP project (€4,798,463) (successful, under negotiation)
- Haskell Types with Added Value. EPSRC. (successful - £96,582) (McBride).

#### **St Andrews:**

- Application for EPSRC grant for a security pattern repository for £1.049M (unsuccessful) (Duncan)
- Edinburgh/St Andrews/York (Canada), JISC Digging into Data, Trading Consequences (successful) (Quigley)
- St Andrews/MUSA/Interface3, Scotland's Museums Augmented Reality Tourism, Smart Tourism (SFC Horizon grant) (successful) (Quigley)
- Historic Scotland/St Andrews/ADS, Large Augmented Digital Display for Interactive Environments (SFC Horizon grant) (successful) (Quigley)
- Edinburgh/St Andrews, European Culture Cloud, FP7 FET Open (unsuccessful) (Quigley)
- Applied for EPSRC Programme Award in a consortium involving Glasgow, £4m (under review) (Dobson)
- JISC "Twitter analysis workbench development" (successful - £156k). Bid also involves Edinburgh (Voss)

#### **10) Other notable activities**

*Any other notable activities e.g. cross disciplinary funding or activities, international collaborations, industrial collaborations. Activities may be notable due to the scale of the funding or the novel nature of the funding source, the nature or prestige of the company or institution involved or because it represents a new or novel activity for the department.*

**Aberdeen:****Cross disciplinary funding/activities**

- Prof P Edwards/Prof T Norman, TRUMP: A TRUSTED MOBILE PLATFORM FOR THE SELF-MANAGEMENT OF CHRONIC ILLNESS IN RURAL AREAS; EPSRC/DST, Sept 2011 - Aug 2014. £503,656.

**International collaborations**

- Dr. J. Z. Pan, KNOWLEDGE DRIVEN DATA EXPLOITATION (K-Drive); EU Marie Curie Project, Jan 2012-Dec 2015, £643,000.
- Dr. J. Masthoff, SUSTAINABLE AND PERSUASIVE HUMAN USERS MOBILITY IN FUTURE CITIES (SUPERHUB); EU Strep, Oct 2011 - Sept 2014. £444,748
- Prof. G. M. Coghill. ELECTRONIC LOCATOR OF VERTICAL INTERVAL SUCCESSIONS (ELVIS): THE FIRST LARGE DATA-DRIVEN RESEARCH, Feb 2012 - Jan 2014. £92,000.
- Prof. D. Pym. SOCIO-ECONOMICS MEETS SECURITY (SECONOMICS). EU Strep, Feb 2012 - Jan 2015. £330,000.

**Abertay:**

- Partner in EU Interreg IVB project "iAge: e-inclusion in ageing Europe". The SAVE group brings together expertise in the School of Engineering, Computing and Applied Mathematics, the School of Social and Health Sciences and the School of Contemporary Sciences Increase and promote the use and accessibility of ICT in relation to lifelong living to Europe ageing population. Within the consortium there are 10 partners and 8 sub-partners from 6 countries in the North Sea Region.
- Organised and ran the 13th annual computer game design competition, Dare to be Digital (D2BD). Sponsorship secured from heavyweights such as Turner Broadcasting, Intel, Sony, Wacom and NCR. The competition is also backed by BAFTA.
- Dare Indie Festival brought together 25 companies with commissioners and investors (BBC, C4, Sony, Microsoft, Turbulenz).
- Hosted Digital Spark (creative industries and computer games conference), on 29-30 June 2012, which brought together legal experts and content producers to help businesses protect their intellectual property (IP) and plan for a profitable, sustainable future.
- James Hutton Institute: Sponsored Studentship project for Developing and Testing Geovisualisation Approaches (virtual decision environments) for Understanding Multiple Benefits from Scottish Agricultural Systems, 20 July 2012
- IC tomorrow, a Technology Strategy Board programme in partnership with Abertay, was a contest to provide small companies with up to £25,000 in funding for the development of prototypes that use games technology in new ways (August 2011).
- Abertay in partnership with BAFTA have built a new tool to allow children to build their own working game for BAFTA Young Game Designers, in association with Electronic Arts and with support from NESTA.

**Dundee:**

No information provided

**Edinburgh:**

- The 29th International Conference on Machine Learning (ICML 2012) was held in Edinburgh, Scotland, on June 26–July 1, 2012.
- Secured agreement with Microsoft Research for cohort of 4 students with 50% funding and first cohort to start Sep/Oct 2012. These are studentships within the MSR PhD scholarship programme and are funded within the framework of <http://research.microsoft.com/en-us/collaboration/global/apply-europe.aspx>
- European Research Council Starting Grants were awarded to both Guido Sanguinetti and Vittorio Ferrari.

- In the academic year 11/12 the University of Edinburgh set out to appoint up to 100 Chancellor's Fellowships across its 22 Schools. These are prestigious awards were aimed at high potential academics in the early stages of their careers who have begun to establish a reputation for top quality research. Informatics recruited three such international staff and secured four new, permanent academic posts for internal early career researchers.
- On 11th May the School of Informatics hosted the T100 Turing Symposium, a celebration of the scientific legacy of Alan Turing jointly organised with the Royal Society of Edinburgh. This formed part of the international celebration of Alan Turing's centenary (see also <http://www.mathcomp.leeds.ac.uk/turing2012/>).
- Professor Mike Fourman invited to act specialist adviser for House of Lords on "Broadband for all — an alternative vision".
- Edinburgh hosted Informatics Ventures Engage | Invest | Exploit, the annual showcase of high-quality companies spinning out of Scotland's world leading Informatics and Computer Science departments and start-up companies in our wider entrepreneurial ecosystem.
- Other events hosted at Edinburgh for 2011/12 included:

05/10/2011	Rick Rashid - Distinguished Lecture
29/11/2011	iVTue - Sir Tom Farmer
29/02/2012	IET/BCS Turing Lecture 2012
24/04/2012	iVTue - John Waddell & Sandy McKinnon
10/05/2012	EIE investors conference (see above)
29/05/2012	iVTue - Jim McColl OBE
25/06/2012	ICML International Conference (see above)

#### **Glasgow:**

- EPSRC Programme Grant, awarded, A population approach to ubicomp system design, December 2011 (Chalmers)
- EPSRC Bridging the Gap: Measuring Complexity of Images - an HCI study of visual perception of complexity, November 2011 (Purchase, Siebert)
- EPSRC Bridging the Gap: Method and software integration for systems biology, January 2012, (Filippone, Rogers)
- EPSRC Bridging the Gap: Training Budget, December 2011 (Calder)
- Philip Poole-Wilson Seedcorn Fund, BUPA Medical Foundation, March 2012 (Brewster)
- Royal Society Leverhulme Trust Senior Research Fellowship, October 2011 (Calder)
- Wolfson Research Merit Award, October 2011 (Calder)
- First Step Consultancy, GU allocation, Dynamic Level of Detail Techniques, May 2012 (Cockshott)
- First Step Consultancy, GU allocation, iPhone Application to engage with a global Network, May 2012 (Jose)

#### **Heriot-Watt:**

- Co-organiser: International SWAT4LS workshop (Semantic Web Applications and Tools for Life Sciences), in Paris, 2012 (Burger)
- Co-I in cross-disciplinary EPSRC Network in New Economic Models - this is a 1.5M grant in total, with £60k to HWU (Chantler)
- Chair of "Predicting Perceptions" International Conference at HWU (Chantler)
- Attended Scottish Crucible and was awarded start-up funding for two interdisciplinary projects (Rieser)
- Jointly submission with the University of St Andrews and four European partners, EU FP7 proposal, OpenFET track on "ParaForm: Forming Parallel Haskell Programs Using Advanced Refactorings", building on our joint research on high-level parallel programming languages, in particular parallel Haskell (Loidl).
- Co-authorship of a paper (now under review) with Claus-Peter Wirth, emerging from Prof Wirth's visit to SICSA as a SICSA Distinguished Visitor. This received part-funding from Formal Methods Europe (Gabbay)
- Organisation of WING 2012 Workshop (4th International Workshop on Invariant Generation), as part of the 6<sup>th</sup> International Joint Conference on Automated Reasoning, in Manchester (Ireland)
- Chair and host of ISD 2012 (Information Systems Development), Edinburgh (Pooley & Coady)

- Organiser: FD-COMA workshop <http://www.project-advance.eu/2011/10/fd-coma-workshop-2012/> - a one-day workshop during the 7th HiPEAC Conference in Paris, January 23-25, 2012 (Scholz)
- The appointment of Prof Sven-Bodo Scholz brought with it part of the FP7 Project ADVANCE <http://www.project-advance.eu/> - (Asynchronous and Dynamic Virtualisation through performance Analysis to support Concurrency Engineering) which addresses the dynamic adaptation of concurrent applications based on statistical performance feedback.
- Co-organiser: 75 Years of Lambda Calculus at St Andrews in June (Michaelson)
- Involvement in EMOTE EU project awarded in 2012, bringing ~£600k to HWU (Hastie, Lemon, Aylett)
- Involvement in ORIGIN EU project awarded in 2012, bringing ~300k to HWU CS (Corne).
- Prof Lemon and Dr Rieser co-authored significant book: Springer 2011: Verena Rieser and Oliver Lemon "Reinforcement Learning for Adaptive Dialogue Systems: A Data-driven Methodology for Dialogue Management and Natural Language Generation" Book Series: Theory and Applications of Natural Language Processing, Springer, November 2011 ( ISBN 978-3-642-24941-9)

#### **RGU:**

- AHRC Digital Transformations AH/J013218/1, Accessing Implicit Knowledge of Textiles and Design, RGU & Heriot Watt. Multidisciplinary project combining Computing, Information Science, and Design. (Craw)
- SFC Innovation Centre - Scottish Innovation in Fashion & Textiles (SIFT). Heriot Watt, Edinburgh, RGU, SAF. To 2nd stage. Multidisciplinary proposal combining Computing, Information Science, Design, Fashion and Textiles. (Craw)

