Welcome to the second edition of our Newsletter which gives a flavour of the activity within the School of Computer Science and Statistics (SCSS) over the past year.

Professor Jeremy Jones
Head of School

Following a highly competitive recruitment process, Prof Dough Leith was appointed Chair of Computer Science in the Computer Systems Discipline and Prof Vinny Wade Chair of Computer Science in the Intelligent Systems Discipline. To date, in 2015, the School has been successful in securing €35m in research funding and is host to the ADAPT and CONNECT SFI research centres (formerly CNGL and CTVR respectively).

The demand for our graduates continues to exceed supply and the School of Computer Science and Statistics (SCSS) has approached the HEA for immediate support to sustain a 25% increase in undergraduate intake. The School is also planning for an overall 40% increase in student numbers by 2020. This expansion will be housed in the new E3 building.

While gender balance of our students is far from ideal, we are trying to bring more girls on board. Focused student recruitment initiatives are bringing some success but we need to do more. If you have innovative ways of approaching this problem we would love to hear from you.

The College has announced, as part of its Global Relations Strategy, its intention to develop a strategic institutional partnership with Thapar University, a private Indian university. As a result, Thapar students will enrol on a twin BAI degree programme spending the first two years at Thapar and the final years at TCD. Students entering the Thapar programme are ranked in the top 2% in the Indian Joint Entrance Examination (JEE).

I am also pleased to report that, once again, the School is ranked in the top 100 Computer Science Schools worldwide and the highest ranked in Ireland.

We had lots of alumni activity and were particularly delighted to welcome a group of 1974 graduates from our first BSc in Computer Science back to Trinity. We welcome more alumni engagement and look forward to hearing your news in the coming year.

https://www.scss.tcd.ie/
CNGL Centre for Global Intelligent Content evolving to form ADAPT in 2015

The CNGL and new partners are evolving to form ADAPT, the global centre of excellence for digital content and media innovation. The CNGL will receive €50 million government and industry investment in an ambitious new research programme that will see CNGL and partners evolve to form ‘ADAPT’. The ADAPT Centre will be dedicated to delivering digital content research innovations to enable unprecedented digital engagement between customers, companies and communities.

Professor Vincent Wade, the Director of CNGL and CEO of the new ADAPT Centre, said:

‘This investment will ensure the evolution of the CNGL centre with new partners to form ADAPT, the global centre of excellence in digital content and media. A substantial track record of transferring research innovation to industry has been a strong element of the CNGL research story. This track record has attracted many new high-profile industry partners across sectors including ICT, localisation, financial services, eCommerce, media, entertainment and games, life sciences, digital culture and humanities, eLearning and education’.

ADAPT will combine the know-how of industry partners with the expertise of researchers at Trinity College Dublin (lead institution), Dublin City University, University College Dublin, and Dublin Institute of Technology. The new €50 million research funding is testament to CNGL’s strong track record of research commercialisation.

The new centre will bring together more than 150 researchers from CNGL and affiliated centres, which collectively have won more than €100m in funding and have a strong track record of bridging research innovations to more than 140 companies. ADAPT will include not only the research team in CNGL but also members from Sigmedia, GV2, DIT and the Learnovate Centre.

ADAPT will enable: deeper understanding of multilingual content by significant advances in multilingual language processing; dynamic transformation of content to break down language and cultural barriers; personalisation of the user experience to ensure rapid assimilation and reuse of content; and multimodal (speech, video, image, text) and multimedia interaction with global content for contextualised discovery, communication and interaction.

ADAPT is one of five world-class SFI Research Centres being established through a total €245 million investment to enhance Ireland’s R&D leadership in critical and emerging sectors which are key for job creation in Ireland.

For further information visit; www.adaptcentre.ie
Computer Scientists to Develop Next-Gen Big Data Systems for Tomorrow’s App Builders

Computer Scientists from Trinity College Dublin are leading a new Horizon 2020 research project to develop new ways to build and maintain IT systems that use big data on the web. ALIGNED (Aligned, quality-centric software and data engineering) is a Horizon 2020 research project with a European Commission investment of €4 million.

The chief goal of ALIGNED is the development of systems that will allow developers to incorporate big data from the web into their applications, such that flexible apps and analytics can use data that exists in a variety of formats. This will lay the foundations for the next generation of big data systems that lower costs and deal with the challenges of dynamism, complexity, scale and data inconsistency on the web.

