

Appendix 1

GRANT APPLICATIONS since Jan 2015					
PI	Sponsor	Scheme	Title	Deadline Outcome	
Mirella Lapata	EU	ERC Consolidator	Transmodel	12-Mar-15	
Shay Cohen	EPSRC	standard	Fast Approximate Decoding for Structured models	open deadline	
Rob Clark	EC H2020	FET open	SpokenTrue	31-Mar-15	
Hannah Rudmann	EPSRC Established	EPSRC Early Career Fellowship	Digitally certifying CO2 savings: a new economic model for	31-Mar-15	
Simon King	EC H2020	ICT-19 (Creative Technologies)	SCAMP	14-Apr-15	
Simon King	EC H2020	ICT-20.a.	TALK	14-Apr-15	
Jean Carletta/Steve Renals	EC H2020	ICT.19.b	CS-CREA	14-Apr-15	
Steve Renals	EC H2020	ICT.24.a	ROBOLISTEN	14-Apr-15	
Steve Renals/Shay Cohen	EC H2020	ICT-16 (Big Data)	SUMMA	14-Apr-15	
Ron Petrick	EC H2020		PROST	14-Apr-15	
Uli German	EC H2020		HelloData	14-Apr-15	
Maria Wolters	EC H2020		UBIMOTE	21-Apr-15	
Mirella Lapata	EC H2020		PICTELL	31-Mar-15	
Ewan Klien	EC H2020	Smart Cities	SmartHoods	05-May-15	
Shay Cohen	EU	ERC Starting Grant	SMART	03-Feb-15	
Alex Lascariades	DARPA	DARPA-BAA-15-18 - outline proposal		06-Mar-15	unsuccessful
Maria Wolters	DHI		Soulight trial for depression		Potentially approved
Maria Wolters	DHI		Collaboration with Donald MacIntyre and Euan Cameron		In negotiation
Simon King	Marie Curie		ENRJCH	Jan-15	possibility of funding - on reserve

GRANT APPLICATIONS since 26 Sept 2014 - Outcomes					
PI	Sponsor	Scheme	Title	Deadline Outcome	
Mark Steedman	EC	ERC Advanced	SEMINL	21-Oct-14	Unsuccessful
Liang Lu	Royal Academy of E Fellowship		Deep Learning for Distant Speech Recognition	10-Dec-14	Unsuccessful
Matthew Aylett	EPSRC	User interaction with ICT	BRAINSCAN	06-Jan-15	Unsuccessful
Stuart Anderson/Mark Hartswood	EPSRC	User interaction with ICT	Social Queries	06-Jan-15	Unsuccessful
Frank Keller/Mirella Lapata	EPSRC	User interaction with ICT	ActionNet	06-Jan-15	Unsuccessful
Claire Grover	Dogs Trust	Canine Welfare Projects	Application of natural language processing to extract inform	30-Oct-14	Unsuccessful
Steve Renals	Bloomberg		Studentship Agreement	01-Nov-14	Successful
Shay Cohen	Bloomberg	Research Grant	D-account	19-Nov-14	Successful

Appendix 2 - Publications Online

As of 1st April 2015, the School is implementing a new policy on publications to ensure that all papers published by all Informatics staff are archived in the University repository PURE.

The main change to existing practice is that authors now need to take action at the point the paper is accepted rather than when it is published.

When a paper has more than one Informatics author, the default assumption is that the first named Informatics staff member needs to take action.

POLICY

On acceptance of a paper, the first named Informatics author who is a member of staff (i.e. not a student co-author) will be required to take action to ensure the metadata and the author's final version of the paper should be input into PURE. There are three options:

- Mediated input via the local Informatics form at: <http://edin.ac/1kGzQOP>
- Forward the acceptance email and the author's final version of the paper to:
mailto: infkm+publications@inf.ed.ac.uk
- Direct input into PURE by the staff member

The paper details will be checked and/or entered by a member of admin staff to ensure the correct version of a paper is uploaded to PURE.