#### **St Andrews:**

- HEA UKCISA grant for £8k for building a virtual world of St Andrews for overseas students for orientation (Duncan)
- Development of three historical reconstructions relevant to the Cultural Heritage of Scotland (Allison)
- Involvement in related bids to ESRC and Wellcome, led by Chris Dibben in School of Geography, for funding to digitise all Scottish birth/death/marriage records from 1850 and to link them into a genealogical structure. Also involved would be National Records Scotland, Medical Research Council, Leicester, Cambridge & Dundee (Kirby)
- Marie Curie Fellowship (€100,000) DEEVIEW – Competitive fellowship funded by the European Union. Topic: development of gaze-contingent displays (Nacenta)
- EPSRC Strategic Partner Funds (£7,500) PSYCS - Collaboration between the School of Psychology and the School of Computer Science to create teams of interdisciplinary students that work together on projects cutting across both disciplines. (interdisciplinary) (Nacenta)
- FatFonts work featured in popular media (research collaboration with the University of Calgary, Canada): FatFonts is a dedicated typeface for infographics (Nacenta)
- Co-organiser and Panellist, SICSA MMI Doctoral Consortium, University of Glasgow, June 19, 2012 (Kristensson)
- Co-Organiser and Lecturer, SICSA Summer School on Inference and Dynamics in Interaction, University of Glasgow, June 11-15, 2012 (Kristensson)
- Co-Organiser, SICSA Workshop on Mobile Interaction, University of Glasgow, January 20, 2012 (Kristensson)
- Lead organiser for the CHI 2012 Workshop on Designing and Evaluating Text Entry Methods. Other SICSA institutions involved were University of Strathclyde (Dr Mark Dunlop) and University of Dundee (Dr Annalu Waller). Foreign co-organising institutions were University of Washington, Georgia Institute of Technology, Oregon Health & Science University, University of Tampere and Montana Tech of the University of Montana. (Kristensson)
- Collaboration with University of Dundee's accessibility team leading to two outputs (papers at SLPAT 2012 and ASSETS 2012) (Kristensson)
- Currently working with the Guardian on the Olympics. His Twitter analysis drives the timeline in their Second Screen application, see <http://second-screen.guardian.co.uk/olympics-2012> and he is working on a journalists' workbench (Voss)
- Successfully awarded right to host UIST 2013 and ITS 2013 in St Andrews (involving academics from 4 SICSA departments (Glasgow, Strathclyde, Napier, St Andrews) in chairing roles) (Quigley)

- General Co-Chair of UIST 2013, the 26th ACM Symposium on User Interface Software and Technology (Quigley)
- General Co-Chair of ITS 2013, the ACM Interactive Tabletops and Surfaces conference (Quigley)
- Appointed Visiting Professor in Robert Gordon University (Quigley)
- Appointed Visitor University of Edinburgh (Quigley)
- Engagement with physics, medical and engineering Schools between St Andrews and Glasgow in work on 3d printing (Dobson)
- Engagement with School of Chemistry in preparing a proposal on applying computer science to understanding the chemical roots of biological complexity (Dobson)

#### **Stirling:**

- Elected to Board of Directors of the Organisation of Computational Neurosciences for 3 years from 1st Jan, 2012 (Graham)
- Chair, IEEE UK & RI Industry Applications Society Chapter (Hussain)
- Establishing new Health care laboratory to support research in Care at Home (funded by SFC MATCH project and Stirling University: this lab should enable future research by providing facilities) (Turner)
- Visiting Professor at Cagliari D7 University, Maths and Informatics Dept.; also international research collaborations with the Universities of Cambridge, Edinburgh, Pisa, and Italian CNR (Bracciali)

#### **Strathclyde:**

- Co-organization of the Celebration of 75 Years of Lambda Calculus held on 15 June at University of St Andrews (Johann)
- International collaborations were conducted with Sobolev Institute of Mathematics in Novosibirsk, Russia with Sergey Avgustinovich and Alexandr Valyuzhenich; University of California at San Diego with Jeff Remmel; Cal Poly with Jeff Liese; Universitat Politècnica de Catalunya with Anna de Mier; and the University of Kentucky with Richard Ehrenborg (Kitaev)
- Consultation with Rolls Royce Norway on the development of new user interfaces for marine navigation (Dunlop and Hornecker)

### **11) Recruitment success against world-class international competition**

*Number of SICSA funded staff appointments and the previous institution (if any) of appointees.*

The original plans involved the recruitment of 5 Chair level appointments, 25 reader/lecturer appointments and 7 SICSA Advanced Fellow (SAF) appointments. Recruitment has proceeded in accordance with plans and all SICSA staff are now in place with 6 Chairs, 27 readers/lecturers and 5 SAFs in position.

Further details are provided in section 2.1 of main report and Appendix I and II.

### **12) Distinguished Visiting Fellows (DVF's)**

*Number and home institution of DVF's. Duration of DVF visits.*

12 SICSA Distinguished Visiting Fellows were appointed during 2011/12. Section 3.6 of the main report provides full details.

Distinguished Visitors appointed in 2011/12 were/will be hosted by the following SICSA institutions:

- Edinburgh: 8 Visitors
- St Andrews: 2 Visitors
- Dundee: 1 Visitor
- Glasgow: 1 Visitor

The table in Appendix IV outlines all of the Distinguished Visitor activities undertaken across SICSA in 2011/12.

### 13) Number of applications for SICSA Prize Studentships

- a) Number of applications logged directly by SICSA for the PhD Prize Studentships during the period of 1 August 2011 - 31 July 2012  
 b) The nationality of applicants

a. The number of applications logged directly by SICSA for the PhD Prize Studentships during 2011/12 was 177. The number of applicants decreased somewhat compared to the previous reporting period due to there being only one call for applicants in 2012, rather than the usual two. This was due to most institutions having nearly reached their quota of studentships by 2011/12.

b. The table below outlines the geographical spread of applicants in 2011/12:

Studentship Applications 2011-12: Geographical Spread									
Europe		The Americas		Middle East		Africa		Asia	
Austria	1	Bolivia	1	Iran	10	DR Congo	1	Bangladesh	8
Denmark	1	Canada	1	Iraq	3	Egypt	4	Bhutan	1
France	1			Israel	1	Ethiopia	3	China	6
Germany	3			Jordan	5	Ghana	2	India	16
Greece	3			Palestine	1	Ivory Coast	1	Indonesia	1
Italy	5			Saudi	5	Lesotho	1	Malaysia	1
Poland	1			Yemen	1	Nigeria	2	Nepal	1
Romania	3					Somalia	1	Pakistan	20
Russia	1					South Africa	2	South Korea	1
Sweden	3					Sudan	1	Sri Lanka	2
Turkey	1					Tanzania	2		
UK	47					Uganda	1		
Ukraine	1								
<b>Total</b>	<b>71</b>		<b>2</b>		<b>26</b>		<b>21</b>		<b>57</b>
<b>Grand total</b>	<b>177</b>								

### 14) Prize studentships

Number of SICSA Prize studentships allocated and taken up.

The studentship competition for the cohort starting in 2011/12 was very successful, with 17 awards being offered. Of the 17 awards offered 15 accepted the offer. 1 student declined the offer and the SGA is currently awaiting confirmation from the other student.

This will be the last round of SICSA Prize Studentships as most eligible institutions have now met their specified targets. Both University of Abertay and University of St Andrews have one further student to recruit each and this will be completed in winter 2012/13.

### 15) Cross institution supervision

Number of SICSA Prize students who had a supervisor from out with their "home" University as at 31 July 2011.

59% of Prize studentship holders currently have a SICSA supervisor from out with their "Home" University. The SICSA Executive is currently communicating with those SICSA Prize studentship holders who do not yet have a supervisor from outside their "home" University, in order to support them in the process of engaging a second supervisor.

The SGA will be delivering an induction event for new SICSA Prize Students in November 2012, at which advice will be provided to students about how to engage a second supervisor from outside their institution.

It is hoped that the majority of Prize studentship holders have a second supervisor in place by the end of 2012.

## **16) International conferences attracted to Scotland**

*a) Notable conferences attracted to Scotland (i.e. which took place during the census period) where a substantial connection to a SICSA department can be demonstrated*

*b) Number of notable conferences which received an element of SICSA funding*

a. Other than the conferences which received significant financial support from SICSA (see b.) there were 7 other notable conferences held during the reporting period that had a substantial connection to a SICSA department. These were:

- 20th International Conference on Information Systems Development (ISD2011), University of Edinburgh, 24th-26th August 2011
- 1<sup>st</sup> Annual Conference on Integral Biomathics (ACIB '11), University of Stirling, 29<sup>th</sup>-31<sup>st</sup> August 2011
- Motion in Games (MiG 2011), University of Edinburgh, 13th–15th November 2011
- Engage-Invest-Exploit 2012, University of Edinburgh, May 10<sup>th</sup> 2012
- T100 Turing Symposium, University of Edinburgh, 10<sup>th</sup>-11<sup>th</sup> May 2012
- Trends in Functional Programming (TFP 2012), University of St Andrews, 12<sup>th</sup>-14<sup>th</sup> June 2012 (for which SICSA contributed some funding via CSE theme budget)
- Computational Learning Theory Conference (COLT 2012), University of Edinburgh, 25<sup>th</sup>-27<sup>th</sup> June 2012.

b. During the period 2011/12 the SICSA Directorate made the decision to allocate a specific amount of funding per year (£10K) to support high profile international conferences. The decision was made in order to encourage further large-scale events to Scotland. During 2011/12 a total of £5300 was granted for 2 events. These were:

- International Conference on Machine Learning (ICML) 2012, University of Edinburgh, 26th June-1st July 2012.
- Milner Symposium, University of Edinburgh, 16th-18th April 2012

## **17) SICSA Research Theme events**

*Number of SICSA supported research theme related events.*

There were a total of 30 research theme events held during 2011/12 (detailed in Section 2.2 of the main report). This compares favourably with previous years where in 2010/11 there were 27 events and in 2009/10 there were 11 events.

## **18) SICSA relevant KT events**

*Number of SICSA relevant KT related events.*

There were 18 KT related events held during 2011/12, which are detailed in Section 6 of the main report. This compares favourably with 2010/11 during which there were 10 events and 2009/10 in which there were 11 events.

## **19) SICSA DVF events**

*Number of specific events involving Distinguished Visiting Fellows.*

There were 38 events involving Distinguished Visiting Fellows during 2011/12, which are detailed in Appendix IV. Although there were just four host institutions for Distinguished Visitors, a total of 8 SICSA institutions hosted Distinguished Visitor events, reflecting the requirement for all SICSA Distinguished Visitors to focus on multi-institutional visits.

## **20) SICSA summer schools**

- a) Number of summer school events (for which SICSA has funded student attendance)*
- b) Number of attendees of SICSA sponsored/funded summer school events*

a. There were 4 Summer Schools held during 2011/12, which are detailed in Section 3.2 of the main report.

b. There were a total of 100 student attendees across the 4 SICSA Summer Schools. See table in 3.2 of the main report for a breakdown of numbers.

## **21) SICSA courses for PhD students**

- a. Number of courses (including conferences but excluding summer schools which have been attended by students from more than one SICSA department.*

SICSA supported a total of 7 courses during the reporting period which were attended by students from more than one SICSA department. Full details are outlined in Section 3.5 of the main report.

Furthermore, the SICSA PhD conference was attended by students from all but one of the 14 SICSA departments.

