QUEEN'S
UNIVERSITY
BELFAST
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CSIT
CENTRE
FOR SECURE
INFORMATION
TECHNOLOGIES

15 YEARS OF IMPACT

> "CSIT .... are a real role model for bringing academia, businesses and the community together, and creating jobs."

Lindy Cameron
Former CEO, UK National Cyber Security Centre (NCSC)*

CSIT is the UK's Innovation and Knowledge Centre for cyber security. Based at Queen's University Belfast (QUB) and founded in 2009, our mission is to couple major cyber security research breakthroughs with a unique model of innovation and commercialisation to drive economic and societal impact for the nation.

Uniquely for a UK research centre we have grown a significant engineering capability who work alongside commercial, innovation and policy professionals with deep domain expertise to accelerate our research to market.

CSIT sits within QUB's School of Electronics, Electrical Engineering and Computer Science and Momentum One Zero, a £70M innovation centre funded as part of the Belfast Region City Deal.

CSIT has gained an international reputation for our world class research and innovation activities in cyber security. Our research focuses on the underpinning technologies that are needed to secure complex systems and covers 3 core areas:

1 Secure Connected Devices
Trusted hardware and advanced cryptographic architectures

2 Networked Systems and Industrial Control System Security
Malware analysis, critical national infrastructure security and IT-OT security

3 Security Intelligence
Cyber physical security, video analytics, AI for cybersecurity and the security of AI

QUEEN'S UNIVERSITY BELFAST

SCHOOL OF ELECTRONICS, ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

MOMENTUM ONE ZERO

CSIT DIRECTOR

Professor Máire O'Neill has a strong international reputation for her research in hardware security and applied cryptography. She is Director of the UK Research Institute in Secure Hardware and Embedded Systems (RISE: www.ukrise.org) and serves on the leadership team of Responsible AI UK (RAIUK: rai.ac.uk) and the AI Hub for Productive Research and Innovation in Electronics (APRIL: www.april.ac.uk).

She previously led the €3.8M EU H2020 SAFEcrypto (Secure architectures for Future Emerging Cryptography: www.safecrypto.eu) project (2014-2018), and held a UK EPSRC Leadership Fellowship (2008-2014) and a UK Royal Academy of Engineering (RAEng) research fellowship (2003-2008). She has received numerous awards, which include a 2024 Royal Irish Academy Gold Medal, a Blavatnik Engineering and Physical Sciences medal, 2019, a Royal Academy of Engineering Silver Medal, 2014 and British Female Inventor of the Year 2007. She has authored two research books, and over 200 peer-reviewed international conference/journal publications.

Prof O'Neill has significant expertise in the design of high-speed and lightweight security architectures, physical unclonable functions (PUFs), side channel analysis and applied quantum-safe cryptography.

Her early research into high-speed AES hardware architectures was successfully commercialised by Amphion Semiconductors, Belfast, and utilized to provide security in their set-top box chip sets. She currently serves as chair of the RAEng research committee and served as chair of the IEEE Circuits and Systems for Communications Technical committee from 2022 to 2024. She is a Fellow of the Royal Academy of Engineering, a member of the Royal Irish Academy and Fellow of the Irish Academy of Engineering.

CSIT DEPUTY DIRECTOR

Professor Paul Miller is Deputy Director, CSIT and Director of the Cyber AI Hub (https://tinyurl.com/cyber-ai-tech-hub). He is also Director of the £68M Momentum One Zero global innovation institute (https://momentumonezero.com/). He has led major EPSRC, InnovateUK, InvestNI and industry funded programmes valued at over £12m. In 2022 he received the ACM Workshop on AI and Security Best Paper Award, and also received the UK's Best Knowledge Transfer Partnership Award and Belfast Telegraph Cybersecurity Project of the year award. In 2019 he was a finalist in the Mobile World Scholar Challenge for work on malware detection. He has published one book chapter and >140 peer-reviewed international conference/journal publications. His research focuses on the application of AI to cyber security (malware detection, website penetration testing, network intrusion detection and software vulnerabilities), the security of AI and computer vision for animal behaviour analysis. He is a member of the ETSI "Security of AI" Technical Committee.

CSIT OPERATIONS DIRECTOR

Judith Millar is Director Of Operations at the Centre for Secure Information Technologies (CSIT), with responsibility for strategic partnerships, industry engagement, and major projects to scale CSIT's research and innovation activities. Judith's role at CSIT leverages her experience in international marketing and business development in technology sectors, both within the software sector and in economic development. She is committed to CSIT's model of open innovation, supporting opportunities for engagement with both SMEs and multinational companies alike to deliver economic and social impact.