As more and more data is published on the web, enterprises and academic researchers need ways to build and maintain both data and applications that use the data. The ALIGNED team are looking forward to developing new systems to help people tap into ‘big data’ more freely and easily.

The project will be led by Senior Research Fellows in Computer Science in the School of Computer Science and Statistics at Trinity, Dr Rob Brennan and Dr Kevin Feeney, who will be supported by Associate Professor of Computer Science, Declan O’Sullivan. These three are also researchers at the ADAPT centre.

Biostatistician Wins HRB Research Leader Award

Professor in Statistics at Trinity College Dublin, Cathal Walsh, is one of six researchers to win a Health Research Board (HRB) Research Leader Award. A total of €3 million is being invested to address strategic gaps and develop leadership capacity in population health and health services research in Ireland.

Professor Walsh will establish the National Centre for Health Decision Science in Ireland. He and his team will use mathematical models and Bayesian statistical methods, which combine new data with current knowledge to better inform logical and evidence-based decision making. Professor Walsh and his team will use large datasets of health information to determine the best health-related interventions for patients. These techniques will be applied to decisions relating to pharmaceuticals, vaccines and cancer screening technologies.

Professor Walsh said: ‘Through the award, we will build capacity to continually improve and develop the approaches we use in order to extract the best evidence from all relevant data available to inform decision making about interventions in the future. In the ‘big data’ world this includes registry and eHealth outcomes, as well as clinical trial data. These allow us to make better decisions about how we deliver healthcare to our population to improve outcomes for all’.

Since receiving this award, Professor Walsh has taken up a position in the University of Limerick.

€1.9m for Smart Cities Research

The School’s Professor Siobhán Clarke (DSG) and Dr Dirk Pesch from Cork Institute of Technology (CIT) have recently been awarded a Science Foundation Ireland Principal Investigator grant in the Smart Cities domain.

The proposed research will be focussed on investigating and demonstrating concepts of service-centric networks, in an urban setting, that aim at an embodiment of sensing, communication and computing based on service-oriented computing principles.

Limited resources in urban environments, such as road networks, energy and water are under increasing strain as a result of population growth. However, such resources could be managed in a better way if there was better access to real-time, city-wide sensor data.

This project will investigate the design of a new service-oriented, data infrastructure, communications and middleware platform that improves the accessibility of large-scale, geographically-spread data for urban services providers.

The project, named ‘SURF: Service-centric networking for urban-scale feedback systems’, started in September 2014, and at full complement, will include six researchers in SCSS, and three researchers and a programmer in CIT.

SURF will be conducted with collaborators from NUI Maynooth, IBM Smarter Cities Research Centre, Intel Intelligent Cities Lab, EMC2 Research Europe, and Arup.
Researchers at SCSS generate the 500th Invention Disclosure

A Risk Assessment Tool for Spacecraft Re-entry

Trinity researchers from the SCSS, Professor of Statistics, Simon Wilson and Ph.D. student Cristina De Persis have developed a risk assessment tool for spacecraft re-entry, in collaboration with the European Space Agency (ESA). Both were presented with an award of achievement by the Provost, Dr Patrick Prendergast in October 2014.

The tool is now being filed with the European Patent Office to become Trinity’s 500th patent.

The 500th invention disclosure generated by Trinity is an innovative tool designed to help protect earth and its inhabitants from the falling debris of defunct and disintegrating spacecraft and satellites that eventually re-enter the earth’s atmosphere.

Currently, the United Space Surveillance Network is tracking more than 16,000 objects orbiting Earth, about 87 percent of which are debris or inactive satellites. Any satellite orbiting the Earth will eventually, over time, begin to re-enter the atmosphere and parts of these may survive re-entry and hit the earth’s surface.

Trinity College Dublin marked this 500th invention disclosure at a special event in the O’Reilly Institute showcasing the impact of some key inventions and the potential of our latest invention technologies. The showcase event was opened by Minister for Skills, Research and Innovation, Damien English.
In 2014 the Bridge21 programme went from strength to strength with over 1,500 students and 350 teachers from 60 schools nationwide involved in the core Bridge21 programme. Students took part in workshops (1-4 days) covering Digital Media, Computer Programming, Project Maths and Physics as well as Peer Education, History, Language Learning and Primary School Mentoring, all with a focus on technology mediated learning and 21st century skills such as creativity, collaboration and problem solving.