- b. Number of attendees on courses (excluding summer schools) which have been attended by students from more than one SICSA department*

Unfortunately, precise numbers for attendees on courses which have been attended by students from more than one SICSA department are not available, but the approximate number of attendees is thought to be over 300 (including SICSA PhD Conference delegates).

## **22) SICSA Prize Studentship cohort events**

*Number of events specific to (or primarily attended by) SICSA Prize students:*

There was a total of 1 event that was specific to (or primarily attended by) SICSA Prize students – this was the Prize Studentship Induction. The Prize Studentship Induction event took place on 28<sup>th</sup> November 2011 in Glasgow and was attended by 19 Prize students.

Further to this, the SICSA PhD Conference was attended by a significant number of SICSA Prize students, although it was not primarily aimed at Prize students. The SICSA PhD Conference took place from 20th-22nd June 2012 at Glasgow Caledonian University and was attended by 189 delegates in total, of which 32 were SICSA Prize Students. The SICSA PhD Conference is organised by a committee of PhD Students and SICSA staff. In 2012, there were 7 SICSA Prize students on the organising committee. It is also of some note that 3 out of the 5 winners of the Conference poster competition were SICSA Prize students.

## Distinguished Visiting Fellow Activities

The following table outlines all of the activities undertaken by SICSA Distinguished Visitors in 2011/12.

Event Title	Date	Location
Prof. Prakash Panangaden: 'Bisimulation, Approximation and Metrics for Labelled Markov Processes, Edinburgh	02-Aug-11	University of Edinburgh
Prof. Gregory Chaitin: 'The Halting Probability Omega 1/2' Lectures, Edinburgh	15-Aug-11	University of Edinburgh
Prof. Gregory Chaitin: 'The Halting Probability Omega 3/4' Lectures, Edinburgh	16-Aug-11	University of Edinburgh
Prof. Gregory Chaitin: 'Algorithmic Info Theory Landscapes and Meta-Biology Landscapes' Lectures, Glasgow	17-Aug-11	University of Glasgow
Prof. Gregory Chaitin: 'Turing as a Biologist 1/2' Lectures, Edinburgh	18-Aug-11	University of Edinburgh
Prof. Gregory Chaitin: 'Life as evolving software 1/2' Lectures, Edinburgh	19-Aug-11	University of Edinburgh
Brian Roark: 'Natural Language - Processing for psycholinguistic modeling and neuropsychological assessment'	01-Sep-11	University of Aberdeen
Brian Roark: 'Learning hard chart constraints for efficient context-free parsing'	02-Sep-11	University of Edinburgh
Brian Roark: 'Natural Language Processing for psycholinguistic modeling and neuropsychological assessment'	08-Sep-11	University of Dundee
Brian Roark: 'Language modeling and coding for fixed grid keyboard emulation interfaces'	09-Sep-11	University of Edinburgh
Brian Roark: 'Applications of Lexicographic Semirings in Speech and Language Processing'	12-Sep-11	University of Edinburgh
Dr Sharon Crook: 'A Continuum Model for Structural Plasticity of Dendritic Spines'	13-Sep-11	University of Edinburgh
Dr Sharon Crook: 'Approaches for Reproducibility in Computational Neuroscience'	15-Sep-11	University of Edinburgh
Brian Roark: 'Language modeling and coding for fixed grid keyboard emulation interfaces'	19-Sep-11	University of Aberdeen
Dr Sharon Crook: 'Creating, Documenting and Sharing Network Models'	20-Sep-11	University of Edinburgh
Dr Sharon Crook: 'Creating, Documenting and Sharing Network Models'	21-Sep-11	University of Edinburgh
Brian Roark: 'Language modeling and coding for fixed grid keyboard emulation interfaces'	21-Sep-11	Dundee
Dr Sharon Crook: 'Approaches for Reproducibility in Computational Neuroscience'	23-Sep-11	University of Stirling
Dr Sharon Crook: 'Describing and Exchanging Models of Neurons and Neuronal Networks with NeuroML'	29-Sep-11	University of the West of Scotland
Dr Alan Frisch: 'The Design of Essence: A Constraint Language for Specifying Combinatorial Problems'	11-Oct-11	University of Glasgow
Dr Bart Baddeley: 'A Simple Model of Ant Route Navigation Driven by Scene Familiarity'	05-Dec-11	University of Glasgow
Dr Bart Baddeley: 'A Simple Model of Ant Route Navigation Driven by Scene Familiarity'	08-Dec-11	University of Edinburgh
Dr Alan Frisch: SICSA Distinguished Visitor Talk, University of Edinburgh	12-Dec-11	University of Edinburgh
Prof. Samuel Kaski: 'Proactive Contextual Information Retrieval'	17-Jan-12	University of Edinburgh
Prof. Samuel Kaski: 'Proactive Contextual Information Retrieval'	23-Jan-12	University of St Andrews
Prof. Samuel Kaski: 'NeRV for Data Visualization'	26-Jan-12	University of Glasgow
Prof. Richard Schulz: 'Quality of Life Technologies for Older Persons and People with Disabilities seminar'	21-Mar-12	University of Aberdeen
Prof. Richard Schulz: 'Quality of Life Technologies for Older Persons and People with Disabilities seminar'	22-Mar-12	University of Glasgow
Prof. Ursula Martin CBE, SICSA Distinguished Visitor Talk at University of Edinburgh	23-Mar-12	University of Edinburgh
Prof. Martin Campbell-Kelly: 'Alan Turing's Other Universal Machine'	25-Apr-12	University of Glasgow
Prof. Martin Campbell-Kelly: 'Alan Turing's Other Universal Machine'	26-Apr-12	University of St Andrews
Prof. Ursula Martin CBE: '1377 questions and counting - what can we learn from online math?'	27-Apr-12	University of Glasgow
Prof. Martin Campbell-Kelly: 'Alan Turing's Other Universal Machine'	27-Apr-12	University of Edinburgh
Prof. Ursula Martin CBE: 'So what's all this about impact..' - Keynote at SICSA PhD Conference 2012	22-Jun-12	Glasgow Caledonian University
Prof. Scott Aaronson: Lecture Series (4 Lectures), Edinburgh	10-Jul-12 to 13-Jul-12	University of Edinburgh

## SICSA Knowledge Exchange Strategy

(Revised Oct 11, 2012)

### Preamble

This document outlines proposals for KE strategy and plans for SICSA, in the light of our overall goals, recent history, and current challenges. It is important to note at the outset, that resources for KE within the original SICSA grant are limited to a single Business Development Executive with a limited amount of support.

### SICSA Vision

Our continuing goal is to sustain and expand Scotland's research excellence in Informatics and Computer Science. We exploit and enhance the research capabilities and reputation of the world-leading Scottish universities to promote an international presence in this research field.

### SICSA KE Vision

Our goal is to provide complimentary support to the tech transfer offices in SICSA Universities while supporting emerging cross-institutional themes and harnessing local knowledge exchange activities for national advantage across SICSA.

### External context

Since the launch of SICSA, external agencies, funders and the general public have placed growing emphasis on maximising the impact of publicly funded research. Impact, which can be broadly defined, has, at its core, the economic impact of funded research.

The fruits of computer science and informatics research underpin the modern global economy. This position has strengthened over the past few years as computational power enhances every facet of economic and social activity. Today, computation underpins life globally. While there are few large IT companies in the UK we have a strong research base, and a host of small and medium enterprises. Importantly for sustained economic impact from our research, barriers to entry into the digital economy are very low, compared with other industry sectors. On the other hand, within Scotland, limits on locally available pump priming, angel and venture capital may ultimately place a ceiling on the rates of foundation or growth of start-ups and spinouts.

### Knowledge Exchange: Five Core Strategic Principles

1. Investment in research has two key outputs: people (human capital), and research results (knowledge capital)
2. Improving the potential for impact of such capital is a recognised imperative for academia
3. Knowledge exchange has an important role to play in informing research and research strategy and ensures both the shorter and longer term health of the research community
4. Entrepreneurial people use ideas from their own and other's research to create impact
5. Entrepreneurship can be encouraged via appropriate awareness raising and training.

Given these core principles, our knowledge exchange strategy should be:

To inspire, equip and nurture researchers in Scotland, at all levels, and support early career researchers' exchanges with business and industry so that they can make a greater economic and social impact.

Implementing this strategy requires four key elements:

- Inspire: Entrepreneurial awareness
- Equip: Entrepreneurial training
- Exchange: Early career researchers' engagement with business and industry
- Nurture: Business development support.

Nurturing extends to helping attract international investment in our people. Together, these elements will attract and retain people to start up and work in high-growth businesses in Scotland.

## **Current situation**

SICSA's approach has been to build on best practice across Scotland and to provide complimentary support to the tech transfer offices and entrepreneurial education programs in the partners Universities. As previously noted, the resources for KE within the original SICSA grant are limited to a single Business Development Executive with a limited amount of support. Our approach to date has been to align with, and build on, the KE activities already underway in participating departments, and their Universities' Technology Transfer Offices (TTOs). Our primary support comes for SICSA Knowledge Exchange comes out of the AspeKT program in Informatics in Edinburgh.

Some external funding programmes focus almost entirely on supporting research. Research Councils and EU Framework fall into this class. Limited KE can be realised via the dissemination activities in these grants. By contrast, the SFC has a remit to support both research and KE. Other programmes are exclusively for KE. From the EU, we have ERDF and ESF. From the UK, we have SEEKIT, KTP and TSB/KTN funding; in addition, from Scottish Enterprise, there are Voucher Schemes, Innovation Funding, SMART and Proof of Concept schemes; and from business, there is support via sponsorship, consultancy, and CPD uptake.

Within this, our three key elements of strategy are currently underway and will expand via our access to returned pool funding support.

## **Inspire: Entrepreneurial awareness**

For inspiring entrepreneurial awareness, SICSA-wide KE activity has concentrated on exploiting the ProspeKT and now AspeKT program in Edinburgh. This has focused on entrepreneurship, company formation, and business development, with theme-based, market focused, business development executives (BDEs) located close to researchers. Concrete examples of this include the iVenture Tuesday Seminars, CEO Master Class, and promotion of outputs from DemoFest. ProspeKT itself exceeded reasonable expectations: in four years, it has supported 33 spin outs and start ups, which have won £4.6M in investment, generated £1.9M in revenue, and created over 80 new jobs and nearly 90 new products. SICSA directed events include entrepreneurial elements in our summer school program, annual PhD conference, PhD induction and theme events. In addition, SICSA raises awareness and promotes individual University level entrepreneurial activities and training such as the Abertay Dare to be Digital—with national and international reach, or the Converge business formation competition from Heriot-Watt.