BACKGROUND

The main driver for this is the REF Open Access policy which requires all journal and most conference papers be deposited in an open access repository within 3 months of acceptance in order to be eligible for submission to the next REF.

The policy will also ensure we are compliant with RCUK Open Access requirements as well as providing a comprehensive list of School papers via the Edinburgh Research Explorer (<http://www.research.ed.ac.uk>). This also provides publications lists for each individual staff members and can be used to create publications lists for groups of staff/grant bids/etc.

If you have any questions on the policy or it's implementation, please contact the KM team: infkm@inf.ed.ac.uk.

Appendix 3

Updates about ILCC's website:

1. As some of you have heard (or have already seen), the Informatics web-space is now undergoing changes, and comments from across the school are taken into account in its construction. Kenny Bell is in charge of this endeavour. To the best of my understanding, so far the changes have only included the global Informatics website. However, Kenny Bell plans to proceed with renovating the websites for the institutes around September.

As such, if you have anything major that you would like to change about our website, it would be a good idea to let me know, so I can pass the information to Kenny (or you can directly talk to Kenny). "Big" changes/suggestions are perfectly acceptable, as the website could potentially be re-designed and re-constructed.

2. Our website acts as our face to the outside – especially to those who consider joining the institute in one form or the other (including, most often, to prospective students who do not have personal connections in the institute). As such, it is important that we maintain a good impression, and most importantly, keep the website up-to-date with information about the research being done in the institute. The group websites, from a cursory check I have made, are quite good (though perhaps they would be improved by including somewhere in the ilcc.inf.ed.ac.uk space, more informative details indicating what the research areas actually mean). It might also be a good idea to ask your students to create their own personal home page, where they include basic information, research interests and publications. This helps prospective students understand who their peers might be. (Some students do have personal pages, though many do not.)
3. It would be nice to maintain a local ILCC list of everybody who has graduated, including their supervisor's name, thesis title and first job after graduation (for the alumni page). To the best of my knowledge, no such central information exists, other than the library interface that enables users to download theses – and even through this interface some information is missing or inaccurate (such as supervisors).

APPENDIX 4

<http://www.inf.ed.ac.uk/research/about/REF/results.html?graph=3®ion=0&profile=3&eff-vol=2&sort=3&=0&=0&uoa=14&inst=0>

<http://www.inf.ed.ac.uk/research/about/REF/2014/ImpactCaseStudies/>

NEWCASTLE

4*: 90%

3*: 10%

Title of case study: Expansion of the middleware software market

1. Summary of the impact

Research work on middleware for distributed computing at Newcastle has directly contributed to the growth of the worldwide middleware software market currently valued at \$20bn. Specifically, the Web-service transaction standards used within the world's prominent middleware products, including the market leading WebSphere product from IBM and the JBoss middleware product from Red Hat Inc., the world's leading provider of open source solutions, owe their origins to this research work. The transaction software used within the JBoss middleware is also derived from this work.

The work in the past led to the creation of the spin-off company Arjuna Technologies, which continues to have an economic impact today, and to the establishment of the Red Hat R&D Centre in 2010 at Newcastle University, which has strengthened investment from international sources in research on leading-edge enterprise technologies.

Title of case study: Improved processes for the development of dependable systems

2. Summary of the impact

Research at Newcastle University on formal methods for the design of computing systems has had a major impact on the delivery of new high-dependability products by industry. The methods (VDM and Event-B), to which we have made significant contributions, have been embodied in tools (VDMTools, Overture, Rodin) and applied in industry. The reach of the work extends to industries in Europe (e.g. in the rail sector by Siemens, 2011) and Japan (e.g. in firmware design by Sony, 2008). Significance is seen in reported improvements in defect detection rates of up to a factor of 5 over previous processes and the cost-effectiveness of design processes. The "Mobile FeliCa" chip developed using VDMTools is now incorporated into over 200 million mobile phones worldwide. Our approach to disseminating research has engendered lively international and online end-user communities further developing and using the tools today.