The Transition Year computing workshops were a great success yet again with over 100 students taking part in week long activities, including programming for animation, game design and different forms of human interface devices.

As part of our core programme a range of continuous professional development (CPD) sessions were designed to help teachers introduce the Bridge21 model of learning into their classrooms, by experiencing it first hand and through supported lesson planning. Teachers across Ireland are now running Bridge21-style activities with their students.

Funded by Google, a new initiative, Trinity Access 21 (TA21), brings together expertise from across the university including Bridge21, the School of Computer Science and Statistics, School of Education and the Trinity Access Programme (TAP). This initiative will involve working in depth with 11 schools in the greater Dublin area (all from areas of socio-economic disadvantage). 1,200 second year students from those schools attended a mentoring event in the National Convention Centre in November http://youtu.be/jE4Y1fafcUs. Ninety teachers (many from the 11 TA21 schools) have registered for a Level 9 certificate in 21st Century CS/STEM pedagogy run jointly by SCSS and the School of Education.

In December 2014, our second learning space in Oriel House ‘Bridge 22’, was officially opened by the Provost, Dr Patrick Prendergast. Bridge22 has a modular infrastructure, which uses mobile technology, and moveable furniture to support various styles of teaching and learning strategies ranging from the conventional lecturer led approach to team-based learning.

Finally, we are delighted to announce the establishment of a new initiative, School-based Coding Clubs for Girls, with support from ICS Skills. This is a pilot project that will commence in early 2015.

Bridge21 is now in a new phase in its development, with an opportunity to effect meaningful change in the education system. We are seeking partners to help achieve our ambitions and give a growing number of young people the opportunity to develop 21st century skills and to realise their full potential. If you are interested in finding out more about Bridge21 or if you would like information on how to get involved as a supporter, please contact: Brendan Tangney, Academic Director, Bridge21, 01-8961223/tangney@tcd.ie or Sinéad Pentony, Associate Director, Trinity Foundation, 01-8964564/sinead.pentony@tcd.ie
Computer Scientists’ App Measures Our Online Footprints

Computer scientists from Trinity College Dublin have developed an app—Bigfoot—that will allow them to assess how accurately the online footprints we all leave represent our personalities in the real world.

The app was created in collaboration with artificial intelligence experts AYLIEN and researchers at the ADAPT centre, which is based in Trinity.

Their ‘lifelogging’ tool was showcased at the recent Science Gallery Dublin exhibition, which considered how personal data is shared and used over the Internet. Visitors were able to take part in a walk-in laboratory that used the Bigfoot app to discover a bit more about the signals they were sending out online.

The exhibition is designed to make us think if it is possible for such data to measure the intangible things that really matter: love, beauty, satisfaction, mindfulness? Will a future filled with sensors and surveillance mean the end of privacy? How far and wide does our data travel, and does it represent an accurate depiction of who we really are?

The Bigfoot app has been developed by Research Assistant in the School of Computer Science and Statistics at Trinity, Dr Kevin Koidl, who is also based at the ADAPT centre, in collaboration with AYLIEN, a data analytics startup.

SCSS students from Trinity College win Irish Collegiate Programming Competition 2014

Congratulations to Killian Davitt Computer Science student, Enno Hermann Computer Science and Language student, and Eoin Flanagan Computer Science student, who took the first prize for their problem solving, numeracy and computer programming skills at the annual Irish Collegiate Programming Competition (IrCPC) held in University College Cork in 2014. They finished with a very impressive score of 49/50.

The three students received an Xbox One as part of the first place prize, all made possible by the sponsors, Microsoft, Google, Trend Micro, and Deloitte. Twenty teams competed from around the country with three of these teams from Trinity. Thanks to Michael Clear, Ph.D. student in the School of Computer Science and Statistics, and a member of the Foundation Methods Group and Distributed Systems Group for leading and organising the Trinity teams.

Thank you to everyone who contributed to the Alumni Appeal. The income received helped to support the teams who participated in the competition.

Search for Ireland’s Top Young Problem-Solver Begins

Minister for Education and Skills, Jan O’Sullivan, launched the 2015 season of the All Ireland Linguistics Olympiad (AILO) in the search for Ireland’s best young problem solvers. The prize for the top four decoders is the opportunity to represent Ireland at the International Linguistics Olympiad in Bulgaria, in July 2015. Schools can sign up for the contest at http://www.adaptcentre.ie/ailo

AILO challenges secondary school students to engage in code-breaking to decipher complex puzzles in unfamiliar languages. Typical puzzles include deciphering numerical spy codes and decoding ancient scripts. The contest is run by the ADAPT Centre, which is funded by Science Foundation Ireland.

