Institution: Nottingham Trent University

Unit of Assessment: B11 Computer Science and Informatics

a. Overview: Research in Computer Science and Informatics (CSI) at Nottingham Trent University (NTU) is based in the School of Science and Technology (SST), where the aim is to promote high quality interdisciplinary research across its three research centres, the John van Geest Cancer Research Centre (JvGCRC), the Biomedical, Life and Health Science Research Centre (BLHS) and the Physical Sciences, Engineering and Computing Research Centre (PSEC). Research in the CSI Unit is organised in three groups; **Interactive Systems**, **Intelligent Simulation Modelling and Networking**, and **Computational Intelligence and Applications**. The unit is interdisciplinary, comprising staff with broad academic backgrounds, including Computer Science and Technology, Physics, Mathematics and Information Management. There has been a 2.5 fold increase in the number of category A staff submitted; with 6 in RAE 2008 and 15 (14.25 FTE) in REF2014.

b. Research strategy

i. Vision and strategic plans for research: the Computer Science and Informatics Unit's main objectives over the next 5 years are:

- To focus on cutting-edge research that will lead society into the new age of ubiquitous computing, reflecting our strengths in interactive systems, computational intelligence and intelligent simulation, modelling and networking for Inclusion, Health, Educational and Environmental benefits.
- To continue making our research relevant to the needs of end users, and provide more accessible pathways to transfer the benefits of our results to them.
- To pursue interdisciplinary research and partnerships.
- To encourage grant capture from diverse sources and pursue new funding models in order to grow our funding base, thereby enhancing sustainability.
- To recruit excellent research active staff and research students, and to support them with time allowance to establish and grow their research, especially at early career stage.

Activities (over the next 5 years):

- Exploit the Unit's success in attracting EU FP7 funds and prioritise the use of our investment funds for the development of world leading research in technologies to support cognitive and physical rehabilitation, in ambient and assisted living projects to support the development of ICT for ageing well, and in intelligent traffic management systems for positive economic and environmental impacts.
- Extend our networks of stakeholders and end user organisations to include the major organisations involved in disability, stroke rehabilitation, the elderly and the environment.
- Form strategic interdisciplinary partnerships in the application of interactive technologies in patient care and awareness, including with the John van Geest Cancer Research Centre.
- Grow our annual international conferences – Interactive Technologies and Games, Intelligent Environments, and Computer Modelling and Simulation, and continue to disseminate our research in accessible ways to end users and their communities, and to public and private sector stakeholders.
- Provide incentives for staff and students to engage in high-risk interdisciplinary research, and seed-start activities, in areas that are outside the boundary of existing activities.
- Embed our research into other disciplines and leverage new areas of funding.
- Develop further Chairs/Readers to strengthen our 3 underpinning groups, and provide newly appointed staff/ECRs with the capacity to establish their research.
- Strategically appoint leading researchers to align with our major research themes.

ii. Evaluation of CSI Unit's position compared with REF2008:

Our achievements against the research agenda for the Unit and the School since 2008 as defined in our Academic Plan, and in reflection of our aims and position achieved in RAE2008 are:

To sustain and grow research areas recognised as world leading and to develop additional world leading recognition, both theoretical and applied: in RAE2008 our research activities were assessed as 'mostly internationally recognised' or 'internationally excellent'. One of the principal forward looking aims of our RAE 2008 submission was 'to sustain the Unit's position as an internationally leading research centre for investigating the role of interactivity in promoting social inclusion.' We have more than achieved this by the establishment of the Human Interaction

Technologies Lab, which has helped to attract major European research grants (described in section di) including 3 major EU framework grants (AEGIS, 224348; ETNA, 270746; & MODUM, 288205) and a Technology Strategy Board and EU FP7 AAL Joint Programme grant (iCarer, 2012-5-239). Our research in MODUM has been described by Transport and Mobility Leuven as *'European and world leading level quality research in this domain'*. We have also developed projects for the rehabilitation of stroke patients within their own homes with our partners at the University of Nottingham and funded by the National Institute for Health Research (NIHR). Total research income for the Unit is £1,260,569 (£252k/annum) which includes a significant increase in funding from EU framework programme grants. We have sought to grow world leading theoretical research excellence via the appointment of new staff: *Acampora* with expertise in Fuzzy Markup Language, and *Wilmott* with expertise in Quantum Cryptography**.** Growth is also supported by the strategic allocation of QR & Research Contingency (RC) funds, and by securing sabbatical leave (5 staff supported since '08).