## **Equip: Entrepreneurial training**

An important element of SICSA-wide KE has been the training available through Informatics Ventures, which has delivered almost 24,000 hours of entrepreneurship education to over 870 participants in academia and industry. As well as hosting annual Demofests linking national academia and industry, SICSA has encouraged PhDs across Scotland to participate in entrepreneurial training via Informatics Ventures, on the understanding that we can help increase the proportion of our people who have the drive and skills to commercialise research. Further examples of this include the CEO Master Class, EDP/Ignite bursaries and Startup Summer School. A new program is the Mobile Apps meet ups in each of the major cities to help get some of our students experience in running their own businesses. By connecting some of the larger platform players and local companies into these groups it provides a different way to engage externally.

## **Exchange: Early career researchers' engagement with business and industry**

The restoration of pooling funding provides SICSA the funds to facilitate early career researchers' exchanges with business and industry, both within Scotland and internationally. We are aiming to "support exchanges of an extended duration, increasing the likelihood of lasting engagement with industry." Our current plans are centered on six methods of support:

1. Industrial internships for Ph.D. students (co-funded, 6 months at a time, national and international)
2. Industrial visitors into SICSA (inward exchanges from industry)

3. Support for proof of concept development (students, post-docs and early-stage academics can bid for funds to support proof-of-concept developments)
4. Support for team based industrial placements (IBM Extreme Blue style teams, blend of early career researcher levels)
5. Enhanced support for knowledge exchange within existing SICSA themes
6. Supports for a start-up accelerator, financial supports to early career researcher to start their own business, along with mentoring.

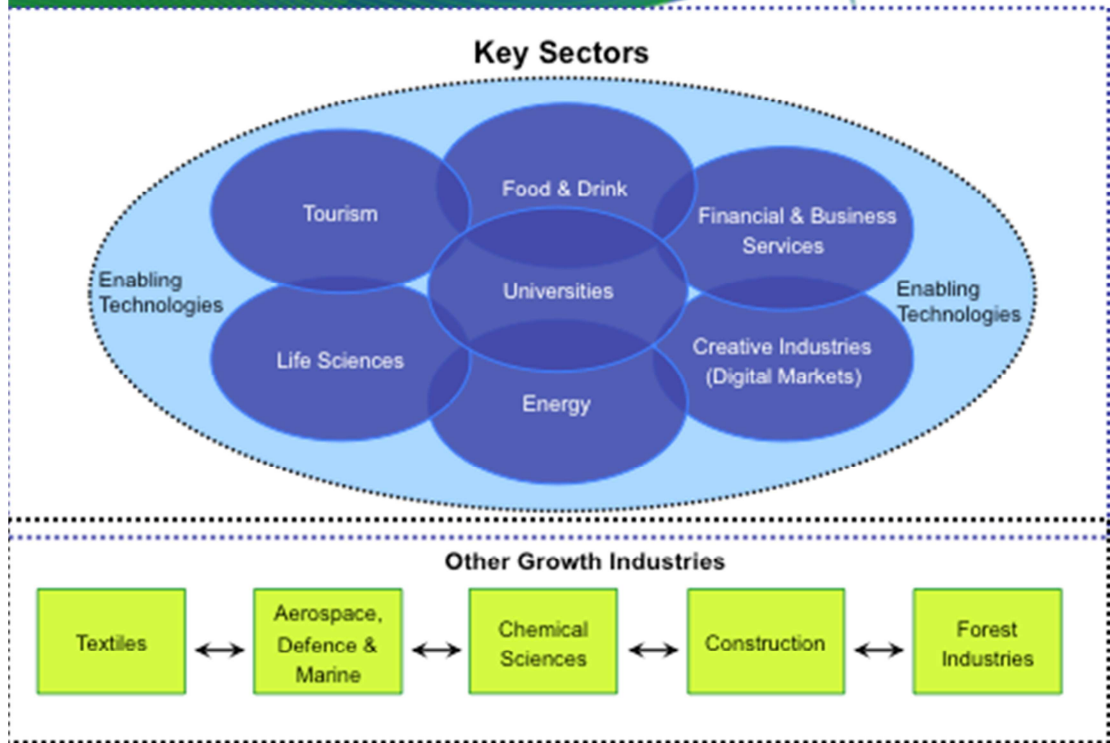
The full details of these six forms of support are being developed and presented to the SFC in November of 2012.

#### **Nurture: Business development support**

Within SICSA KE both the Tourism and Cyber Security programs organise events to bring relevant researchers and local industry together, they also help in getting industrial connections when larger grant proposals are being developed.

Looking ahead, it is clear that to realise its KE proposed strategy, SICSA needs both to engage directly with pure KE funders, and to provide support for researchers to take advantage of the range of opportunities offered. On the funding side, it is notable that recent ERDF KE projects, such as Heriot-Watt's 'Converge', have cited research pools as a key ingredient for achieving their Scotland-wide outreach objectives. Informal feedback from these projects and SFC has suggested that a closer linkage with and between the research pools may be sensible. Extending this, the best opportunities for future KE may lie in programmes with national networking scope; the Scottish Government's priorities are therefore an important consideration.

# Our Industry Focus



The diagram above continues to indicate the priority industry sectors identified by Scottish Government. Alignment with this view of the world is an important consideration in ongoing planning.

While Informatics and Computer Science might simply be considered an input to enabling technologies it is in fact more broader, more central and indeed crucial to the development and furtherance of all the key sectors within current Scottish Government policy. Advances in informatics and computer science research and development underpin every growth industry and key sector of the Scottish economy. This might be the use of new algorithms and analytics in Life Sciences to data mining, big data processing or computer simulation in Financial and Business Services. More obvious connections to Create Industries are clear yet we caution against pigeon holing Computer Science and Informatics and instead as underpinning and cross-cutting all areas.

However, given our resources we need to adopt a strategy that is both top down, with focussed support for key areas, such as, Digital Tourism, Cyber Security and Big Data while embracing bottom-up (opportunistic) activities.

Where a group of academics has already identified an opportunity in an industry sector (as with Tourism or Cyber Security), SICSA KE should support them. Where demand is identified from an industry sector (such as Financial & Business Services), but there is no academic grouping, SICSA KE should facilitate meetings and networking to crystallise an appropriate grouping.

Thus, in the long term, it is reasonable to expect that each Government-identified sector will have been surveyed at least once, and opportunities for activity identified.

## **Challenges**

In this context, there are three challenges facing the proposed people-focussed strategy:

- (a) Institution-level programmes need not align with SICSA KE priorities. SICSA's KE activity focuses on entrepreneurial training, and business development support. TTOs may instead emphasise (e.g.) IP protection.
- (b) Institution-level programmes need not have a SICSA activity built into them. Institutions typically focus on University-specific activities, and continue to implicitly favour competition between the nation's institutions, rather than cooperation.
- (c) Scottish Government's priority sectors do not align with SICSA strengths. Industry sectors like Financial & Business Services do not map neatly onto research themes such as Next Generation Internet.

## **Delivering the strategy: 2012-2015**

Our knowledge exchange strategy is to inspire, equip, exchange and nurture the people we produce, so that they can make a greater impact. By building on the AspectKT program with an Industry Sector Innovation Programme, a Start Up Accelerator, The Centre for Global Entrepreneurship in Scotland (CGES) and Global Connections Programme and enhancing our SICSA early career researcher supports and access to SFC Horizon funded program we aim to address these challenges.

## **Document Provenance**

This document was adapted by Aaron Quigley (University of St Andrews), SICSA deputy director and director for knowledge exchange in October of 2012 and based on the SICSA Knowledge Exchange Strategy written by Jon Oberlander (University of Edinburgh) in 2010.

## APPENDIX VI

### Minutes of SICSA Governing/Advisory Committees 2011/12

#### SICSA Research Committee Minutes of the meeting held on 31st August 2011 The University of St. Andrews

Present:

Ian Sommerville - Chair (St. Andrews), Steven Kendrick – Minutes (Glasgow), Dominique Balharry (Edinburgh), Saleem Bhatti (St. Andrews), Jim Bown (Abertay), George Coghill (Aberdeen), Susan Craw (RGU), Alan Dearle (St. Andrews), John Levine (Strathclyde), Evan Magill (Stirling), Greg Michaelson (Heriot-Watt), Jon Oberlander (Edinburgh), Chris Reed (Dundee), Dave Robertson (Edinburgh), Joe Sventek (Glasgow), Colin Adams (Edinburgh)

#### 1. Welcome and Apologies

IS welcomed all committee members to the meeting and acknowledged apologies from the following:

Alan Settery (Edinburgh), Roderick Murray Smith (Glasgow), Thea de Joode (Edinburgh), Lynne Baillie (GCU), Jessie Kennedy (Edinburgh Napier), Stephen Brewster (Glasgow), Nick Taylor (Heriot-Watt), Leslie Smith (Stirling), Maria Fox (Strathclyde), Jane Hillston (Edinburgh)

#### 2. Minutes of the meeting held on 7th February 2011

Two minor corrections were noted. An amended copy of the previous minutes is attached as Paper A.

Matter arising:

##### 2.1 Budget

IS confirmed that whilst a surplus in the budget was reported at the previous meeting, SFC have cut the budget by reducing annual payments to each of the institutions for this financial year by a total of 16%. There is an expectation of further cuts in the following financial periods.

##### 2.2 Technology and Innovation Centres

IS confirmed that the Technology Strategy Board (TSB) plan to fund 3 Technology and Innovation Centres (TIC) in the near future with the likelihood that one will be in a computing science related area – Complex Systems, Next Generation Internet and Digital Media are likely candidates. IS commented that it is likely that a centralised model will be implemented and this reduces the possibility of the centre being located in Scotland.

#### 3. Update on AspeKT and CGES (Colin Adams)

CA gave a presentation on AspeKT and CGES. Presentation slides will be distributed to all members shortly after the meeting. Slides will also be available from the SICSA Executive upon request.

After the presentation, CA opened the floor for discussion:

GM questioned how many spin-offs have been started as a result of SICSA. CA commented that this would be difficult to quantify. IS agreed with this point but stated that he knew of two that had attended SICSA KT events and successfully started companies.

JS asked if there would be potential governance issues within SICSA when the projects go forward. JO confirmed that this is a SICSA owned group and therefore it would be accountable to SICSA. AD commented that there should be a formal reporting process, whereby the AspeKT board reports regularly to the research committee. The committee agreed on this point and a standing item will be added to the rescom agenda for future meetings.

JO took the opportunity to congratulate all members of the AspeKT board. IS echoed this point, commenting that the group will contribute significantly to the overall sustainability of SICSA.

#### 4. SICSA Structure (Greg Michaelson)

GM outlined possible changes to the structure of SICSA in light of the recent addition of an Education remit. Full details of the proposed changes are available in the meeting agenda (Paper B) or from the SICSA Executive upon request.

