Ussher Assistant Professor in Software Systems
Ussher Assistant Professors

Trinity College Dublin is hiring 40 new Ussher Assistant Professors to support the delivery of the University’s new Strategic Plan 2014-19.

It is part of Trinity’s strategy to recruit excellent academics in areas where the University has proven strengths.

There are opportunities right across our field of expertise, which span from science to engineering and from medicine to arts and humanities. It is Trinity’s objective to attract new talents from around the world to further its position of excellence.

This is the second time that Trinity has created a distinct set of professorships with the Usher name to foster early career academics. The latest wave of professorships reflects the success of the first programme. The professorships are named after Archbishop James Ussher, who is often referred to as Trinity’s first scholar and who was pioneering and meticulous in his research. They are intended to honour his rigour as a scholar.

At least ten of the new positions will be assigned to our research centres focused on nanotechnologies, biomedical sciences and neurosciences. Opportunities are also available within traditional departments in science and in the arts and humanities, which are all heavily engaged in innovative research. For example, researchers in our arts and humanities institute, the Trinity Long Room Hub, are currently digitizing and contextualizing important historical archives held in our Old Library, and making them available as an online public resource. Substantial mentoring and development support will be available to each of the Ussher Assistant Professors through Trinity’s Early Career Mentoring Programme and all of the Ussher Assistant Professors will be encouraged to avail of the resources of the new Teaching, Learning and Research Academy.

Trinity has a mission to promote excellence in research and education – the University sees these two as interdependent, mutually sustaining and driven by a spirit of innovation.

Trinity believes that students and researchers from every discipline benefit from being exposed to the innovation and entrepreneurship culture that we are building through initiatives like our new Trinity Business School. Interdisciplinarity and cross-fertilisation are intrinsic to Trinity’s mission, as is internationalization – creating forty new positions across all disciplines and recruiting from around the world honours all our commitments.

Trinity has a strong tradition of industrial engagement – in the form of industry research grants which represent 25% of the University’s operating budget. One of Trinity’s most recent collaborations, signed in early September 2015, is with Intel, and it covers talent, research, student mentoring and career development with structured programmes for our PhD students. With Intel, Trinity will be identifying new areas of development and providing a strategic framework for investment and recruitment.

Industrial engagement gives Trinity scientists opportunities to work on applied industry projects. For example in the field of the Internet of Things with the CONNECT Centre, and on an e-learning and adaptive simulation project, ADAPT.

The Ussher Assistant Professors will be joining this vibrant community and helping to grow the University, and to develop bodies of world-ranking research.
The School of Computer Science and Statistics seeks to appoint an **Ussher Assistant Professor in Software Systems** with a particular focus on high-performance embedded computing. The successful candidate will be an outstanding researcher who can demonstrate an excellent international research track record and the potential to become a research leader.

**Post Specification**

*(Competition: (031331]*)

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<tr>
<th>Post Title</th>
<th>Ussher Assistant Professor in Software Systems</th>
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<td>Post Status</td>
<td>5-Year Contract with a view to permanency (Full-time)</td>
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| Department/Faculty | Department of Software Systems  
School of Computer Science and Statistics  
Faculty of Engineering, Mathematics and Science |
| Location | School of Computer Science and Statistics  
Trinity College Dublin  
The University of Dublin, Dublin 2, Ireland |
| Reports to | Head of School of Computer Science and Statistics |
| Starting Salary | Appointment will be made at a maximum of the 8th point of the New Assistant Professor Merged Salary Scale (starting range €32,450 - €46,615 per annum) |
| Hours of Work | Hours of work for academic staff are those as prescribed under Public Service Agreements. For further information please following link below:  
[http://www.tcd.ie/hr/assets/pdf/academic-hours-public-service-agreement.pdf](http://www.tcd.ie/hr/assets/pdf/academic-hours-public-service-agreement.pdf) |
| Closing Date | 12 Noon GMT on Tuesday 18th April 2017 |

Candidates should be able to demonstrate a strong commitment to research excellence, developing research partnerships, and the ability to establish a dynamic, high impact, internationally leading research programme. Candidates must also show a genuine commitment to research-led teaching at both undergraduate and postgraduate level.