To strategically promote interdisciplinary research that can influence future development: In RAE 2008 we stated that 'our International collaborations will continually be strengthened and extended, building on the success of our interdisciplinary research, especially through EU networks'. This has been achieved via the major EU project funding noted earlier (& section di). We have also positioned ourselves in several major health-related interdisciplinary research projects to be the first choice provider of computer science and technology research. For example the WiiSTAR project funded by the NIHR for home based stroke rehabilitation and the iCarer project (funded by the TSB and AAL joint programme) for modelling and prediction of occupant behaviour in the home environment for improved independence and safety of older adults. This approach has significantly extended our interdisciplinary research partnerships (see e.i).

To enhance research culture and infrastructure, to enhance external facing activity and develop research of relevance to industry: A core aim of RAE2008 was 'to develop the use of computer science to promote innovation and originality in solving problems relevant to the needs of industry' and 'to build on new and emergent synergies within the unit to exploit our strong links with industry through the use of interactive systems'. This was achieved by establishing the Centre for Innovation and Technology Exploitation (CITE 2008-2012), created to actively encourage uptake of innovative and emerging technologies by East Midlands' businesses, and jointly funded by the East Midlands Development Agency (EMDA) and NTU. The CSI Unit also established Voicekey Ltd, a spin-out company, which is the only wholly UK owned voice biometric solution provider (http://www.voicekey.co.uk/). Companies working with Voicekey Ltd include Vodafone, BT, Fujitsu, Mentor Graphics and Motorola Solutions Inc. A further aim of RAE 2008 was 'to develop a programme of international/national seminars showcasing the potential of new emergent applications of computer science.' Accordingly we organise three annual international conferences: Interactive Technologies and Games (http://itag.gamecity.org/), Intelligent Environments (http://www.intenv.org/?q=conferences/ie11), and Computer Modelling and Simulation (http://eurosim2013.info/). Staff and PhD students are encouraged to participate in these and in other international conferences.

To increase research activity, growing the percentage of academic staff engaged in research. In RAE 2008 UoA 23 submitted 6 Category A FTEs. In this current REF period continuity is provided by 4 staff who were submitted in RAE 2008, and the Unit has grown significantly to achieve the objectives outlined in our RAE 2008 submission. Hence we are returning 15 staff (14.25 FTEs) in REF2014 (with a more stringent selection procedure), marking a significant increase in the number of staff returned, and a greater percentage of staff engaged in high quality research.

iii. How these relate to our research groups, their activities and achievements: Our research is focused in three main groups, who meet regularly to review research progress, develop outputs and to supervise and mentor research staff and students. These groups and their achievements in the current assessment period are:

1.Computational Intelligence and Applications Research Group (CIA, Leader: Dr. Ahmad Lotfi, Staff**:** Acampora, Allen, Langensiepen, Nolle - Visiting Fellow, Robinson, Sherkat). Research activities in the CIA group address a number of problem domains and real-world applications: ***Ambient intelligence****:* Behaviours of users in ambient intelligent environments are predicted using computational intelligence e.g., energy saving approaches in smart environments.