Title of case study: Novel computational approaches to discover medicines

3. Summary of the impact

New computational analysis methods have been developed to make drug discovery and toxicological analysis much more efficient. These methods have been patented (UK, EU, US) and are employed in e-Therapeutics Plc, a computational drug discovery spin-off company of the University. The company, introduced to the Alternative Investment Market of the London Stock Exchange in 2007, is now the eighth largest company (by market capitalisation - £92.7M (26/6/2013)) in the pharma/biotech sector. The underlying technologies derive from network analysis and workflow research at the University. The company has an anti-cancer drug (ETS2101) in phase I clinical trials in the UK and the US, and an anti-depression drug (ETS6103) planned to enter phase IIb clinical trial shortly. The beneficiaries of this research are e- Therapeutics directly, other drug companies, and ultimately patients.

Title of case study: Worldwide adoption of asynchronous circuits and improved business process modelling

4. Summary of the impact

Newcastle University's fundamental research into the theory of concurrency and the automated construction and analysis of asynchronous systems has resulted in novel technologies that have been adopted and applied worldwide by industry. This case study describes impact over the last five years on the industrial development of asynchronous microprocessor chips, in particular, deployed by Intel for handling financial transactions on NYSE and NASDAQ (with combined daily volume of trade exceeding £80 billion), and the improvements in business process analysis through the world-leading open-source ProM tools (downloaded over 65,000 times since 2008, and used by a number of major organisations, e.g. ING Bank and Deloitte).

WARWICK

4*: 86.7%

3*: 13.3%

No cases published

CAMBRIDGE

4*: 86.7%

3*: 13.3%

Title of case study: Iris Recognition

1. Summary of the impact

Professor Daugman's algorithms for automatically recognising persons by their iris patterns are the basis of all publically deployed iris recognition systems. Worldwide some 400 million people have been enrolled since 2004, nearly all during the impact period. Deployments have included automated international border-crossings in lieu of passport presentation; watchlist screening; access control; and detainee identification. The algorithms are also used in several national identity card schemes, including the Indian Aadhaar programme that, in 2010, began enrolling the iris patterns of all 1.2 billion Indian citizens to ensure fair access to entitlements. By the end of July 2013, 393 million Indian citizens had been enrolled in the programme, and each day a further million are enrolled across 36,000 stations nationwide.

Title of case study: Real VNC

2. Summary of the impact

RealVNC is a spin out company launched by the University of Cambridge researchers who developed Virtual Network Computing (VNC) remote access technology. VNC allows connection and control of devices from anywhere in the world, irrespective of operating system. VNC is now the default mechanism for remote sharing of graphical desktops across the internet. RealVNC has sold over 300 million licences across 175 countries. The company has won three Queen's Awards for Enterprise and the Royal Academy of Engineering's MacRobert Award, the UK's premier engineering prize.

Title of case study: Security Economics

3. Summary of the impact

Professor Ross Anderson's (University of Cambridge) research in security economics has had considerable impact on public policy and industry practice. Through two reports for ENISA, his work has directly influenced European Commission policy on combatting cyber-crime and on protecting the internet infrastructure. Through his membership of a Blakett Review and appearances before parliamentary committees, he has influenced UK government policy on cyber- security. Personally, and through the positions to which members his research team have moved, his research has influenced a range of organisations, including the US government, the European Union, Google, and Microsoft.

Title of case study: Ubisense

4 Summary of the impact (indicative maximum 100 words)

University of Cambridge research on the principles of 'sentient computing' led to the foundation of spin-out company Ubisense, which has grown into a leading location solutions company. By the end of 2011, Ubisense had 170 employees and was floated on AIM with a valuation of £38.6million. It serves customers such as BMW, Airbus, Aston Martin and the US Army. Deployment of the Ubisense Real Time Location System has improved production line accuracy and efficiency by up to 10%.

Title of case study: Xen

5. Research in machine virtualisation conducted in the Cambridge Computer Laboratory from 1999 onwards provides the basis for much of the present day Cloud.