The post holder will join a large and vibrant School, top ranked in Ireland, and will be affiliated with the Science Foundation Ireland (SFI) funded national research centre Lero – the Irish Software Research Centre.

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If you wish to discuss the post informally please contact: **Professor David Gregg**, Head of the Department of Software Systems

✉️ [David.Gregg@cs.tcd.ie](mailto:David.Gregg@cs.tcd.ie)
Ussher Assistant Professor in Software Systems

In recent decades computing has increasingly moved from the desktop to low-power mobile devices such as wearable computers, and embedded devices such as navigation systems for smart flying drones. These embedded systems work within limited processing capacity, power and battery life and create new challenges for software. In particular many embedded systems use low-power multicore processors which require software that has been carefully parallelized to make best use of the embedded processors and memory system.

As mobile, wearable and autonomous systems become ubiquitous, there is a requirement for computationally-intensive sensing, vision and smart technologies within tiny power budgets. Trinity College is working in areas such as software parallelization, program analysis, compilers, and program generation for low-power multicore, vector, VLIW, GPU and FPGA systems. Our current research has a particular focus on software, hardware and approximate computing techniques for machine learning and deep neural networks on low-energy embedded systems.

We are searching for an excellent candidate working in areas that strengthen or complement our existing research strengths. These areas include, but are not limited to:

- program analysis and compilers
- software parallelization
- embedded computing
- low-energy computing
- parallel computing
- program generation for time, space and energy
- algorithm design for locality and energy
- approximate computing
- domain-specific program generation
- program optimization for multicore, vector, VLIW, GPU, FPGA
- research at the boundary of computer architecture and software
- statistical machine learning for resource-constrained systems
- processor microarchitecture and hardware accelerators

Trinity College Dublin is Ireland's oldest research university, and one of only twenty-three members of the prestigious League of European Research Universities (LERU). The university has a strong focus on research excellence and research-led teaching. The School of Computer Science and Statistics offers a supportive environment for faculty members, with significant autonomy to develop research directions, research teams and research collaborations. The research areas that this post covers are strategic priorities for the School, and we intend to strengthen these areas in the coming years.

The School of Computer Science and Statistics is home to three cross-university research centres funded by Science Foundation Ireland:

- Lero – the Irish Software Research Centre
- CONNECT – the Centre for Future Networks and Communications
- ADAPT – the Centre for Digital Content and Media Innovation

These research centres are the focus for large-scale research funded projects involving academic faculty members and industrial collaborators. There are good opportunities for new faculty members to join the funded research activities of these centres, and in future proposals for national, EU and industry funding.

Ireland also provides a healthy research funding environment for more specific projects, particularly in collaboration with industry. Ireland is the second largest exporter of software in the world, and has a disproportionately large computing industry. Nine of the top ten global technology companies have R&D operations in Ireland, including Google, Apple, Facebook, Microsoft, Intel and IBM. Dublin has a strong technology start-up culture, and indeed many technology start-ups originated among Trinity College researchers. Ireland is an exciting place to work in computing research, and researchers within the university have existing funded research projects with many of these large and small companies.
Role of the Ussher Assistant Professor
The Ussher Assistant Professor will be required to conduct the following:

Research
» Conduct high impact research that sustains a high quality publication record;
» Actively seek competitive research funding;
» Contribute to the development of the Discipline.

Teaching
» Contribute to the undergraduate and postgraduate teaching programmes of the School and to ensure the delivery of research-led teaching
» Supervise undergraduate and postgraduate student projects
» Supervise PhD research students

Administration
» All members of the School are expected to undertake appropriate administrative duties.

Person Specification
The successful candidate will be expected to provide evidence of and demonstrate clearly the following:

Qualifications
The successful candidate must have:
» A PhD degree in Computer Science, Computer Engineering or a closely related field

Knowledge and Experience
Research
Essential
» Proven ability or substantial evidence of potential to establish a strong record of research;
» Demonstrated potential for research leadership, including the ability to build and sustain a research group;
» Research plans which complement existing research strengths within the School.

Desirable
» Research which demonstrates high impact e.g. via citations or technology transfer.
» Have a successful track record in building strategic partnerships and securing independent funding from competitive sources such as H2020;
A willingness to engage with the wider research groups within the School and College;

Ability to contribute to the SFI Lero Research Centre and College identified Research strands.