Fuzzy markup language: Development of distributed fuzzy systems in computing environments composed of a collection of heterogeneous hardware.
Computational optimisation: Development of heuristic search and optimisation methods.
Biologically inspired speaker verification: Using Spiking Neural Network Systems.
Recurrent neural networks for modelling temporal phenomena: Modelling dynamic and temporal phenonmena including natural language.
Middleware, domain specific languages & trust: Rule based provenance trust systems are currently being investigated in pervasive environments.
Main achievements*:* TSB/EU FP7 AAL iCarer project; Energy usage optimisation in social housing project in collaboration with Nottingham City Homes, spin out company Voicekey Ltd.
2. Intelligent Simulation, Modelling and Networking Research Group (ISMN, Lead: Dr. Evtim Peytchev, Staff: Hetherington, Ma, Osman, Robinson, Wilmott). Emphasis on research in the wireless and mobile communication networks domains, and simulation of large scale wireless networks for building a new generation of Intelligent Transportation Systems (ITS):
Ad-hoc wireless networks*:* Simulation of Novel Message Delivery Protocols in ad-hoc networks.
Mathematical traffic flow modelling**:** route finding algorithms and seamless fusion enabling algorithms of real time data in traffic simulation models.
Security in mobile networks: research in the use of mobile devices with active GPS.
Underpinning mathematical computing: research done by some of the team adds expertise in formalisation and model validation.
Main achievements: EU FP7 project MODUM (Objective ICT-2011.6.6 Low carbon multi-modal mobility and freight transport) to develop a new approach for pro-active demand-responsive management of traffic minimising the environmental impact and improving quality of life in urban environments; Marie Curie Fellowship (Wilmott), 2011, Randomness in Quantum Cryptography.
3. Interactive Systems Research Group (ISRG, Lead: Prof David Brown, Staff: Acampora, Cant, Evett, Sherkat). Focusses on the development of new technologies for the physical and cognitive rehabilitation of users within real world contexts. Main research activities:
Serious games and virtual environments: Development and evaluation of VE and games for promoting cognitive and perceptual skills in people with intellectual disabilities; to change attitudes and behaviours in health and social related contexts; and for stroke rehabilitation.
Assistive technologies: Improving the accessibility of solutions and related services, and to determine whether the latest access techniques and new interaction modalities will provide a more accessible, more exploitable and deeply embeddable approach in mainstream ICT.
Robotics: Investigating the role of robots in engaging students with profound and multiple learning disabilities; the use of assistive technologies in controlling robots and the development of intelligent multimodal systems to promote communicational skills.
Location based services: Investigating the role of location-based and games technologies for route learning, and the development of accurate spatial mental models/maps in independent travel.
User sensitive inclusive design: Developing technological solutions for everyone, including the needs of people with disabilities.
Underpinning research for games realism: Including methods for automatic object placement and improving gamebot behaviours using timed emotional intelligence.
Main achievements: EU FP7 project AEGIS; EU CIP project ETNA an EU-wide assistive technology network of excellence involving 23 leading Institutions in 13 Countries; 3 EU Transversal KA3 ICT/MP grants; 5 EU LLP grants; establishment of the ITAG conference series; extensive interdisciplinary network of researchers across international centres of excellence.

c. People, including:

i. Staffing strategy and staff development: The School of Science and Technology is committed to the sustainability of a world leading research base through staff development, mentoring, progression through Awards and Titles, and strategic recruitment to enhance the research culture and enhance capability. The need for additional resource to sustain and grow research within the CSI Unit has been identified. Strategic funding has been made available to support a number of new appointments to both strengthen the research leadership and to support existing research active staff. Recent appointments include Acampora (Reader), Wilmott (L/SL), Bates (L/SL), Cosma (L/SL) and Kani-Zabihi (L/SL). The latter 3 early career researchers are mentored by involving them in current EU projects to gain experience and data for publication. Three of these recent appointments are from international backgrounds. Since RAE 2008 Ahmad Lotfi has been

awarded a Readership in Computational Intelligence, Evtim Peytchev a Readership in Wireless and Mobile Communications, and Tony Allen a Readership in Speech Enabled Systems. Colin Wilmott (also ECR) was also awarded a Marie Curie Fellow at Masaryk University (Randomness in Quantum Cryptography). Lars Nolle has been appointed to a chair at the University of Applied Science Jade Hochschule, and becomes a Visiting Fellow in our Unit (starting 04/11/13). The Unit contains 2 Professors, 4 Readers (3.25 FTEs – Acampora, Allen, Lotfi, and Peytchev), the other 9 being Senior Lecturers and Lecturers.

All staff (including RAs and Post-Doctoral Research Fellows) have annual Personal Development Reviews conducted by their line manager or nominee at which achievements are recognized and research plans agreed for the coming year, including research plans for applications for sabbatical leave (e.g., Brown to leverage the EU FP7 AEGIS project – which was successful). QR funds devolved to the Unit are being used for staff development, to provide staff with the headroom required to sustain existing research strengths and to underpin new developments through the provision of staff buy-out, research studentships, research staff funding, funding for international travel and direct project funding. Two types of sabbaticals are funded based on research accomplishment and leadership, and for promising young researchers. Vice Chancellor's bursaries are awarded through an NTU wide competitive call every year to support research excellence. The Unit has been successful in securing three sabbaticals and two Vice Chancellor's bursaries over the current REF period. Seven out of the 14.25 FTEs who were in post at the time were not submitted in RAE 2008, but have developed as researchers who merit being included in this submission. This indicates that we have developed and nurtured our staff during the last 6 years.