The committee agreed the proposal to change the name of the Research Committee to the "SICSA Committee" or another similar variant. The SICSA Directorate will confirm the new title of the committee in due course.

Members agreed in principle the changing of the title of SICSA Director to Research Director and agreed that this person should convene the SICSA Committee. It was agreed that the Research Director will always need to be from one of the host institutions i.e. Glasgow, St. Andrews or Edinburgh.

Members were positive about the proposal to form no additional committees and agreed that Directors should be able to form limited life working groups where necessary. The activities of such working groups will be reported to the SICSA committee via the directors.

#### 5. Integration of Teaching into SICSA (Greg Michaelson)

GM outlined the recent integration of Education into SICSA. Full details of this development are available in the meeting agenda (Paper C) or from the SICSA Executive upon request.

GM suggested a range of short, medium and long term actions associated with the integration of Education. A discussion of these actions followed the presentation.

##### 5.1 Education representatives

It was agreed by all members that an Education contacts list should be established and that institutions should be encouraged to nominate members to that body. JS suggested that institutions should be able to suggest as many people as they wished to join that body and that membership of this should not need to be approved by the SICSA Committee. GM agreed with this point, commenting that only the strategic decisions of the body itself need to be agreed by the SICSA Committee. IS added that this can be done via email and does not need to wait for scheduled meetings. DR commented that keeping bureaucracy to a minimum would be important given the on-going cuts in funding.

##### 5.2 Web Site

All members agreed that the Education strand of SICSA should have some form of web presence on the SICSA web site. GM suggested that the pages should be fairly simple and should consist mostly of links. IS commented that the pages should be focussed on providing facts and information about Scottish Computing Science Education. IS also suggested that the SICSA Executive should produce a publicity document that can be circulated at industry events and conferences.

##### 5.3 The notion of a "Scottish Brand" in Computing Science Education

AD stated that he was not entirely convinced about the proposal to develop common "Scottish brand" marketing material for computing programmes. IS commented that marketing materials really need to focus on facts and statistics. There may therefore be a requirement to gather HESA statistics, possibly via CPHC.

Members of the committee agreed to continue to discuss the medium and long term actions further at future meetings.

#### 6. SICSA Theme Refresh

JO confirmed that as a consequence of his appointment as SICSA Director of Education, GM will leave the post of CSE Theme Leader vacant. Furthermore, after 3 years it is potentially an opportunity to begin looking at the potential for a refresh of the themes and/or theme leaders. JO asked Research Theme Leaders to consider this in preparation for today's meeting and confirmed the following:

Stephen Brewster – no opinion to table

Jane Hillston – happy to continue with running her theme

SB confirmed that he was happy to continue with running the NGI theme, commenting that he already includes a number of other academics in theme leadership activities. For example 3 academics from Glasgow, St. Andrews and Edinburgh were delegated to run the recent SCONE Meeting. A number of workshops have also been run by other SICSA appointees.

JO suggested that rather than imposing sweeping changes, there could be a process of organic development of themes. IS agreed that he is keen to avoid themes or theme leaders changing all at once.

JO concluded that the most important consideration at the current time is the replacement of the theme leader for CSE. A number of potential theme leaders were suggested by committee members. DR suggested that the committee should head-hunt a suitable person for the role. Colleagues were therefore instructed to send suggestions to DB and the SICSA Executive will begin shortlisting possible candidates after this.

GM agreed to assume the role of care-taker theme leader during this process.

#### 7. SICSA Support for Scotland based conferences

IS referred committee members to Paper E, which outlines the proposal that SICSA should change its policy to allow for some limited support for conferences held in Scotland and which are organised by one or more SICSA members. This support may take the form of:

- Student bursaries to support SICSA student attendance.
- The provision of DVF funding to defray the expenses of invited speakers.
- Conference marketing and publicity.
- Funding for specific conference events aimed at the SICSA community.

SB asked what the process would be for applying for student bursaries. IS stated that the process would be very much similar to the process for applying for Summer Schools – principally an application would be put forward to the administrative team and this would be considered by the SGA. The SGA will not impose deadlines as for regular DVF or summer school applications to allow for greater flexibility.

The committee all confirmed that they were happy to provide this support providing that SICSA is recognised in conference publicity materials, including conference web pages.

#### 8. British Science Festival – SICSA Contribution

The committee agreed that it would be good to be involved in this. IS will take this forward.

#### 9. Membership of SICSA – University of the West of Scotland

The committee approved the proposal that UWS should become an Associate Member of SICSA.

GM asked if SICSA has heard from the University of the Highlands and Islands with regards to possible SICSA membership. IS commented that we would first need to confirm if the University is eligible – i.e. do they deliver Computer Science courses at Degree level and above? DB confirmed that she would investigate this further.

#### 10. Planned/recent SICSA Research Activity

JO gave a report on behalf of JH for the M&A theme as follows:

M&A had a systems medicine workshop organised in Dundee by Jim Bown from Abertay in May which attracted a good number of participants from across Scotland mostly from SICSA but also the medical side. The Distinguished Visiting Fellow, Prakash Panagaden, gave a series of lectures in July which were well attended with participants from Heriot Watt, Dundee and Glasgow as well as Edinburgh. In October Mattias Hennig and Pier Frisco are organising a workshop on biological networks, which is following on from the successful workshop last year.

GM gave an update for the CSE theme as follows:

CSE continues to support both specialist group meetings and one off events. The Multi-Core Challenge is progressing well: a third meeting is planned and a journal publisher has been approached with a view to producing a refereed collection of Challenge entries. In May, CSE participants helped organise and facilitate a TSB ICT KTN meeting on Multi- & Many-Core Systems at Heriot-Watt. In the longer term, CSE will sponsor a "75 Years of Lambda Calculus" event at next year's International Symposium on Trends in Functional Programming in St Andrews.

SB gave an update for the NGI theme as follows:

There have been several summer visitors including Nitin Vaidya and Vito Latora – both SICSA Distinguished Visitors.

SB is in the early stages of organising a Hackathon on data, which will either be run as a standalone summer school or a workshop at a conference. JS confirmed that Glasgow could possibly contribute machines for this and that he would be interested in getting involved.

No formal update was provided for the MMI theme. However, JO confirmed that SB had been involved in organising the Multimodal Systems for Digital Tourism Summer School, attended by 24 PhD researchers from around Scotland and a few from other countries. The summer school was very successful.

IS reported that he co-organised the International Summer School on Cloud Computing, which took place in St. Andrews in June. This was another very successful summer school with 28 in attendance. IS also confirmed that the Advanced Techniques in Computer Algebra Systems Development Summer School is currently taking place in St. Andrews.

JB confirmed that he is currently planning a workshop on the MMI theme for January 2012.

#### 11. Other Business

JO confirmed that Peter Buneman, Mahesh Marina Michael Fourman are currently looking for collaborators and supporters from academia and industry in relation to the HUBS project that they are currently working on.

A Summary of the HUBS project will be forwarded to all committee members this week by JO. Those interested in collaborating on or supporting this project were instructed to contact Mahesh directly.

GM suggested that meetings focussing on the sustainability of SICSA were required in the near future. Committee members agreed that this would be important.

Date of next meeting: 29th November 2011, 11.00am, Informatics Forum, Edinburgh.  
Room TBC.

**Meeting of the SICSA Committee  
Minutes of the meeting held on 14th February 2012  
The University of Glasgow**

Present:

Ian Sommerville – SICSA Director, St Andrews (Chair)  
Steven Kendrick – SICSA Executive Assistant, Glasgow (Minutes)  
Colin Adams – Edinburgh  
Lynne Baillie – GCU  
Dominique Balharry – SICSA Executive Officer, Edinburgh  
Jim Bown – Abertay  
Stephen Brewster – MMI Theme Leader, Glasgow  
George Coghill – Aberdeen  
Alan Dearle – St Andrews  
Neil Ghani – Strathclyde  
Christos Grecos - UWS  
Jessie Kennedy – Edinburgh Napier  
John McCall – SICSA Theme Leader, RGU  
Greg Michaelson – SICSA Education Director, Heriot-Watt  
Rod Murray-Smith – SICSA SGA Director, Glasgow  
Jon Oberlander – SICSA Deputy Director, Edinburgh  
Dave Robertson, Edinburgh  
Joe Sventek, Glasgow  
Nick Taylor, Heriot-Watt (via Skype)  
Ken Turner, Stirling  
Aaron Quigley - SICSA Theme leader, St Andrews (via Skype for part of meeting)

1. Welcome

IS welcomed all members to the meeting and the following apologies were noted.

Apologies:

Susan Craw - RGU  
Thea de Joode - SICSA Executive Assistant, Edinburgh  
Jane Hillston - SICSA Theme Leader, Edinburgh  
Alan Settery – SICSA BDE, Edinburgh  
Leslie Smith – Stirling  
Saleem Bhatti – SICSA Theme Leader, St Andrews

2. Minutes of the meeting held 29/11/11

It was agreed that the previous minutes were an accurate record of the previous meeting.

3. Matters arising from the last meeting

No matters arising.

4. Update on AspeKT and CGES

CA provided an overview as follows:

I-Venture Tuesday events are now up and running in Edinburgh. See <http://www.informatics-ventures.com/educate/iventure-tuesday> for details.

Appathon is delayed until October

TEDx Glasgow will take place at the Centre for Contemporary Arts (CCA) in Glasgow on 4th March 2012. There are three free tickets available for this event – members were asked to contact the SICSA Directorate if they are interested in attending for free.

CA is kicking off an initiative for mobile apps clubs – details still to be confirmed. A report on this will be provided at the next meeting.

Engage, Invest, Exploit will take place in May at the Informatics Forum, Edinburgh. See <http://www.informatics-ventures.com/pillars/connect/engage-invest-exploit-12> for details.

CA confirmed that CGES funding runs for 3 years from July 2011.

## 5. Update on Education Activities

GM provided an overview as follows:

SICSA Education got off to a strong start with the launch meeting held at the University of Dundee on 5th December 2011, attended by representatives from all the SICSA institutions. Outcomes of the meeting were:

- We will run an employer facing, poster based SICSA Education-Fest in Glasgow, on April 25th at the University of Glasgow. GM, TdJ, SK, DB are facilitating the organisation of this event with assistance from Karen Renaud & Quintin Cutts (University of Glasgow).
- We will run a one day SICSA Computing Teaching event both as induction for new colleagues and as a refresher for extant staff in Dundee, tentatively in autumn 2012. Karen Petrie will facilitate local organisation.
- Quintin Cutts will chair a working group on CPD which Polly Purvis (Scotland IS) and Kate Farrell (CAS Scotland) have kindly offered to join, as well as volunteers from the meeting. They will report in the summer.
- Stuart Anderson (Edinburgh) will prepare a position paper on a Scottish Open/Distance Learning MSC scheme.
- Bruce Scharlau (Aberdeen) & Stuart Anderson will prepare a position paper on a SICSA Hack/Appathon.