**Teaching**

**Essential**

- Ability to deliver lectures and practical classes in Computer Science to undergraduate and postgraduate students;
- Ability to develop teaching modules relevant to the undergraduate and postgraduate degrees within the School of Computer Science & Statistics;
- Excellent communication and interpersonal skills;
- A commitment to student care.

**Desirable**

- Experience of using new teaching media, especially online material;
- Experience of supervising undergraduate and postgraduate dissertations;
- Evidence of personal contribution and commitment to excellence in teaching;
- Experience of developing new modules and teaching material.

**Administration**

**Essential**

- Ability to work collaboratively and effectively;
- Excellent organisational and administrative skills;
- Ability to co-ordinate and manage modules and courses in a university setting.

**Other essential attributes**

- Honesty and integrity;
- Willingness to contribute to the Discipline, School, College and to the wider community.
- Enthusiastic and motivated;
- A commitment to own professional development.
The School of Computer Science and Statistics

http://www.scss.tcd.ie/

The School of Computer Science and Statistics (SCSS) comprising the five academic disciplines of Computer Systems, Information Systems, Intelligent Systems, Software Systems and Statistics was established in July 2005 from a merging of two long-established departments: Computer Science and Statistics. Synergies in areas such as digital content, telecommunications, computer vision and ubiquitous computing, combined with cutting edge statistical learning research has provided a rare environment in which today members of SCSS exploit the emergence of data and its analysis as a driver in many fields of computer science and statistics.

Comprising 68 academics and over 100 research staff, the School is internationally recognised for the quality of its research and teaching and is ranked in the top 100 Computer Science Schools worldwide as well as the highest ranked in Ireland.

The School hosts two Science Foundation Ireland (SFI) Research Centres: ADAPT and CONNECT, and is a partner in further two: LERO and INSIGHT. Also, four of TCD’s multidisciplinary research themes, namely Creative Technologies, Digital Humanities, Intelligent Content & Communications, and Smart Sustainable Cities are led by members of SCSS. The School currently coordinates six European Commission projects and is partner in a further seven.

The School signed research contracts in excess of €50 million over the last three years from a range of national and international agencies such as Science Foundation Ireland (SFI), Enterprise Ireland as well as the European Commission’s Seventh and Horizon 2020 Framework Programmes.

The School offers a wide range of undergraduate and postgraduate degree programmes on which approximately 1200 students are registered this year. In addition, the School offers opportunities for higher degrees by research and there are currently over 150 registered PhD students in the School.

Software Systems Discipline

The Discipline of Software Systems has a research focus on software performance, optimization and software correctness. Our research spans from highly practical research on compilers and parallelization to more theoretical work on programming languages and correctness, united around a strong relevance to embedded and ubiquitous systems. The Discipline is closely aligned with the Science Foundation Ireland (SFI) funded national research centre, Lero – the Irish Software Research Centre. We also have a long record of meaningful research collaboration with industry, and have funded projects with Movidius, IBM Research, Intel and the European Space Agency.

The Selection Process in Trinity

The Selection Committee (Interview Panel) will include members of the Academic community together with an External Assessor who is an expert in the area
Applications will be acknowledged by email. If you do not have confirmation of receipt within 1 day of submitting your application online, please get in touch with us immediately and prior to the closing date/time.

Given the degree of co-ordination and planning to have a Selection Committee available on the specified date, Trinity regrets that it may not be in a position to offer alternate selection dates. Where candidates are unavailable, reserves may be drawn from a shortlist.

Outcomes of interviews are notified in writing to candidates and are issued no later than 5 working days following the selection day.

In some instances the Selection Committee may avail of telephone or video conferencing.

Trinity’s selection methods may consist of any or all of the following:
- Interviews
- Delivery of a presentation will be required as part of the selection process
- References - if a candidate is shortlisted, the listed referees on the candidate’s application will be contacted in advance of interview

It is the policy of the University to conduct pre-employment medical screening/full pre-employment medicals.

Information supplied by candidates in their application will be used to shortlist for interview. Candidates who do not adhere to the application requirements may not be considered for shortlisting.