NTU has implemented the ***Concordat to Support the Career Development of Researchers***, and holds the European HR Excellence in Research Award, in recognition of its commitment to enhancing working conditions and careers for research staff. Our implementation of the Concordat is evident through our commitment to recruiting, rewarding and developing researchers as full members of our university staff community. The University uses a ***Researcher Continuing Professional Development Tool*** to assess and enhance its support for the research-related career development of researchers and a ***Learning and Development Strategy*** which apply to all staff. NTU also operates an ***Equality and Diversity Policy*** and a ***Dignity at Work Policy and Procedure***. The ***NTU Equality and Diversity Champion*** participates in the ***Vitae Equality and Diversity Champion Network*** (NTU's work in this area is available on the Vitae website). Our aim in the CSI Unit is for early career and newly appointed staff to have protected research time and reduced teaching/administrative loads during their probationary period. The ***Managing Academic Workload Framework*** has been developed by NTU to assist with adjustment of teaching and research commitments. New staff are encouraged to apply for RC and RAE QR Funds to provide capacity and equipment for external research grant applications. Where possible, research studentships are awarded to junior staff in association with a more senior member who can act as a mentor, and this mentoring process extends to the development of their research plans, the opportunity to work at an international level (especially within EU projects), and support for their applications for external research funding. Mentors are experienced Principal Investigators with an excellent research record.

ii. Research students: The postgraduate student community is core to the research environment of the Unit, School, College and University, and is supported by the NTU Graduate School and School Postgraduate Research Tutors. The NTU Graduate School has overall responsibility for overseeing admissions, registration and progression of MPhil/PhD students, achieved through the NTU Graduate School and the College of Arts and Science Research Degrees Committee. Students are mentored by a Postgraduate Research Tutor. For international students where English is not their first language, additional English classes are provided. All SST research students attend a two and a half day Research Methods workshop, a Project Approval writing workshop and an Effective Researcher course in their first year of study. Subject-specific training is undertaken by their supervisory teams and generic skills training is provided throughout the research degree programme. Training on transfer report writing and PhD completion, including the viva process, is given in the second and third years respectively. Students participate on a compulsory basis in School Research Seminars and Conferences and present their work at these

events. Research student programmes are formally monitored on a six monthly basis, via a supervisory panel and independent assessor, with key milestones and deliverables at around month 6 (Project Approval) and month 18 (Transfer from MPhil to PhD). The training programmes are complemented by a range of CPD courses in project management, appointment and interview processes and procedures, and equality and diversity awareness. PhD students are required to submit their theses within four years of registration. PGR student applicants are linked with appropriate supervisors to develop projects, and go through a rigorous shortlisting and interviewing process. The University requires a supervisory team to consist of at least two University staff that must have a minimum experience of two PhD supervisions to completion. Members of academic staff who have not previously completed training must attend a University Graduate School organised training course (typically two days) within twelve months of commencing their first research student supervision. Experienced researchers are required to attend a Graduate School training session on PhD examining and being an Independent Chair for PhD viva voce examinations. PhD students meet to discuss problems and organise social events and journal clubs. The School has 3 PhD representatives, who take it in turn to attend College Research Degrees and University Research Degrees Committees, and the Health and Safety Committee. As can be seen in Table 1 the unit maintains a robust base of research student programmes, funded through a range of external funding, competitive QR supported bursaries, the competitive Vice Chancellor Bursary Scheme, and support for self-funded research students. As an example of positive progression Matt Bates gained an L/SL in the CSI Unit after completion of his PhD, and Hemin Latif is now an Assistant Professor in the American University of Iraq, Sulaimani (AUIS). In RAE2008 we had an average of 12.3 PhD students registered equating to 2.1 students/FTE, in the current assessment period we have an average of 16.8 PhD students registered, equating to 1.2 students/FTE, which whilst a little lower includes seven staff who have been developed for inclusion in this round with less time to develop PhD studentships, and one ECR. Within SST, 72% of PhD students complete within 4 years demonstrating the success of our related recruitment and training activities.