Judith worked with peers in the cyber-security industry to establish NI Cyber, the Northern Ireland cyber security cluster. NI Cyber is a vibrant and open community of innovative start-ups, SMEs and multinational corporations delivering products and services globally, alongside academic research, education and skills partners, and government stakeholders.

DEVELOPING A TALENT PIPELINE

CSIT's success, and that of the cyber security industry, is built on a steady pipeline of talented students and researchers.

CSIT academics and staff have been instrumental in ensuring that NCSC's CyberFirst programme of opportunities to help young people aged 11 - 17 years explore their passion for tech by introducing them to the fast-paced world of cyber security has been successfully rolled out in Northern Ireland. CSIT hosted the first CyberFirst event in 2018, brought in its industry partner, Allstate, to host subsequent events, and CSIT staff serve as CyberFirst schools assessment panel members.

Our Masters in Applied Cyber Security is training the next generation of global industry leaders. The course was established in 2014 and is fully certified by the UK National Cyber Security Centre (NCSC). Since then, we have enrolled over 430 students from around the world, who chose to study here in Belfast.

CSIT's doctoral training programme has graduated >45 PhD students to date. While a large majority of those have been focused on core technology areas we have also pioneered research in Financial Services through the Capital Markets Collaborative Network,

and at the interface between the social sciences, law, electronic engineering and computer science through the Leverhulme Interdisciplinary Network on Cybersecurity and Society (LINCS) and more recently the Leverhulme Interdisciplinary Network on Algorithmic Solutions (LINAS) in partnership with the The Senator George J. Mitchell Institute for Global Peace, Security and Justice.

Former graduates include Full Professors in leading Universities, Engineering Leads/ Directors in major companies (e.g. Imagination Technologies, Intel, NVIDIA, Austrian Power Grid) and government organisations (e.g. NCSC)).

We are currently training a cohort of 15 cyber security PhD students, funded as part of our £10.4M Cyber AI Hub. We were also recently awarded an EPSRC-funded Centre for Doctoral Training in Future Open Secure Networks (CDT-FORT) in partnership with the University of Surrey which will create a community of at least 50 postgraduate researchers, who will become industry-conscious thinkers and leaders with a unique range of expertise that encompasses cybersecurity, wireless communications, networking and AI.
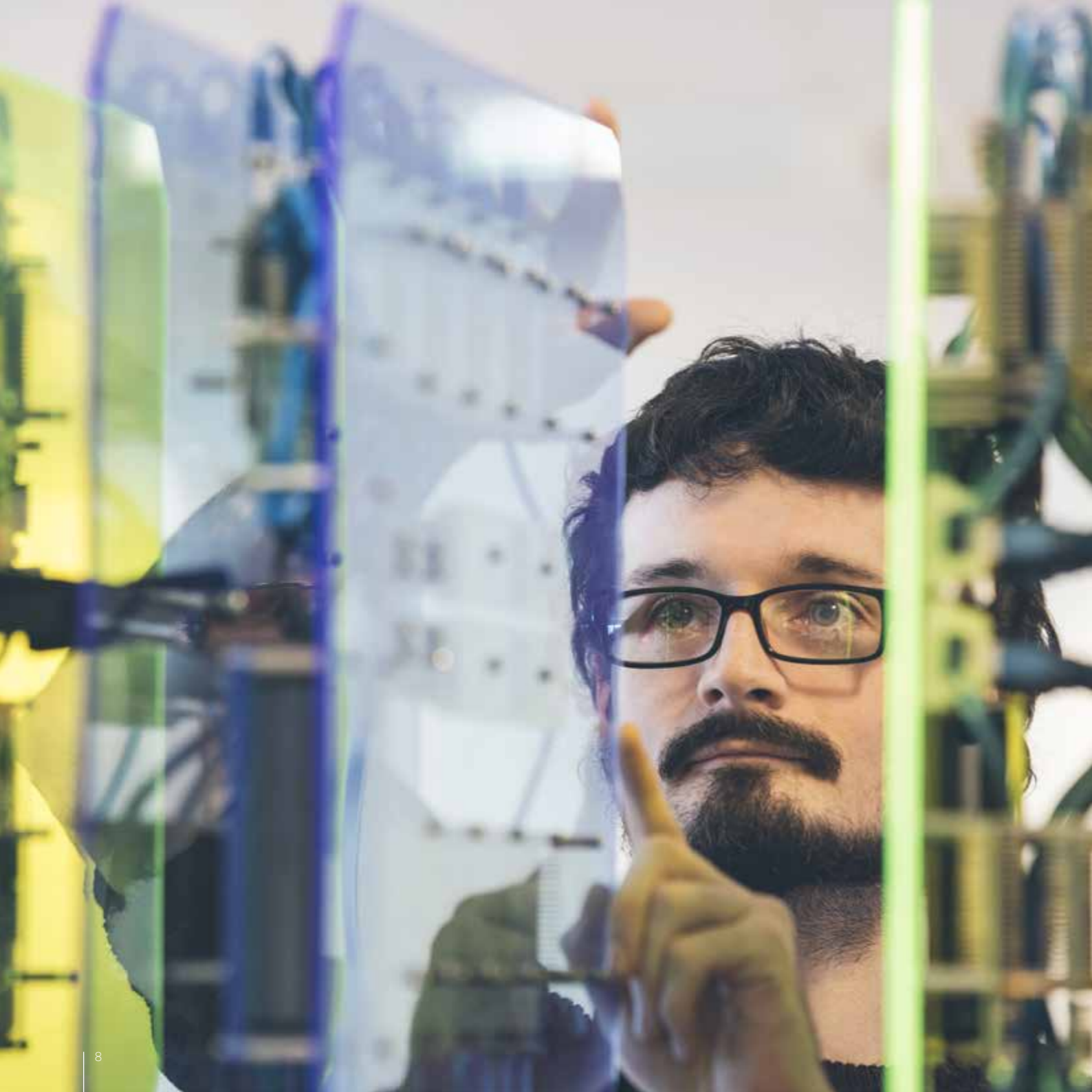
CSIT'S PhD TRAINING PROGRAMME HAS GRADUATED >45 PhD STUDENTS TO DATE