GM confirmed that statistics for student/staff numbers at each institution have been gathered and asked members if they had any objections to this information being circulated internally and used in SICSA promotional/information materials. The committee did not raise any objections, though JS suggested that this information should not be circulated to the media. GM agreed.

AD commented that we should also be examining where CS graduates go after University – percentages entering CS jobs. GM agreed that this would be useful and will contact Polly Purvis about this.

GM will report back on further developments at the next meeting.

## 6. Update on Theme Activities

### 6.1 MMI Theme (SB)

- The theme ran a Healthcare Workshop at GCU in October 2011
- There was an all-hands meeting in December 2011
- A mobile Interaction workshop took place in Glasgow in January 2012
- SB confirmed that workshops are currently confirmed for most months until June 2012

### 6.2 CSE Theme (JMcC)

- The theme funded a SEABIS event at Edinburgh Napier in January 2012.
- There are a number of workshops planned for spring 2012 still to be confirmed and the 75 Years of  $\lambda$ -Calculus event, taking place on June 15th.

### 6.3 M&A (JH)

JH gave her apologies for the meeting but submitted the report below:

- The theme sponsored the recent (10th February) meeting of the Scottish Theorem Programming Seminar, which took place at Strathclyde.

Funding has been agreed for a number of events in the coming months.

- The theme is contributing to the costs of catering at the forthcoming Milner Symposium, celebrating the life and achievements of Robin Milner, who was a SICSA senior research fellow at the

time of his death. This offers a good opportunity to raise the profile of SICSA since there are a large number of international speakers at the event in Edinburgh.

- The theme, together with CSE, is contributing to the costs of the 75 years of lambda calculus event taking place in St Andrews in June.
- A distinguished visiting fellow application is being prepared for Alberto Policriti who works in hybrid modelling of systems biology and it is likely that a workshop will be organized to coincide with that visit if the application is successful.
- Gethin Norman, a SICSA lecturer from Glasgow is organizing a workshop in Edinburgh on 8th September in collaboration with the ERCIM network, Models and Logics for Quantitative Analysis.
- I am discussing with Carron Shankland from Stirling (and John McCall) the possibility of organizing a workshop jointly with the SEABIS subtheme of CSE. We have not set a timetable on this yet.
- Matthias Hennig and Pierluigi Frisco are planning the third in their series of workshops on networks in biology in October.

There has unfortunately been no further progress on the whole theme workshop to be organized in Stirling by Andrea Bracciali, but once I am back at work I will chase this up. I also plan to talk to David Pym about the possibility of organizing something in Aberdeen.

#### 6.4 NGI (SB)

SB gave his apologies but sent the following report shortly after the meeting:

- In terms of Theme activities, the NGI Theme continues with the SCONE meetings, the latest to be in StA on 24 Feb. We are experimenting with the format of the meetings to encourage more student participation (poster sessions and encourage students talks) and also trying to encourage better engagement between SICSA PhD supervisors from different institutes. I am trying to plan a couple of workshops for the summer (a Datathon and a Cyber-Security workshop), but no dates have yet been confirmed.

#### 6.5 Communication of Theme Activities

There was a general feeling among members that information about theme activities could be communicated more effectively.

JO commented that SK and TdJ have looked closely at the communications methods that SICSA uses, culminating in a formal report (available on the SICSA web site) and coordinated set of communications strategies for each area of SICSA activity.

SK commented that the Executive uses a number of methods to communicate information about theme events; such as email bulletins (through theme mailing lists), the SICSA Newsletter, Social Media, and the SICSA web site. SK asked all theme leaders to remember that it is their responsibility to communicate details of theme activities to [admin@sicsa.ac.uk](mailto:admin@sicsa.ac.uk) – this will enable the Executive to publicise theme activities widely. SK also reminded theme leaders that it is their responsibility to:

- Keep their own theme web pages on the SICSA web site up-to-date and provide information about planned events.
- Provide a report on theme activities to the SICSA Executive when requested. These will be added to the SICSA RSS feed, SICSA newsletter and other media.

GM suggested a single email list for all SICSA academics. This proposal was declined by the committee.

There was some discussion about whether theme activities and communications could be improved if all themes had two theme leaders (or theme leader plus deputy) as MMI currently does. The committee, and theme leaders present seemed generally in favour of this idea.

#### 7. Membership of SICSA: University of the Highlands and Islands

The committee gave “in principle” approval for UHI to become an associate member of SICSA.

#### 8. SICSA Involvement in Informatics Europe

The committee saw no merit in membership of this body but IS agreed to contact Informatics Europe to discuss possible collaboration.

#### 9. SICSA International Advisory Board

After some discussion about the proposed agenda for the forthcoming IAB meeting on 15th March, committee members agreed that the agenda was acceptable.

IS asked committee members to suggest possible SICSA prize students who are in the latter stages of their research for the presentation section.

#### 10. SICSA Sustainability

IS confirmed that members of the SICSA Directorate and a contact from Thales met with SFC last month to discuss a possible TIC bid – the meeting was very positive. IS commented that a major challenge would be to engage Scottish industry; however IS has had discussions with a number of large companies and seen a number of expressions of interest already. IS commented that we should be getting letters of support from companies in order to support the bid and he is currently drafting a template.

RMS commented that there may be an issue with individual institutions putting their own bids together and that we should all be ensuring that principals are aware that a SICSA bid is very likely.

IS stated that should we be successful, a TIC will exist as one element of SICSA. There will be a number of other options for sustainability of the organisation, including subscription by member institutions.

IS confirmed that a number of new developments are in the pipeline to provide added value to member institutions, such as the creation of a SICSA module repository to facilitate the sharing of course development materials.

RMS also asked members if they thought that SICSA assistance in the REF process would be valuable to their institutions. Members agreed that this would be helpful. RMS confirmed that the SGA will put some boilerplate together for use in the REF.

IS asked members to contact the directorate for ideas of other ways in which SICSA could provide added value.

GM commented that member subscriptions should be high enough to enable SICSA to continue to provide funding and organisational support towards events such as the PhD conference.

IS concluded that the issue of SICSA sustainability will continue to be discussed as a high priority.

#### 11. AOB

No further business arose.

Next Meeting: TBC – provisionally the week ending 25th May. DB will send out a Doodle poll.

#### Action Points:

- GM to contact Polly Purvis to investigate the possibility of getting hold of statistics for graduate placement.
- Theme leaders to update their theme pages on SICSA web site, provide up-to-date information about planned events to [admin@sicsa.ac.uk](mailto:admin@sicsa.ac.uk) and provide theme reports if outstanding.
- Theme leaders to consider whether they would like to invite a deputy theme leader to join them, and to suggest who could take on the roles.
- SK to investigate ways in which to encourage wider membership of theme mailing lists.
- IS to contact Informatics Europe to discuss possible collaboration.

**Meeting of the SICSA Committee  
Minutes of the meeting held on 24 May 2012  
Abertay University, Dundee**

Present:

Steven Kendrick, SICSA Executive Officer, Glasgow  
Colin Adams - Edinburgh  
Lynne Baillie - GCU  
Jon Oberlander – SICSA Deputy Director, Edinburgh  
Alan Dearle – St Andrews  
John Levine – deputy for Neil Ghani, Strathclyde  
Alan Settery – BDE, Edinburgh  
Joe Sventek - Glasgow  
Roderick Murray-Smith – Glasgow (Deputy Chair for Ian Sommerville)  
John McCall – SICSA CSE Theme Leader, RGU  
Nick Taylor – Heriot-Watt  
Thea de Joode – SICSA Executive Assistant, Edinburgh (minutes)  
Christos Grecos - UWS  
Ben Paechter - Napier  
Janet Hughes – deputy for Chris Reed, Dundee  
Ian Allison – deputy for Susan Craw, RGU  
Jane Hillston – SICSA M&A Theme Leader, Edinburgh  
Greg Michaelson, SICSA Education Director, Heriot-Watt  
Saleem N. Bhatti – SICSA NGI Theme Leader, St Andrews  
George Coghill, Aberdeen

Apologies:

Jim Bown, Dundee  
Ian Sommerville, SICSA Director, St Andrews  
Elizabeth Brooks – University of Highlands and Islands  
Aaron Quigley – SICSA MMI Co-theme Leader, St Andrews  
Dave Robertson - Edinburgh  
Chris Reed - Dundee  
Susan Craw - RGU  
Jessie Kennedy - Napier  
Neil Ghani - Strathclyde  
Steven Brewster - SICSA MMI Co-theme Leader, Glasgow

1. Welcome and apologies

RMS welcomed all members to the meeting and the above apologies were noted.

2. Minutes of the meeting held 14/02/2012

The minutes of the meeting were approved.

3. Matters arising

- Theme Leaders to update their own areas of the website – this has been slightly sporadic and SK reminded all theme leaders of their responsibility to update their area of the site with events listings as per the MMI theme page.
- Deputy theme leader's consideration – The CSE theme has Neil Ghani as a confirmed deputy. JH is standing down so that will be devolved to whoever replaces her. The NGI theme leader SNB has three unofficial deputies, and will ask if they want this to be made official.
- Wider membership of theme mailing lists – SK has advertised the mailing lists through SICSA networks and social media and most lists have seen a wider uptake as a result.
- Comment from the committee on the volume of mailings received from SICSA–SK agreed in future to still send an email but also put a link to it on the webpage for all advertised events.

- IS to contact Informatics Europe to discuss collaboration –this is yet to be actioned and an update awaited.
- RMS – REF boilerplate – yet to be actioned – will be done this summer.

#### 4. Update on AspeKT and CGES

Gordon Stuart (Informatics Ventures) and Martin Beaton (Industrial Innovation) have been appointed as new starts within the team.

SIE are hiring three dedicated SICSA interns to try and get students into entrepreneurship, to be hosted by Heriot-Watt, Glasgow and Abertay. Posts will start beginning of next academic year, with the aim of bringing more undergrad involvement into the programme.

CGES advisory board – aim to finalise and agree next year's curriculum of IVenture, master classes shortly.

Forthcoming events:

30 May - Strathclyde MMI event

4 Sept - Smarter phones enabling a smarter countryside, dot.rural.

Startup simulation theme – AS has responsibility for getting this off the ground. Dundee, Glasgow, Edinburgh, and Aberdeen to be involved to show the benefits of mobile apps kicking off businesses.

IVenture Tuesdays – On average turnout of 100 per event. Next event to be held on 29 May at Strathclyde, with Jim McColl as speaker. Currently have 128 signups and will be bussing attendees through from Edinburgh. Thanks to Strathclyde for IVenture Tues event room hire, looking for local host champions to host these events next academic year.