	2008/09	2009/10	2010/11	2011/12	2012/13
PhD completions	1	3	5	1	4
FTE PhD students enrolled	17	20.34	18.2	15.85	12.7

d. Income, infrastructure and facilities:

i. Research funding portfolio and future plans: The Unit attracts significant high quality external funding through a wide range of funding bodies, including the following notable grants awarded to our research groups (as in section b iii), providing strength and sustainability for our research activities and culture:

1. Computational Intelligence and Applications Research Group: Energy Efficiency in Social Housing (SKTP, £48,451), iCarer (AAL-2012-5-239, £254,624), Consignia (£21,900), EPSRC Industrial Case Studentship (£79,285), CITE leveraging £397K for local companies.

2. Intelligent Simulation, Modelling and Networking Research Group: EU FP7 MODUM (288205, £385,956), EPSRC Wireless Mesh Networks (£76,618), KTP PA Photos (£102,980), KTP Loreus (£29,453), KTP British Geological Survey (£136,899), Nottingham Traffic Control (£12,000).

3. Interactive Systems Research Group: Designing serious games for stroke rehabilitation (NIHR, £46,967), Extending the applicability of low cost VR for stroke rehab (EMDAi-NET, £28,000), Blind Cricket (JISC, £9,600), EU FP7 AEGIS (224348, £184,343), EU Framework ETNA (CIP-ICT-PSP-2009-4 Project 270746, £24,000), ViPi (511792, £107,192), Game On (229542-CP-1-2006-1-UK-GRUNDTVIG-G1, £40,118), GOAL (UK/07/LLP-LdV/TOI-009, £98,708), GOET (UK/08/LLP-LdV/TOI/163_181, £116,708), RECALL (504970, £174,760), PAUSE (UK/10/LLP-LdV/TOI-328, £91,172), SGSCC (531134, £88,843), RISE (UK/12/LLP-LdV/TOI-584, £117,375), EDUROB (543577-LLP-1-2-13-1-UK-KA3-KA3MP, £132,935), Code RED (UK/13/LLP-LDV/TOI-678, £89,372), DTA Studentship (£15,849), Preventing fraud in mCommerce (TSB SBRi, £12,000).

Research income to the Unit within the current assessment period totals £1,260,569 (an average of £252k/annum). This includes a significant improvement in funding from EU framework projects, with £594,299 in the current period from these sources, and no equivalent research funding in RAE2008. Funding is from a diverse and high quality base and has increased substantially from £168.7k in 2008/9, to £363.3k and £385.3k in 2011/12 and 2012/13 respectively. Our inclusion of 7 less well established researchers in this submission further underlines our progress in this area.

We carry forward ten active research grants, with a total value of £1,234,115 of which £817,780 will be declared as income in the 2013/18 period, thus providing a strong foundation for the start of the post REF2014 period.

ii Provision, operation and investment in infrastructure and facilities: The Unit's research is undertaken in a variety of research laboratories within the Mary Ann Evans and Erasmus Darwin Buildings, including the Computational Intelligence Lab (operated by the CIA Group) and the Human Interaction Technologies (HIT) Lab (operated by the ISRG and split across 2 centres, including in the Rosalind Franklin Building). These facilities also provide accommodation for Research Students and Post-Doctoral Research Assistants as well as a showcase of research capability. In October 2012 the Rosalind Franklin Building was opened (total cost £4.1M, total area 2227m^2), and Erasmus Darwin Building is currently being refurbished (Phase 1, 2012 to 2013, £1.1M to date) providing space for new computing labs (including HIT Lab 2), research facilities and facilities for research students. During the period 2008-2013, the Unit has invested in a variety of specialist equipment, including a Pioneer Robotic Platform (£10k), eye tracking equipment (£15k), X10 and ZigBee wireless network development equipment (£5k), two NAO Robots (£20k), a VGo tele-presence robot (£5k), a NVIDIA Tesla parallel processing system (£6k), and a server (£8K). We also have access to collaborative use of a server in the Nottingham Traffic Control Centre, along with wireless equipment mounted throughout Nottingham in traffic lights via links with the ISMN Group (circa £35K). This allows the staging of real-life wireless networking experiments and is being extended to represent a "Living Lab" to test algorithms and paradigms in the wireless networking domain, shared with industrial partners.