430 STUDENTS FROM AROUND THE WORLD ENROLLED SINCE 2017
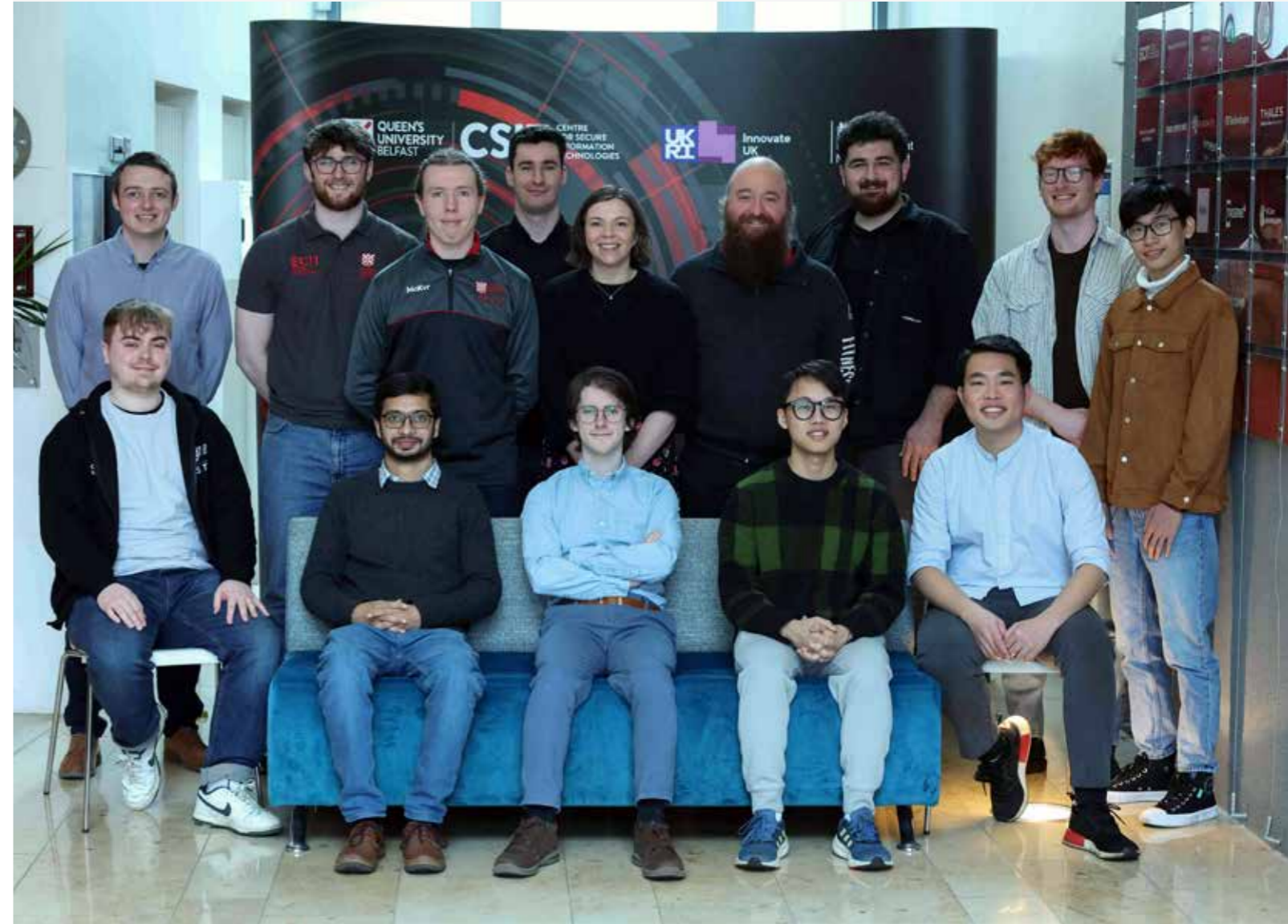
RESEARCH PROGRAMMES AND SCALE