TEDx – successful event and will be re-scheduled.

CEO master classes – gone well, new series next year.

6 bursaries for students to attend Start up I Cambridge.

Engage Invest Exploit (EIE2012) was held on 10th May in Edinburgh and was attended by 33 companies, 8 of whom were pitching, 60 investors and 240 attendees, and hosted 2 big keynotes of Jackie Stewart and Deborah Magid. Next EIE date for your diaries is 9 May 2013, with keynote Tom Hunter plus others. Life sciences to host a combined event as a possible.

GM questioned the successes and metrics for SE/SFC on SICSA in terms of demonstrating a track record for SICSA and showing the difference pre/post SICSA, and Scotland wide KT.

CA responded: Will include number of start-ups, engagements with companies, extensive set of metrics for reporting and strengthening future cases in REFs etc. Everything under Informatics Ventures was part of the SICSA case. Confident we can demonstrate it has had a national impact. Uncertain if historical data exists pre-SICSA as adequate comparisons. JO proposed case studies as a possible solution.

#### 5. Education Update and update on student numbers for CS

The Education Showcase event was small but smooth event with representation from all members except UHI. Feedback so far has been positive with TdJ gathering feedback from those who attended formally. Hoping to re-host again next Spring, industry keen, request to host on east coast.

All hands meeting – no suitable date early summer so will be an early Sept meeting.

New CS academics induction day; 3 offers to present so far, Karen Petrie offered to host in Dundee. Will be held in October as a training and networking, sharing best practice event and advertised UK-wide to cover costs. Programming, teaching, group projects and dissertations will be the 4 project topics.

AD questioned what sort of new staff constitutes new? GM responded that the baseline is people in their first post, within one/two years of starting, or postdocs considering an academic career.

ENGd – 4 year course, part of SICSIS bid. All-Scottish MSC – the committee queried how would it work? Thought to be a pick and mix of different course options across institutions, with core courses also being offered, and an option to work by distance learning, with joint supervision cross institution.

MSC and MEng would they be offered exemption? GM responded by noting that this needs to be discussed in detail the actual workings. EngD – is usually a largely taught and elective component. Finer working detail to be agreed as part of IC bid.

JO – MRes as first year option may allow more flexibility.

## 6. Theme Updates

NGI – Saleem Bhatti (SNB)

SCONE meetings continued regularly with regular attendance.

New activity – Cybersecurity event on 18 May held in Edinburgh was a success – kept small, people submitted short talk proposals, 28 people in attendance, and has resulted in 36 subscribers to mailing list. Possible Sept/Oct for next meeting date. To establish focus and collaboration of group at next meetings. Was cross theme with attendance from all themes.

SB offered to send out details of the mailing list to those who want to be added to this list.

JH noted that she felt the event had been poorly advertised to theme leaders and other themes. SNB to investigate this.

SK to add all theme leaders to sender filters of each other's theme lists to assist with this.

M&A – Jane Hillston

April 2012 – M&A sponsored the Milner symposium and Ursula Martin's meeting on Mathematics and Automated Proof

May 2012 - Albert Burger arranged Mouse ATLAS event which was co-sponsored by SICSA, MRC, BBSRC and the Neuroinformatics network.

Stirling – Carron Shankland has organized an M&A and CSE event this week on modelling biological systems and engineering bio-inspired systems.

11 June – cross theme workshop organized by Andrea Bracciali – has a good line up of invited speakers, and an EPSRC speaker to discuss funding changes for modelling in the new EPSRC ICT landscape.

Also sponsoring the 75 years of Lambda Calculus celebration in June.

8th Sept – There will be a workshop on models and logics for quantified analysis, co-organised with the ERCIM working group MLQA.

JH to step down thereafter as theme leader and IS to look for a suitable replacement, with deputy if required.

CSE – John McCall

9 workshops happened in 2012 to date and 4 more planned this year.

15 March – Scottish programming and languages seminar

15 April – maths and computer proof workshop, Edinburgh – Ursula Martin

May – research directions and parametricity, Patricia Johan

Biology = ? – Stirling event this week – 9 contributed short talks.

25 May – 6th Scottish category theory seminar

12-14 June – Programming, Kevin Hammond

13-1 June-SEABIS meeting, computational self-awareness, Emma Hart

75 Years of LAMDA Calculus, GM and others.

Nothing concrete for next year's events – separate doctoral consortia organized by John and Neil a possibility that is being investigated.

MMI theme – RMS presented the following report in the absence of Stephen Brewster and Aaron Quigley

In the past few months we have had several workshops and events and we have four more coming up in the next six weeks.

Earlier in the year Stephen Brewster from the University of Glasgow and Per Ola Kristensson from St Andrews organised a Mobile Interaction workshop at the University of Glasgow. Here Michael Rohs from LMU in Munich ([www.medien.fwi.lmu.de/team/michael.rohs](http://www.medien.fwi.lmu.de/team/michael.rohs)) was a keynote speaker. He 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.

Abertay University organised an Affective Computing workshop in February 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 across the board 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.

Coming up we have a workshop on multimodal interaction and museum installation design by Eva Hornecker at the University of Strathclyde. Next month MMI researchers are contributing 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 are organising the MMI Doctoral Colloquium at Glasgow University. We have 8 students signed up from across the SICSA institutions.

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>

MMI has been actively discussing possible DVF visitors of interest to many across the theme both on our email mailing and in person during these events and conferences including CHI and AVI where members of SICSA have been presenting.

Action: SNB to float the idea within NGI community for a possible doctoral consortium.

JO commented that he felt the themes had a healthy level of activity.

A committee member questioned the issue of addressing sponsorship of travel to theme events – this can be covered locally and is up to each head of school dept. JS to put a process in place to have students apply locally to meet 50% of costs. RMS agreed this is a good thing but schools to administer own internal processes as they see fit.

GM asked about theme funding and how healthy is this looking? SK responded that themes are budgeted for until Nov 2014. SK to circulate and report on budget update and prepare a report for funding scenarios beyond initial 5 year period.

## 7. SGA Update

Board feedback – SICSA second supervisor system not really working. Not to be scrapped as yet but should be used where it makes sense. Only to be applied where there is someone interested in the work. To be left to be resolved locally. Comment from committee that it needs to be pushed harder than that. SNB commented on the process at St Andrews which is that it's left up to the student to source and contact a second supervisor. Question from the committee as to how 2nd supervisors are allocated? This is done through a combination of student and member of staff looking for staff who also work in the field and then approaching someone. Initial barrier of finding someone can be quite daunting for a student without academic support. Once allocated it's really up to individuals to make relationship work.

AD agrees that due to lack of time he hasn't actually been able to sort a second supervisor for a student despite having someone identified. GM noted in his case he is a 2nd supervisor for a student at Aberdeen who has changed direction, but GM has had no contact with the academic since this has happened. Less contact as a result.

Action: RMS to give feedback to Board regarding the 2nd supervisor process.

Conference still very useful. Enormous and expensive organizing task. Will explore cutting from a 3 to a 2 or 1 day event in future years.

3rd year students feeling the pressure of attending for a 3rd year of conference – perhaps exploring longer event depending on stage of your PhD. Will be explored next year

DVF – 'distinguished enough' visitor applicants discussion.

£500 contribution for students to attend summer schools – lots of applications and uptake has increased since this has been advertised.

10 summer schools funded through SICSA so far.

Glasgow IR team – expert finding system underway and will report back in future.

SICSA has recently granted the first funding for the Postdoctoral and Early Career Researcher Exchanges programme.

## 8. IC Update/SICSA sustainability

RMS – IS has been leading the IC bid activity.

Draft proposal has been circulated - SICSIS bid – still in draft format. 3 areas to focus on, with 2 development staff on CPD materials. Deadline for applications – initial proposal deadline, 6 pages, 20 June 2012. Participation for those involved completely open at this round, but would then be whittled down at later rounds.

SE resource – none of the resource will come from them (assumption) – some industrial contribution may come from them. Funded contribution from universities – to be discussed. No template or guidance from SFC.

CA commented that the Catapult centre split of funding is in thirds.

Fairly flexible proposal structure.

IS was asked to comment on his prediction in number of companies involved – how realistic are the growth numbers? IS believes if we can keep cost low this is realistic.

How many large companies have already signed up? Adobe, Oracle, Thales, Logica, Selex Galileo already expressed strong support. No cash subscription but haven't broached them for that.

BP commented that it should be a jointly-led proposal – too academic (14 unis) focused a bid at present. IS agreed this is a fair comment, however also noted industry is not demanding this, and it is difficult to put cash up front to something that is poorly defined. Needs to be front faced from both organisations/sides.

JS commented on the three goals for SICSIS and questioned whether should a fourth goal be to try and support major gov't IT initiatives that will be of benefit to innovation in large and small IT companies? CA responded by saying any statement to be a focal point to help gov't deliver their IT strategy – we need to turn this to our advantage being reactive at the hub of research – would be beneficial.

JO – PP from ScotlandIS has mentioned this and we need to bring this up Use PP as a way in to DT/O2 and Microsoft

Problem holders are the industry body themselves – good.

Action - IA to follow up with specific feedback for IS based on the committee's conversation, in particular recommending ScotlandIS as a joint collaborator for the bid. IS will action discussing with PP how best to do this.

CA noted competitor bids in both health informatics and sensors – both bids assuming SICSA will support/backup. 3 competing bids from business schools in financial services – component to other bids.

GM – need a full understanding of what SICSA's participation in subsidiary bids would officially be.

CA to handover point of contact for financial services bid to IS as of end of next week.

IS requests phone call feedback for anything major – minor feedback by email is ok.

GM - Not clear on university contributions as yet. IS contribution around funding overseas fees levels and taking on board the BDEs. To be discussed through SFC.

GM £150k per year to maintain base level staff and theme activity and SGA/education activity. £10k per year per dept. Would depts. be willing to fund this? Show of hands from dept. heads indicated yes in principle. BP questioned is it proposed to have a flat rate or one proportional to research excellence grant question? Need to address issue formally with SICSA partners.

Positive about funding SICSA beyond SFC pool

AD – keep an eye on pooling funding – situation could change at any moment.

#### 9. SICSA funding restoration cut

IS waiting for more feedback from SFC before this can be discussed.

Suggestion as to whether the money could be partially used to fund any possible cuts in the SICSA PhD conference? RMS agreed to release funding in SGA for other things and use this money to backfill the PhD conference deficit if necessary.

#### 10. Overview of new SICSA admin structure

Dominique Balharry has now left SICSA and has been replaced by SK as executive officer. TdJ soon to be on maternity leave. Nicola Hogg will replace Executive officer/assistant post as a permanent member of the team in Edinburgh. Admin assistance to also be provided in St Andrews by Valia Tavoularie-Matthiopolous at 1.5 days per week.