Speaking at the launch at the Department of Education and Skills, Minister O’Sullivan encouraged students to sharpen their code-breaking skills. She said: ‘The ability to solve problems and complex puzzles is invaluable for all students throughout their education and career paths. The All Ireland Linguistics Olympiad inspires students to think outside the box and develop their problem-solving skills. I encourage students to take part in AILO 2015 and test their minds against the world’s languages’.
Congratulations to our new Fellow and Scholar at SCSS

New Book to Help Navigate the Transition to Third Level Education

A practical guide to help students and parents make the most of the first year in college was launched in the school. Cracking The College Code is by author Catherine O’Connor, Head of the Marketing Unit, School of Computer Science and Statistics. The book highlights what every student and parent should know before embarking on the road to college. It is full of practical advice for a successful transition focusing on preparing students for changes in their lives, the pitfalls encountered in college in the first year, what to expect, where to look for assistance and who to ask for help. Available at www.crackingthecollegecode.ie

Book Launch - A Practical Introduction to COMPUTER VISION WITH OPENCV

SCSS staff and guests joined Kenneth Dawson-Howe to celebrate the publication of his new book - A practical Introduction to COMPUTER VISION WITH OPENCV. Computer Vision is a rapidly expanding area and it is becoming progressively easier for developers to make use of this field due to the ready availability of high quality libraries such as OpenCV.

This book explains how to use the relevant OpenCV library routines and is accompanied by a full working program including the code snippets from the text. This textbook is a heavily illustrated, practical introduction to an exciting field, the applications of which are becoming almost ubiquitous. It is concerned with helping the next generation of computer developers to make use of all these images in order to develop systems, which are more intuitive and interact with us in more intelligent ways. The book is available to purchase at: Wiley and Amazon.

Catherine O’Connor, Author; Betty McLaughlin, President, Institute of Guidance Councillors; Dr Patrick Prendergast, TCD Provost

Congratulations also to our new Scholar: Conor Brennan from Computer Science (Integrated).
Alumni News

Graduate Profile

Laura Fay (nee Dowling)
B.A. (Mod) Computer Science (1983)
VP and Chief of Staff, Good Technology, Sunnyvale, California

What are you doing with yourself these days?
I emigrated to the USA within seconds of graduating with my freshly minted bachelors in Computer Science and a burning desire to get off the island and experience the world... and it’s been great! I co-founded a few companies, worked with lots of incredibly smart people, served many inspiring customers and gained tons of on-the-job education along the way. Mid-career, I added to my formal education with an MBA from Santa Clara University, California. My current role is Chief of Staff for Good Technology. Good is a global leader in secure mobile solutions, serving over 5,000 enterprises worldwide. Good mobilises key productivity applications and enables an ecosystem of third party mobile apps on iOS, Android and Windows.

What did you like most about being a Trinity student?
Being part of a university in the middle of a vibrant city.

What excited you most about your work?
What excites me is working with and learning from creative individuals in both business and technology, every day.

How do you like to spend your free time?
I love to cycle, read and spend time with my husband and two sons. In the winter snow-shoeing in the mountains is as good as it gets!

What are your plans for the future?
Working in Silicon Valley has allowed me to be at the centre of the evolving technology innovations over the course of my career. My future plans include more of the same. That is, contributing to the ongoing technology innovation here in Silicon Valley.

The Class of 1974 Reunion

The graduates from the first ever Computer Science undergraduate degree course gathered together to celebrate their 40th anniversary (class of 1974) in August 2014.

A commemorative glass was commissioned and made by Dublin Crystal. It shows the Museum Building, which was ‘home’ to the B.Sc. class in those days. Thanks to Niall O’Reilly (1974) for contacting the class and Lewis Leith for commissioning the commemorative glass.

(left to right): Sean Connolly, Mike Brady, Andrew Butterfield, Tony O’Brien, Dan McCarthy, Derek Saunders, Cathal Duffy, Pat Daly, Lewis Leith, Mike Sullivan, Tom Treacy, Niall O’Reilly, Dick Nolan, Andrew Deegan, and John Hynes.