CSIT currently has 90 staff comprising academic researchers alongside engineering, professional services and commercial teams, making it one of the largest Centres of its kind in the UK. Since 2009 CSIT has secured additional external funding of >£65M.

Significant research programmes to date have included:

- **IQN Hub** - The £20.8M EPSRC-funded Integrated Quantum Networks hub (led by Heriot Watt University) comprises 15 partner universities with CSIT's Dr Ciara Rafferty as Assistant Director. CSIT will contribute hybrid and post-quantum cryptography solutions to secure future networks.
- The **CHIST-ERA funded TruBrain** project (2024-2027), led by Dr Ihsen Alouani and Professor Jesus Martinez del Rincon, investigates privacy-preserving, secure and low power distributed intelligent systems.
- **The Rolls Royce Cybersecurity Technology Research Network**, which includes just three research centres worldwide, CERIAS at Purdue University, CyLab at Carnegie Mellon University and CSIT at QUB.
- **The UK Research Institute in Secure Hardware and Embedded Systems** (RISE: ukrise.org), funded by EPSRC and the NCSC and led by Professor Máire O'Neill.
- **XANDER** (2021-2023) - This €5m EU Horizon 2020 project with a consortium of 11 partners, including CSIT, focused on delivering a mature software toolchain for rapid prototyping of interoperable and autonomous embedded systems.

- **SAFEcrypto** (2014-2018) - Worth €3.8m and led by Professor Máire O'Neill, this was the first major EU Horizon 2020 project to be co-ordinated in Northern Ireland. The consortium of 8 partners focused on developing secure architectures for future emerging cryptography.
- **CAPRICA and COSMIC** - Led by Professor Sakir Sezer and Dr Kieran McLaughlin, core projects in the UK Research Institute in Trustworthy Inter-connected Cyber-physical Systems (RITICS).
- **The Security, Privacy, Identity and Trust Engagement NetworkPlus** (SPRITE+), led by the University of Manchester, in partnership with CSIT at QUB, Imperial College London, the University of Southampton and Lancaster University.

CSIT was one of the first Academic Centres of Excellence in Cyber Security Research recognised by the NCSC and EPSRC in 2011 with that status retained in the latest round of assessments in 2024. QUB was also recently recognised as an Academic Centre of Excellence in Cyber Security Education with a Gold Award by NCSC and DSIT.

In the 2021 Research Excellence Framework (REF) assessment >96% of QUB's engineering research and its impact, to which CSIT made a major contribution, was recognised as world-leading or internationally excellent. CSIT has contributed significantly to QUB's impact goals and provided 3 impact case studies for REF 2021.

90 STAFF MAKES US ONE OF THE LARGEST CENTRES OF ITS KIND IN THE UK

CSIT CONTRIBUTED 3 IMPACT CASE STUDIES FOR REF 2021.