Xen is a virtual machine monitor that supports execution of multiple guest operating systems consuming little overhead and providing resource isolation. This was prototyped in the Laboratory and led to XenSource, a spin-out company, which was founded in 2005. XenSource was acquired in 2007 by Citrix Systems for US\$500M, and products that were launched from December 2007 onwards have had a profound impact throughout the period. Xen is now used on millions of machines around the world, providing deployment flexibility and savings on power. It forms the basis of Citrix XenServer and Amazon's Elastic Cloud 2.

SOUTHAMPTON

4*: 84%

3*: 16%

*UNIVERSITY OF SOUTH WALES

* Title of case study: Linking Archaeological Data - enabling semantic infrastructure in the digital archaeology domain

1. Summary of the impact

Our research has enabled archaeological professional and commercial organisations to integrate diverse archaeology excavation datasets and significantly develop working practices. Commercial archaeological datasets are usually created on a per-site basis structured via differing schema and vocabularies. These isolated information silos hinder meaningful cross search and comparison. As the only record of unrepeatable fieldwork, it is essential that these data are made available for re-use and re-interpretation. As a result of the research, the Archaeology Data Service, English Heritage, the Royal Commissions on the Ancient and Historical Monuments of Scotland and Wales have published as Linked Data important excavation datasets and national vocabularies that can act as hubs in the web of archaeological data.

Title of case study: Mobile applications and technologies making economic impact

* 2. Summary of the impact

Mobile technologies and in particular mobile applications have become key drivers of the economy in many countries especially those that lack established communications infrastructures. Since 2003, the research team led by Professor Al-Begain has created both significant infrastructure and know-how that became the base for the creation of the £6.4million Centre of Excellence in Mobile Applications and Services (CEMAS) that is providing research and development to SMEs in Wales to increase their competitiveness. In the first three years since its inception 28 projects have been completed and 66 companies have received services.

Title of case study: Applications of agent technology

* Summary of the impact

Agent-based computing is a new paradigm for building complex socio-technical systems composed of many interacting intelligent and autonomous components. New co-ordination and negotiation algorithms developed at the University of Southampton, have provided new methods for managing such interactions in a flexible manner. This study focuses on their applications in two new start-up companies (Aerogility and Aroxo) in the defence, aerospace and civil contingency sectors (e.g. BAE Systems, Ministry of Defence and Hampshire County Council) in helping the GB Sailing Team to success at the 2012 Olympics, and in monitoring the environment for effects of climate change.

Title of case study: Intelligent Energy Management

1. Summary of the impact

Research at the University of Southampton, into the engineering of complex socio-technical systems, has underpinned new technologies in the area of intelligent energy management, and made Professors Nick Jennings and Alex Rogers trusted sources of advice for energy policymakers, key stakeholders and industrial researchers. The work has had an economic, environmental and societal impact: it has shaped R&D strategies of leading British companies like BAE Systems and Secure Meters; the launch of iPhone apps and websites have supplied private and industrial users with personalised data regarding their energy use, resulting in cost savings and reductions in carbon emissions; it has enabled charities to provide energy-saving advice to households directly; and has won an international technology showcase competition leading to a spinout and commercialisation of research.

Title of case study: Leading the open data revolution

3. Summary of the impact

Open Data has lowered barriers to data access, increased government transparency and delivered significant economic, social and environmental benefits. Southampton research and leadership has led to the UK Public Data Principles, which were enshrined in the UK Government Open Data White Paper, and has led to data.gov.uk, which provides access to 10,000 government datasets. The open datasets are proving means for strong citizen engagement and are delivering economic benefit through the £10 million Open Data Institute. These in turn have placed the UK at the forefront of the global data revolution: the UK experience has informed open data initiatives in the USA, EU and G8.