iii Consultancies and professional services: The CSI Unit partners many organisations who have sought our expert services and access to our facilities. These services include participatory design of technologies for physical rehabilitation by the Nottingham Stroke Research Partnership Group (NIHR, £50,881; EMDAi-NET, £28,000), and for the design of serious games and robotics for cognitive rehabilitation, including the Marie Curie Organisation Bulgaria; the Oak Field school, UK; AIAS Bologna Onlus, Italy; Kraków Branch of the National Society for Autism, Poland; BID Services with Deaf People, UK. The Centre for Innovation and Technology Exploitation provided consultancy, product development and knowledge transfer activities in the field of innovative computing technologies. It developed 20 new HE/business collaborations, leveraged £397,412 in terms of investment and grants for companies who increased their GVA by £197,000. It received payments from the Regional Development Agency and ERDF worth £240,000 to deliver its activities. Our spin out company Voicekey Ltd has also developed 4 TSB and 1 MOD projects: Network Security: 130356 (£45K); Personal identity management using voice biometrics: 130356 (£7K); Establishing Digital Trust using secure voice verification for high risk applications: 710073 (£96K); Preventing Fraud in mCommerce: 971317 (£49K); & On-device voice verification for BYOD & COTS Mobile Enterprise Devices: DSTLX1000085600 (£50K). Coventry City Council, Transport and Mobility Leuven, Sofia Urban Mobility Centre and Nottingham City Council have made use of the wireless networking research in the Unit, which has directly contributed to the EU FP7 MODUM Award (288205, £385,956), with results essential for another FP7 project HoPE (€2.6M)

e. Collaboration or contribution to the discipline or research base:

i. Support for and exemplars of collaborations and interdisciplinary research: support includes a programme of research seminars by external visitors, members of staff, and postdoctoral researchers; the CSI Unit organised conferences; allocation of QR and RC funds and VC Bursaries. Exemplars of interdisciplinary collaborations include with clinical psychologists (e.g., Division of Rehabilitation and Ageing, University of Nottingham), clinical researchers (e.g., Plastic Surgery, Nottingham NHS Trust), educational technology researchers (e.g., Media Lab, University of Athens, School of Education Tel Aviv University), end user researchers and organisations (e.g., Oak Field School, Nottingham; Nottingham Stroke Research Partnership Group; Marie Curie Organisation Bulgaria; AIAS Bologna Onlus, Italy; Kraków Branch of the National Society for Autism, Poland; ONCE Foundation, Spain; BID Services with Deaf People, UK); major industrial partners (e.g., Oracle, RIM, Motorola, BT, Fujitsu); and Traffic Control Centres (e.g., Sofia Urban Mobility Centre, Transport and Mobility Leuven, Nottingham and Coventry City Councils).

ii. How research collaborations with research users have informed research activities and strategy: The types of research users we work with are described above (in e i), and our work with them has informed our research activities/strategy in the following ways (see also b iii):

Healthcare: informed our research in the development and feasibility trial of home-based sensor