Applications from non-EEA citizens are welcomed. Non-EEA candidates should note that the onus is on them to secure a visa to travel to Ireland prior to interview. Non-EEA candidates should also be aware that even if successful at interview, an appointment to the post is contingent on the securing of a work permit.

Equal Opportunities Policy

Trinity College Dublin, the University of Dublin is an equal opportunities employer and is committed to the employment policies, procedures and practices which do not discriminate on grounds such as gender, civil status, family status, age, disability, race, religious belief, sexual orientation or membership of the travelling community.

Pension Entitlements

This is a pensionable position and the provisions of the Public Service Superannuation (Miscellaneous Provisions) Act 2004 will apply in relation to retirement age for pension purposes. Details of the relevant Pension Scheme will be provided to the successful applicant.

Applicants should note that they will be required to complete a Pre-Employment Declaration to confirm whether or not they have previously availed of an Irish Public Service Scheme of incentivised early retirement or enhanced redundancy payment. Applicants will also be required to declare any entitlements to a Public Service pension benefit (in payment or preserved) from any other Irish Public Service employment.

Applicants formerly employed by the Irish Public Service that may previously have availed of an Irish Public Service Scheme of Incentivised early retirement or enhanced redundancy payment should ensure that they are not precluded from re-engagement in the Irish Public Service under the terms of such Schemes. Such queries should be directed to an applicant’s former Irish Public Service Employer in the first instance.
Trinity College Dublin

Trinity College Dublin is Ireland’s leading university on the world stage. Recognised for its transformative research and education conducted at the frontiers of disciplines, Trinity is ranked 78th in the world by the QS World University Rankings 2015.

The pursuit of academic excellence through research and scholarship is at the heart of Trinity’s academic endeavour. Trinity is known for intellectual rigour, excellence, interdisciplinarity, and research-led teaching. Home to Nobel prize-winners such as scientist Ernest Walton, write Samuel Beckett and William C. Campbell, recipient of the 2015 prize in Medicine, Trinity draws visitors from across the world to its historic campus each year, including to the Book of Kells and Science Gallery which capture the university’s connection to both old and new.

Trinity accounts for one-quarter of all spin-out companies from Irish higher education institutions, helping to turn Ireland into an innovation-intensive, high-productivity economy. That culture of innovation and entrepreneurship is a defining characteristic of our campus as we help shape the next generation of job creators and global citizens.

Founded in 1592, Trinity is situated at the nexus of tradition and innovation, offering undergraduate and postgraduate programmes across 24 schools and three faculties: arts, humanities, and social sciences; engineering, mathematics and science; and health sciences.

Spread across 47 acres in Dublin’s city centre, Trinity has a 17,000-strong student body, 3,000 staff and over 107,000 alumni around the world. Of the student body, 16% come from outside Ireland and, of those, 40% are from outside the European Union, making Trinity’s campus cosmopolitan and bustling, with a focus on diversity.

Trinity has developed significant strength in a broad range of research areas, including the 19 broadly based multi-disciplinary thematic research areas. Trinity is home to Ireland’s first purpose-built nanoscience research institute, CRANN, housing 150 scientists, technicians and graduate students in specialised laboratory facilities. Meanwhile, the state-of-the-art Trinity Biomedical Sciences Institute is carrying out breakthrough research in areas such as immunology, cancer and medical devices. Trinity College Institute of Neuroscience (TCIN) leads brain research in Ireland and is the country’s only dedicated neuroscience research institute. TCIN is an interdisciplinary research institute with Principal Investigators from a wide range of disciplines including psychology, physiology, biochemistry, engineering, psychiatry and genetics.

The Library in Trinity is the largest research library in Ireland, with a collection of six million printed items, 500,000 maps, 80,000 electronic journals, and 350,000 electronic books. Some of the world’s most famous scholars are graduates of Trinity, including writer Jonathan Swift, dramatist Oscar Wilde, philosopher George Berkeley, and political philosopher theorist Edmund Burke. Three Trinity graduates have become Presidents of Ireland - Douglas Hyde, Mary Robinson and Mary McAleese.
Trinity's Global Rankings

Trinity is:

» Recognised internationally as Ireland’s leading university in the QS World University Ranking, the THE World University Ranking and the Academic Ranking of World Universities (Shanghai).