#### 11. AOB

Regarding the STEM update and SFC 's omission of computer science in the list. IS reported that this was an accidental omission on Paul Hagen's part, however IS has not had any response to raising this initially from SFC, so will keep pressure on. IS also actioned Muffy Calder also to speak to Paul. Agreed that all SICSA heads to email SFC if deemed necessary, or face to face meeting to be set up.

Digital Futures 2012 event in Aberdeen to be advertised. SK will ensure this (the call) has been actioned.

#### 12. Date of next meeting

Agreed for late Aug/early Sept, after IC feedback received. To be held at Heriot-Watt. SK to action doodle poll for this.

#### Summary of Action Points

1. All theme leaders to continue to hold responsibility to update their area of the SICSA website with events listings etc.
2. SNB to approach suitable NGI theme deputy theme leader as appropriate.
3. IS to contact Informatics Europe to discuss collaboration.
4. RMS to action REF boilerplate.
5. SNB to investigate the advertising of the Cybersecurity event across mailing lists as appropriate, and SK to add all theme leaders to sender filters of each other's theme lists.
6. IS to action finding an appropriate replacement theme leader for JH in the M&A theme, and a deputy, if required.
7. SNB to float the idea within the NGI community for a possible doctoral consortium as per MMI theme.
8. Theme funding - SK to circulate and report on budget update.
9. RMS to give feedback to Board regarding the 2nd supervisor process.

10. CA to handover point of contact for financial services bid to IS as of end of next week.
11. SICSIS Bid – IS to assess costing through St Andrews, discuss with Polly Purvis in ScotlandIS and redraft then circulate by week ending 1 June.
12. IS to continue to action following up with SFC regarding their recent STEM update and the omission of computer science, and report back as appropriate.
13. SK to ensure Digital Futures 2012 call has been circulated across SICSA
14. SK to doodle poll for next meeting date (late Aug/early Sept).

**SICSA International Advisory Board**  
**Thursday 15th March 2012, University of Glasgow**

**Attendees:**

Fausto Giunchiglia (Trento), Gerhard Rigoll (TU Munich), Ian Ritchie (Coppertop), Polly Purvis (ScotlandIS), David Harper (Google), Andy McLaughlin (Scottish Enterprise), Liam Blackwell – via Skype (Engineering and Physical Sciences Research Council), Sandhya Kapitan (Scottish Funding Council), Ian Sommerville (SICSA Director), Jon Oberlander (SICSA Knowledge Exchange Director), Rod Murray-Smith (SICSA Graduate Academy Director), Greg Michaelson (SICSA Education Director), Colin Adams (Director of Commercialisation), Dominique Balharry (SICSA Executive Officer), Steven Kendrick (SICSA Executive Assistant), Jane Hillston (Modelling and Abstraction Theme Leader), Stephen Brewster (Multimodal Interaction Theme Leader), Aaron Quigley (Multimodal Interaction Theme Leader), John McCall (Complex Systems Engineering Theme Leader)

**Student Attendees:**

Andrew MacVean (Heriot-Watt), Saray Shai (St. Andrews), Tobias Edler von Koch (Edinburgh), Heather Crawford (Glasgow)

**Apologies:**

Alan Settery (SICSA Business Development Executive), Marta Kwiatkowska (Oxford), Crawford Beveridge (Non-Executive Chairman of Autodesk Inc.), Saleem Bhatti (Next Generation Internet Theme Leader), Thea de Joode (SICSA Executive Assistant), Paul Hagan (Scottish Funding Council)

**1. Welcome and apologies:**

IS Welcomed all members to the meeting.

**2. Minutes of the meeting held on March 1st 2011:**

There were no actions or issues arising from the previous minutes.

**3. Introduction and overview of SICSA activities:**

3.1. IS gave a presentation on SICSA activities (a copy of the presentation is available upon request to admin@sicsa.ac.uk).

The presentation outlined key developments within SICSA in the last year, including the integration of Scottish Computing Science Education into the SICSA remit and the appointment of Prof Greg Michaelson as SICSA Director of Education. IS also outlined recent KE activities including “Services to the Cloud”, “Smart Tourism” and “Scottish Sensors System Centre” as well as AspeKT and CGES, which CA covered in detail at a later stage. IS also outlined a number of key statistics, which are available in the full presentation.

3.2. GR asked the SICSA Directorate how SICSA funds its PhD Studentships. IS confirmed that SICSA Studentships are 50% funded by SICSA and 50% by the host institution.

3.3. DH asked the SICSA Directorate how SICSA Distinguished Visitors are selected. IS confirmed that selection is undertaken by the SICSA Graduate Academy Board. DH commented that it may be beneficial for industry engagement to encourage industry visitors as well as those from academia.

**4. Overview of Knowledge Exchange Activities:**

4.1. CA gave a presentation of SICSA Knowledge Exchange activities (a copy of the presentation is available upon request to admin@sicsa.ac.uk).

The presentation outlined key developments in KE activities during the last year. CA covered details of the AspeKT and CGES programmes and discussed the range of regular and annual KE events, including IVenture Tuesdays, CEO master classes, Entrepreneurs in Residence Panel, Engage Invest Exploit, Summer Schools and Appathons and DEMOfest.

**5. Research “State of the Art”**

5.1. The following presentations were given by SICSA Students in order to demonstrate some of the current research being undertaken within SICSA (a copy of each presentation is available upon request to admin@sicsa.ac.uk):

Andrew MacVean (MMI): Designing Adaptive Exergames for Adolescent Children  
Saray Shai (M&A): The effect of resource constraints on coupled complex networks  
Tobias Edler von Koch (CSE): Tackling the Multi-Core Challenge  
Heather Crawford (NGI): Implicit, Transparent Authentication on a Mobile Device

## 6. Planning for SICSA Research Direction

The decision was made to skip to the next item on the agenda due to time constraints.

## 7. SICSA Sustainability:

7.1 IS gave a presentation on the possible future direction of SICSA (a copy of the presentation is available upon request to [admin@sicsa.ac.uk](mailto:admin@sicsa.ac.uk)).

During the presentation IS outlined initial thoughts on sustaining SICSA beyond the current SFC funding period. IS confirmed that SICSA will have sufficient funding to continue all SICSA activities until December 2014 and the deadline to secure future funding is June 2014.

IS stated that initial thoughts are to create a core + satellite model of funding where the core is the SICSA Executive and satellites are various activities that may be separately funded, including SICSA KT, SICSA Education, SICSA Research and a potential SICSA Innovation Centre (IC), which SICSA plans to bid for in the coming months. IS stated that if an IC bid was successful this could facilitate the delivery of an EngD programme, where SICSA would administer studentships – following on from this there may be options to offer a Scottish MSc and various CPD courses.

IS stressed that the sustainability of SICSA will depend to some degree on members being willing to contribute to the funding of Executive Administrative staff and therefore SICSA will naturally need to focus on providing value to members and that we are currently working on ideas in this respect. IS outlined an initial idea for the creation of a course development repository, which would enable all members to share course development materials.

## 8. Feedback from IAB on SICSA Sustainability:

9.1. FG commented that the integration of research, education and business is very positive, as is the idea of integrating courses and industry (via the EngD programme). FG commented that there seemed to be too many areas being considered within the IC proposal and that there should be a more focussed approach.

### 9.2. DH made a number of comments:

- SICSA should be aligning with major strengths in Scotland in terms of research themes.
- Pick on some challenges with major research problems.
- Align closely with funding bodies in EU, rest of the UK as well as Scotland
- Would like to see focus on systems engineering.
- SICSA should offer incentives to academics and students for industry engagement.
- There should be greater flexibility between academia and industry.

9.3. IS asked the IAB if they felt that SICSA should stick to a thematic approach or focus on addressing societal challenges. FG commented that SICSA should be doing both.

9.4. Sandhya Kapitan commented that from an SFC point of view, a review of the themes would be favourable. Sandhya also commented that SFC is very pleased with the way SICSA is progressing and although the funding climate is extremely difficult SFC is looking into ways that they can help SICSA. Sandhya suggested that SICSA should look towards the EU for potential future funding. On this point, AQ stated that SICSA may need to alter its Consortium Agreement in order to be able to apply for EU funding – AQ suggested that SICSA explore the possibility of becoming a Joint Research Unit (JRU). The SICSA Directors agreed to explore this.

Sandhya outlined details of the recent Pools Engagement in European Research (PEER) and Postdoctoral and Early Career Researcher Exchanges (PECE) funding initiatives, which SICSA will be administering until December 2013. Details of this funding are available from the SICSA web site funding pages <http://www.sicsa.ac.uk/funding>.

9.5. With regard to the potential for an EngD programme, PP commented that many Scottish Small and Medium Enterprises (SMEs) are very small and that the cost of KT is often prohibitive for these organisations. PP asked the SICSA Directors how they plan to engage SMEs in an initiative like this. IS suggested that a flexible model could be adopted to ensure that larger organisations do make a contribution, whereas SMEs would not need to make any.

9.6. LB made the following comments by email shortly after the meeting:

There are opportunities for SICSA to take some action in response to EPSRC's plans on Shaping Capability and fellowships, and as was mentioned in the meeting the EC's development of Horizon 2020. This might be encouraging researchers to engage positively with this and consider what it means for their research. SICSA might also look at what the impact of these plans will be and whether any action is needed in response to them, e.g. appointments, selectivity over candidates for fellowships, workshops to coordinate efforts in response to calls or opportunities to submit proposals for larger programmes.

If I consider the Working Together and other cross ICT priorities I think that SICSA should give an advantage. Even if this is just fostering debate and getting people to reflect on the priorities etc.

Should SICSA continue to have Themes? How do we keep SICSA research responsive and support emerging research areas?

This depends on the scale SICSA wants to work at, if it is too fine a granularity it will need to be responsive, if at a coarser level of granularity then it can be more strategic. Would suggest it can be less coarse than EPSRC's shaping plans, because they are researchers and can afford to take a several universities level view (not a UK wide one).

SICSA needs to try to be ahead of the curve. I think it can try to get researchers together to consider what the future will hold, or could be. The work done in the School of Informatics on this is a good example and SICSA might act to promote this sort of strategic thinking more widely.

10. Any other Business

10.1. IS thanked the IAB for their attendance at the meeting and for their constructive comments.

10.2. IS confirmed that DB will be leaving SICSA to pursue active research in April and will be replaced as Executive Officer by Steven Kendrick. SK commented that all IAB related queries should be directed to him from April 2012.

Action Points:

SICSA Executive to explore the possibilities of becoming a Joint Research Unit (JRU).