M.Sc. in Technology and Learning Alumni Weekend

In March 2015 fifty graduates of the M.Sc. in Technology & Learning (formerly known as IT in Education) gathered in College for an alumni reunion event. The theme of the weekend was Tech Trends in Education, envisioned to give alumni the chance to reconnect with old friends, learn something new about technology and learning, and share (or steal!) bright ideas.

The weekend began with a Friday social gathering at Kennedy’s pub on Westland Row. The Saturday workshop included a busy schedule of speakers, including Joe Roche (once upon a time future Mars colonist, Science enthusiast and Assistant Professor at the School of Education), Nick Grantham (curator-in-chief at Fractus Learning) and David Leat (colleague of Sugata Mitra and collaborator in SOLE). A highlight of the agenda was the alumni presentations which shone a spotlight on some of the achievements and innovative work of alumni since graduation.

This event was an alumni initiative and the School is very grateful to the organising committee - Claire Conneely, Jonathan Lobel & Susan Sweeney (M.Sc. T&L class of 2007).
The first Professor John G. Byrne Prize (Head of Department of Computer Science, 1969-1987, 1990-2001) was awarded in September 2014 to Joel Coffey, B.A. (Mod.), M.C.S. This prize was funded through the School’s alumni and will be awarded each year to the student with the best result in their final year.

On receiving the prize, Joel Coffey stated: ‘I studied Integrated Computer Science, which is a five-year course that leads to both Bachelor’s and Master’s degrees in Computer Science. As part of my fourth year I undertook a seven-month internship with Amazon Data Services Ireland, where I was placed with the Monitoring Team. I helped to develop graphing and alarming systems that are used both internally by Amazon engineers, and externally by customers of Amazon Web Services, to provide visibility into the state of their cloud computing resources. During my fifth year I continued working with Amazon one day per week, and have since taken up a full time position with them in the same team I did my internship with. My long term plan is to eventually move into the fields of content discovery or audio processing, however for the moment I’m happy where I am, with a stream of challenging problems keeping every day interesting. The award was a surprise and an honour’.

Science Without Borders

Science Without Borders (SWB) or Ciência sem Fronteiras (CsF) in Portuguese, is an ambitious educational programme operated and funded by the Brazilian government. It aims to send over 100,000 Brazilian students to study internationally across science, technology, engineering, and mathematics fields by 2015. This programme provides funding, support and/or full scholarships for a range of initiatives across the academic spectrum. The Irish Government became a cooperating country with Brazil for the Science Without Borders programme in 2012. SCSS welcomed seven Brazilian UG visiting students through the programme during the 2013/14 academic year.

From Brazil to SCSS:
Andre Stern, Science without Borders Visiting Student (2013/14)
Home University: Universidade Presbiteriana MacKenzie, Brazil

I was placed in the second year of Integrated Computer Science at Trinity - with a couple of modules from year three. It was a tough, demanding, time consuming school year, but a very rewarding one as well. Knowing that you’re sitting among the best students in the country, being taught by some of the best lecturers at a renowned university comes with a price-great things are expected of you. But through all the hard work and constant assignments and study groups, the experience was much better than I could have ever imagined, and I had very high expectations as it was. The fact that the Irish people are very welcoming and ready to embrace anyone who is making an effort into integrating definitely helped and could not go unmentioned.

In one year, I took modules in Software Engineering, Programming, Information Management, Computer Architecture, Operating Systems and more. I also took part in a research internship during the summer. I helped in the development of a data-harvesting tool, using a lot of techniques learned in class and throughout the internship.

It was a fulfilling experience and one that gets great reactions at job interviews in Brazil. Within two months of being back home, I did three interviews and was offered all three positions. Being able to say I was a student at Trinity has proven to be an absolute door opener both professionally and academically.
Remember. The power of a legacy to Trinity

There’s an old saying that the true meaning of life is to plant trees under whose shade one does not expect to sit. When you leave a legacy to Trinity however big or small, you’re planting a tree which will grow to provide shelter to many. You’re empowering ground-breaking research which will benefit people in Ireland and all over the world. You’re supporting students from all backgrounds to access a Trinity education. You’re helping preserve our unique campus and heritage for new generations.

When you remember Trinity in your will, you join a tradition of giving that stretches back over 400 years – and reaches far into the future. For more information about leaving a Legacy to Trinity, please contact Eileen Punch.

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www.tcd.ie/development

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Get Involved
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www.tcd.ie/alumni/volunteer

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