National Cyber Security Centre — in association with
UKRI — Engineering and Physical Sciences Research Council
Academic Centre of Excellence in **Cyber Security Research**

Gold Award — in association with National Cyber Security Centre
Department for Science, Innovation & Technology
Academic Centre of Excellence in **Cyber Security Education**

CYBER AI HUB

The £10.4M Cyber-AI Hub, hosted by CSIT, seeks to deliver exceptional research, skills and innovation across a range of cyber related themes and develop a talent pipeline of cyber security professionals with strong industry links. Funded by the UK Government from the New Deal for Northern Ireland, it includes a Doctoral Training Programme, a hub for industry collaboration and skills development, bursaries for students to join Queen's MSc in Applied Cyber Security or MSc Artificial Intelligence, as well as an annual snapshot mapping the growth and development of the cyber industry in the region.

The Cyber-AI Hub spearheads research and innovation projects in collaboration with industry partners, which include Pytilia, Rapid7, Thales, Angoka, NVIDIA, Cynalytica and Ampliphae, each addressing critical cybersecurity challenges through the application of AI technologies.

Projects include AI-enabled security of 5G mobile telecoms networks, open-source threat intelligence, context-aware vulnerability detection and mitigation, ICS malware, verification of AI, AI for cloud security and device ID generation.

A CYBER-AI TECHNOLOGIES HUB WHERE COMPANIES AND ACADEMIA COLLABORATE ON THE ADVANCEMENT AND DEMONSTRATION OF AI AND CYBER SECURITY RESEARCH, INNOVATION AND SKILLS.

ACADEMIC RESEARCH IMPACT

Over the years CSIT has produced impressive research that has truly had an impact in the cyber security industry. Since 2019 CSIT staff have collectively published >170 peer reviewed international journal publications in the top quartile with an overall average Field-Weighted Citation Index (FWCI)* of 2.14 (sourced from SciVal).

Examples of research outputs that have received awards include:

- **Understanding the security implications in O-RAN with abusive adversaries**, M. Megarry, A. Masaracchia, M. Fahim, V. Sharma, T.Q. Duong, awarded best paper at the 10th EAI International Conference on Industrial Networks and Intelligent Systems, Feb 2024.
- **Optimising Vulnerability Triage in DAST with Deep Learning** S. Millar, D. Podgurskii, D. Kuykendall, J. Martinez del Rincon, P. Miller, awarded best paper at the 15thh ACM Workshop on Artificial Intelligence and Security, 2022.
- **Bearz Attack Falcon: Implementation Attacks with Countermeasures on the Falcon signature scheme** S. McCarthy, J. Howe, N. Smyth, S. Brannigan, M. O'Neill, awarded best paper at the 17th International Conference on Security and Cryptography (SECRYPT 2019), 2019.
- **Investigating Adversarial Attacks on Network Intrusion Detection Systems in SDNs**, J. Aiken, S. Scott-Hayward, awarded best paper at IEEE Conference on NFV-SDN, Dallas, Texas, November 2019.

- **STPA-SafeSec: 'Safety and security analysis for cyber-physical systems**, I. Friedberg, K. McLaughlin, P. Smith, D. Laverty and S. Sezer, Elsevier Journal of Information Security and Applications, June 2017, received the Dr. KW Wong Best Paper Award 2018, selected on the grounds of originality and impact from the publications of 2016-2018.
- **Optimised Multiplication Architectures for Accelerating Fully Homomorphic Encryption**, X. Cao, C. Moore, M. O'Neill, E. O'Sullivan, N. Hanley, IEEE Transactions on Computers, September 2016, chosen as IEEE Transactions on Computers 'Editor's pick of the year 2016'.
- **Pre-Processing Power Traces with a Phase-Sensitive Detector**, Hodgers, P, Hanley, N, O'Neill, M, awarded best paper at the IEEE International Symposium on Hardware-Oriented Security and Trust (HOST), pp. 131-136, Austin, Texas, June 2013.
- **FPGA Implementations of the Round Two SHA-3 Candidates**, Baldwin, B, Byrne, A, Lu, L, Hamilton, M, Hanley, N, O'Neill, M, Marnane, W.P, 20th International Conference on Field Programmable Logic and Applications, (FPL 2010), pp.400-407, Italy, August 2010. In 2015, to celebrate 25 years of the International Conference on Field-programmable Logic & Applications (FPL) this paper was recognised as one of the top 27 papers over the 25 year history of the conference 'deemed to have most strongly influenced theory and practice in the field'.