» Ranked 78th in the world and 27th in Europe by the QS World University Rankings, in terms of overall research and in the top 75 universities in the world in terms of citations (researchimpact).

» Ranked in the top 1% of research institutions in the world in 17 fields - an increase of over 150% from 2004 (Thomson Reuters Essential Science Indicators, September November 2015).

» Ranked in the world’s top 10% universities in terms of International Outlook (Times Higher Education World University Ranking, 2015).

» Ranked in the top 200 world universities in 25 of the 28 disciplines in which it was evaluated in the 2015 QS World University Rankings by subject including:
  - In the top 50 universities in the world in 5 subjects, one of which is Biological Sciences (at 48th).

In the top 100 universities in the world in a further 14 subjects, including Medicine, Computer Science and Information Systems and Pharmacy and Pharmacology.

Research at Trinity

Trinity’s research leverages areas of multidisciplinary expertise where the University has critical mass of world-class primary investigation. Trinity’s research is across science, engineering, social sciences, medicine and the arts. These research areas address immediate and long-term challenges in society, as well as offering opportunities for economic development.

Research is central to the generation of the new disruptive ideas that will underpin future sustainable businesses. The value created by Trinity is critical for Ireland’s economic and social development, as well as society globally.

Trinity’s research themes are supported by a set of research institutes that provide the infrastructure needed to support multi-disciplinary research as well as engagement with enterprise and social partners working in partnership with Trinity’s 24 schools. Built on the foundations of individual excellence, clustering expertise into multi-disciplinary teams, Trinity has a portfolio of research activity presented as 19 themes www.tcd.ie/research/themes, which have scale, resources and the ability to solve large scale research challenges.

Trinity’s credentials in research and innovation are strong:

» According to Thomson Reuters Essential Science Indicators, in terms of research impact as measured by citations, Trinity ranks among the world’s top 1% of research institutions in 17 STEM and social sciences fields, including immunology, materials science, and molecular biology and genetics.

» Trinity’s researchers have made major contributions to global society. Trinity’s mathematics gave us quaternions which underpin modern spaceflight while our chemists developed the world’s first commercial nicotine patch, in collaboration with Elan Pharmaceuticals.

» Trinity has an outstanding record of publications in high-quality journals and in terms of the impact of its research publications.

» Research expenditure rose by 10% to €87m in 2013/14 reflecting the university’s success in securing new awards over the past number of years, in particular from SFI and the EU. The value of new awards entered into in the year 2013/14 amounted to €67m, bringing the total value of the Research Portfolio to over €480m.

» In the period 2010 to 2015, 102 licences have been granted to industry, Trinity has received 314 disclosures of novel inventions, and 36 new
Trinity campus companies have been formed to commercialize Trinity’s intellectual property.

» In 2008, Trinity created Science Gallery on our Dublin campus, attracting over 1.5 million people to unique exhibitions, from living art experiments to materials science and from the future of the human race to the future of play.

» The Trinity Biomedical Sciences Institute (TBSI) opened in 2011. Among the key highlights so far are:
  - 76 companies working with researchers to develop new products in biomedicine;
  - €36 million raised for interdisciplinary research; and,
  - Three spin-out companies involved in drug discovery and development, and cancer treatment - Opsona Therapeutics, Trino Therapeutics and TriMod.

» Trinity is partnering with the University of California, San Francisco to establish the Global Brain Health Institute (GBHI), which was funded by a €165m gift from Atlantic Philanthropies to address the problem of dementia and ageing related neuro degeneration. GBHI will train the next generation of ageing specialists from around the world and position Trinity as a global leader in ageing and dementia research.

» Trinity also has a growing presence in telecommunication and software research. The CONNECT telecommunications centre addresses network and spectrum optimization while ADAPT specializes in software customization.

Trinity’s Flagship Research Institutes

Trinity’s research institutes provide the infrastructure to support multi-disciplinary research, working in partnership with Trinity’s faculties and schools www.tcd.ie/research/institutes

Trinity’s International Research collaborations

Full details of Trinity’s research and innovation strategies as well as international research collaborations are available at:
www.tcd.ie/research
www.tcd.ie/innovation
www.tcd.ie/research/worldleaders/brochure2014
Research in Ireland

Ireland is a country of 4.5 million people with a global diaspora of 70 million more, which has a significant impact on global affairs in terms of culture, business and research. Over the last decade, Ireland has demonstrated a clear commitment to the development of a knowledge-led economy, in good times and bad, with unprecedented investment on a national level in education, science and technology.