and markerless technologies for stroke rehabilitation, and in modelling and prediction of occupant behaviour in the home environment for improved independence and safety of older adults.
Disability support: informed our research in the participatory design and evaluation of virtual environments, serious games, assistive technologies and robotics for cognitive rehabilitation.
Transport: informed our research in wireless and mobile networking in Intelligent Transportation Systems for reduced travel times and pollution, and better business performance.
iii. **Leadership roles in societies & professional bodies: (Acampora)** Chair: IEEE CIS Standards Committee; Task Force on New Standards Proposal - IEEE CIS Standards Committee; IEEE Standards Association Working Group for FML Standardization; Task Force on Taxonomy and Terminology - IEEE CIS Standards Committee. **(Allen)** Founder & Director of Voicekey Ltd. **(Brown)** Founding Member of Anglo-US Pi Impact Initiative. **(Lotfi)** Chair of Ambient Intelligent Task Force of the IEEE Emergent Technologies Technical Committee. **(Ma)** Visiting Professor of Nanjing University of Science and Technology, Secretary General of Association of Chinese Engineers in the UK. **(Nolle)** Committee Member: BCS Specialist Group on Artificial Intelligence. **(Peytchev)** President of ECMS.
iv. Participation in the peer-review process: (Acampora) Reviewer for IEEE Transactions on Fuzzy Systems. (**Brown)** Reviewer for Journal of Assistive Technologies; Computers and Education; Universal Access in the Information Society and Dutch Research Council**. (Cant)** Reviewer for IEEE Trans on Systems, Man, Cybernetics; IEEE Trans on Computational Intelligence in Games. **(Lotfi)** European RC referee, reviewer for IEEE Transactions on Systems, Man and Cybernetics, reviewer for IEEE Transactions on Knowledge and Data Engineering. **(Osman)** Reviewer for IEEE Trans on Systems, Man, Cybernetics; Journal of Multimedia Tools and Applications; Knowledge-based Systems Journal. **(Peytchev)** Proposal reviewer for iNET, EPSRC, Belgium Research Council.
v. Fellowships, awards, prizes: (Acampora) Fuzzy Competition Award at FUZZ-IEEE 2011; Best Paper Award at UKCI 2012. **(Allen)** EMDA funded Innovation Fellowship - Biometric authentication. **(Brown)** Two EU Creativity and Innovation Awards, and EU Best Practice Award. **(Hetherington)** Fellow of the Higher Education Academy; Associate Fellow of The Institute of Combinatorics and its Applications. **(Ma)** Best Paper Award, 2010 WASE International Conference on Information Engineering, Fellow of Higher Education Academy. **(Nolle)** Best Technical Paper Award, 32nd SGAI International Conference. **(Wilmott)** AQIS '12 Conference 1st Prize Award; Journal Award J.Phys. A 'Highlights of 2010'; German Science Foundation (DFG) funded postdoctoral Fellowship; Marie Curie Fellowship (2011-2013) at Masaryk University.
vi. Journal/Book editorships: (Acampora) Associate Editor of Springer Soft Computing Journal; Associate Editor of Inderscience International Journal of Autonomous and Adaptive Communications Systems. **(Allen)** Applications and Innovations in Intelligent Systems XVI. Springer-Verlag. ISBN 978-1-84882-214-5. **(Brown)** Editor: Games and Rehabilitation, Springer. **(Cant)** Associate Editor: International Journal of Simulation Systems, Science & Technology. **(Lotfi)** Associate Editor, Soft Computing Journal (Springer). **(Nolle)** Guest editor: Computing and Informatics, Vol. 28 (2) 2009, ISSN 1335-9150 and editor: Bramer, M., Petridis, M., Nolle, L. (Eds.): Research and Development in Intelligent Systems XXVIII, Springer, ISBN 978-1447123170.
vii. International Conference & Session Chairs, and International Programme Committees: many examples for CSI Unit members include: **(Allen)** SGAI. **(Brown)** ICDVRAT, ITAG, IEEE seGAH & ECGBL. **(Cant)** Eurosim, UKSim, CICSyN. **(Langensiepen)** IE. **(Lotfi)** IE, MENDEL Soft Computing, 2013 PETRA and 2008 WCCI. **(Ma)** WASE ICIE. **(Nolle)** AI, Mendel Soft Computing, PPSN, ECMS, SCIPCV, ASM. **(Osman)** ECMS, UKSIM, ECKM. **(Peytchev)** ECMS.
viii. Invited Papers/Talks/Lectures/Keynotes: many examples for CSI Unit members include **(Acampora)** University of Tainan, Eindhoven University of Technology & ECSC. **(Allen)** Robert Gordon University research seminar series. **(Brown)** University of Nottingham, University of Vilnius, Kings College London, Mary Kitzinger Trust; HCII '13& '14, CSUN 11; Ecorys EU National Programme Managers; Invited Keynotes at Swedish National Adult Rehabilitation '11; Wishing Well '11; European SchoolNet, Brussels '13. **(Hetherington)** University of Bristol. (**Lotfi)** Sheffield Hallam University research seminar series. **(Peytchev)** Keynote at University of Nottingham, '10. **(Wilmott)** invited talks at Charles University, Prague, QuIC, Universite Libre de Bruxelles, University of Warsaw, NUI Galway, University of Vienna, Fraunhofer Institute Berlin, Masaryk University, National University of Singapore, Albert Ludwigs Universität Freiburg, Universität Rostock, Universität Darmstad, and University of Lancashire.