Title of case study: Open Access and Digital Archiving

4. Summary of the impact

Free and open access (OA) to publicly funded research offers significant benefits, but it also requires complex new systems to underpin it. University of Southampton research has resulted in software products enabling large numbers of research institutions to implement their own digital research repositories. Studies on the viability and impact of OA have steered institutions towards a more cost-effective and impactful model for disseminating research, and UK public policy has been directly influenced by the Southampton team's advocacy work. The research also led to economic benefits through two spin-outs and the development of digital archiving techniques, which have been widely used by broadcast and film institutions.

Title of case study: Web Science: Designing a Pro-Human World Wide Web

5. Summary of the impact

Research over two decades at the University of Southampton into the structure and development of the World Wide Web has led to the establishment of a new scientific field, which has earned recognition – and direct funding – from governments and industry around the world. Web Science is the study of the Web as a sociotechnical system. Southampton's work has influenced the Web strategies of the world's biggest companies, including Microsoft, IBM and Google, informed international Web standards and government information policies, led to a network of international laboratories working with industry to advance the Web's development through the provision of highly skilled people taking up specialist roles that draw on their research training.

For REF2014, Informatics submitted 8 case studies; 3 were linked to ILCC/CSTR.

Title of case study: Clinical and commercial applications of text-to-speech synthesis technologies

1. Summary of the impact

Edinburgh's research in multilingual speech synthesis has had clinical and commercial impact, and has resulted in a large and diverse community of users.

Clinical applications: Our research has enabled the construction of natural-sounding, personalised synthetic voices from recordings of speech from people with disordered speech due to conditions such as Parkinson's disease or Motor Neurone Disease. These synthetic voices are used in assistive technology devices that allow sufferers of these conditions to communicate more easily and effectively.

Commercial take-up: Our research has achieved commercial impact through the licensing of technology components, and through the activities of start-up companies.

Community of users: The Festival Speech Synthesis System (v2.1 released in November 2010) is a complete open-source text-to-speech system released under an unrestrictive X11-type license, and is distributed as part of many major Linux distributions.

Title of case study: Speech Graphics Ltd: Audio-driven animation

1. Summary of the impact

Speech Graphics Ltd is a spinout company from the University of Edinburgh, building on research into the animation of talking heads during 2006–2011. Speech Graphics' technology is the first high fidelity lip-sync solution driven by audio. Speech Graphics market a multi-lingual, scalable solution to audio-driven animation that uses acoustic analysis and muscle dynamics to drive the faces of computer game characters accurately matching the words and emotion in the audio. The industry-leading technology developed by Speech Graphics has been used to animate characters in computer games developed by Supermassive games in 2012 and in music videos for artists such as Kanye West in 2013.

This impact case study provides evidence of *economic impacts* of our research because:

1. i) a spin-out company, Speech Graphics Ltd, has been created, established its viability, and gained international recognition;
2. ii) the computer games industry and the music video industry have adopted a new technology founded on University of Edinburgh research into a novel technique to synthesize lip motion trajectories using Trajectory Hidden Markov Models; and
3. iii) this led to the improvement of the process of cost-effective creation of computer games which can be sold worldwide because their dialogue can be more easily specialised into different human languages with rapid creation of high-quality facial animation replacing a combination of motion capture and manual animation.

Title of case study: The Moses Machine Translation Toolkit

1. Summary of the impact

The research on machine translation carried out at the University of Edinburgh has led to the development of Moses, the dominant open source toolkit for building machine translation (MT) systems. The toolkit has found wide adoption in academic research worldwide: the Moses paper was the most cited paper in all of the Association for Computational Linguistics conferences in 2011. Moses has also been widely used by commercial concerns such as Adobe, Symantec and Sybase, and agencies such as the European Commission and the World Trade Organisation. The research contribution of the School of Informatics in the University of Edinburgh has significantly increased the commercial viability and availability of machine translation. The toolkit has been one of the main drivers in lowering the barrier to entry to machine translation, making MT available to small and medium-size companies and opening up new markets and opportunities.

Today, Moses is one of the most widely adopted MT systems in the translation industry, dominating the open-source space for MT. Its maturity and quality, as well as its liberal open- source license, means that it is often preferred over proprietary systems.