This strategy is based on harnessing its unique international success in attracting foreign direct investment, and ensuring that Ireland remains not just a global hub for manufacturing but also increasingly for research, development and innovation.

Ireland has proven to be the most effective gateway for international businesses into Europe. This small offshore island has successfully become a global economic centre with a truly remarkable cluster of world-leading businesses.

» Nine of the top ten global companies in medical technologies have a high volume manufacturing base here and a growing presence in Research and Development.

» Nine of the top ten global pharmaceutical companies are located in Ireland, with seven out of ten pharmaceutical blockbusters produced here.

» The ICT sector in Ireland attracts global investment with seven of the world’s top ten companies operating here. The sector accounts for €50 billion in Irish exports and is continuing to grow.

» Ireland has in recent years become the internet hub for Europe with companies such as Google, Facebook, AOL, PayPal and a host of gaming companies picking Ireland as their European location.

» Strategic clusters of leading global companies in Life Sciences, ICT, Engineering, Services, Digital Media, and Consumer Brands.

» An established reputation as a hub for business process improvement in the region

Ireland’s growing international reputation for research excellence is primarily due to research funded by Science Foundation Ireland (www.sfi.ie). SFI has invested over €1,400 million in research at Irish universities over the last decade. This investment, guided solely by international peer review and research excellence, has taken the form of both individual PIs awards and the development of ten Centres for Science, Engineering and Technology. The research investment has led to significant improvements in the quantity and quality of the published output.

Ireland is now ranked in the top 20 countries globally in scientific global rankings and ranks 3rd for immunology and 8th for material science. (Source: Thomson Reuters Essential Science Indicators) The investment has also transformed the competitiveness of Irish universities such as Trinity College Dublin, Ireland’s leading university.

Advantages include:

» A politically stable country and respected regulatory regime.

» A thriving RD&I sector, with strong Government support for productive collaboration between industry and academia.

» A strong legal framework for development, exploitation and protection of Intellectual Property rights.

» Strategic location with easy access to the Europe/Middle East region.

» Excellent IT skills and infrastructure.

» Good telecommunications infrastructure, with state-of-the-art optical networks and international connectivity.
Did you know?
Ireland is....

» Forbes’ Best Country for Business 2013
» First in Europe for completion of higher education. 60% of students go on to higher education.
» Ranked ninth overall (out of 141 countries) in the Global Innovation Index 2012 (Insead).
» Highlighted as one of five up and coming countries in the world to watch for scientific research excellence (Nature)
» In the top 15 countries in scientific global ranking for international scientific citation per paper and higher in specific disciplines
  - First in Immunology
  - Second in Computer Science
  - Second in Microbiology
  - Second in Nanoscience and Nanotechnology
  - Third in Neurosciences and Behaviour
  - Fifth in Materials Science
  - Seventh in Pharmacology and Toxicology
  - Ninth in Molecular Biology and Genetics

» Ireland has a rich history of achievements in Science and Technology and continues to invest in its research and technology capabilities:
  - Robert Boyle – founder of modern chemistry
  - Ernest Walton – split the atom with John Cockcroft
  - Sir William Rowan Hamilton – modern maths and gaming
  - Sir Charles Parsons – engineer
  - Sir Francis Beaufort – devised the Beaufort wind force scale.

Dublin is......

Ranked as the best city in the world for human capital (Economic Intelligence Unit).

Ranked in 34th position (alongside Boston) and is the highest ranking city across the UK and Ireland in the 2015 Mercer Quality of Living rankings.

Popularly renowned as one of Europe’s leading cities for quality of living, tourism and entertainment.

Home to a vibrant tech and startup scene and is the European headquarters for companies such as Google, Facebook, Twitter, IBM, and Microsoft.

Indeed, many of Dublin’s best cultural, historical and entertainment centres are within easy walking distance of Trinity’s gates.