170+ PEER REVIEWED INTERNATIONAL JOURNAL PUBLICATIONS IN THE TOP QUARTILE SINCE 2019

* FWCI is the ratio of the total citations actually received by the research outputs, and the total citations that would be expected based on the average of the subject field. A FWCI of 1 means that the output performs just as expected for the global average.

INDUSTRY ENGAGEMENT AND RESEARCH TRANSLATION

CSIT's unique model of innovation includes a dedicated business development and engineering team who work alongside the academics to pull-through research into new business opportunities, which allows us to collaborate and co-create solutions with companies of different sizes and deliver shorter term as well as longer term research and innovation projects. CSIT's engineering team has enabled CSIT to deliver rapid-response projects to more than 150 start-ups and SMEs across the UK.

CSIT's membership model has seen us develop longstanding advisory and industrial collaborations with global partners including **Altera**, **Allstate**, **BAE Systems**, **Cisco**, **Direct Line Group**, **First Derivatives**, **IBM**, **Infosys**, **Intel**, **McAfee**, **Roke**, **Rolls Royce**, **Seagate**, **Thales** and **Qualcomm**.

Our model of innovation has been at the heart of our success over the last 15 years. It allows research to translate to industry in an agile way, ensuring demonstrable technology is in the hands of end users quickly. Examples include:

- Partnering with **BAE Systems** on video based semantic analysis of crowd behaviour for the UK Defence and Security Accelerator.
- **Thales** have used our novel PUF technology in demonstrators for electronic component anti-counterfeiting and enhanced secure-boot.
- Working with **Thales** to successfully demonstrate the use of public key cryptography in satellite applications for the first time.

- A collaboration with **TES Group**, led to the discovery of a critical vulnerability affecting critical national infrastructure networks globally. As a result the vendor developed mitigation measures ensuring the vulnerability cannot be exploited by hackers.
- Working with **Linz AG**, an electrical distribution company in Austria, to reveal several problems and vulnerabilities in SCADA networks.
- We have **open-sourced tools** for testing the security of SDN devices - DELTA (SDN Security Evaluation) and TENNISON (SDN Security Framework).
- Collaborating with **Allstate** to apply cyber security research to the problem of detecting anomalous and fraudulent insurance claims.
- Working with **B-Secur** to refine the accuracy of their ECG authentication technology.
- The application of CSIT's video analytics technology in chicken welfare, in collaboration with the **Institute for Global Food Security** at QUB and **CattleEye** with funding from the Foundation for Food and Agriculture Research (**FFAR**) and **McDonald's**.
- A proof-of-concept project with **Salunda** to apply CSIT's video analytics IP to use cases in the oil and gas industry.
- Collaborating with **Nokia Bell Labs** on the acceleration of Homomorphic Encryption using customised hardware for privacy preserving machine learning applications.

WE HAVE DELIVERED RAPID-RESPONSE PROJECTS TO >150 START-UPS AND SMES ACROSS THE UK

CREATING NEW VENTURES

CSIT has supported a number of spin-out companies over the years including Affyon, Ditaca, Sirona, Liopa, Sensurity and Cognition Video, which focused on delivering cyber security solutions involving content inspection, visual speech recognition, cryptography technologies, intrusion detection and platforms for automatic and intelligent image and video processing.

Our most successful spin-out, **Titan IC Systems**, was founded in 2009 based on the pioneering work of Professor Sakir Sezer and Dr Dwayne Burns, previously Principal Engineer at CSIT. Over eleven years, CSIT and Titan IC collaborated on many projects and the company was used as a vehicle for commercialising network intelligence and security technology such as the RXP regular expression processor developed at the Centre. Titan IC was acquired in 2020 by Mellanox, a leading supplier of high-performance, end-to-end smart interconnect solutions for data centre servers and storage systems and subsequently NVIDIA, the US based semiconductor company which designs graphics processing units (GPUs) for the gaming and professional markets, as well as system-on-a- chip units for the mobile computing and automotive markets.

Following the acquisition CSIT worked with NVIDIA on a large Invest NI Grant for R&D proposal in 2021 (worth around £600k to CSIT), which saw the company's R&D operations expanded further in Belfast.

CYBER SECURITY ECOSYSTEM BUILDING

CSIT has been a critical resource in establishing and promoting Northern Ireland as a leading UK cyber security innovation ecosystem through spin-out commercialisation of research, the scale-up of local and regional businesses and attracting foreign direct investment. CSIT's regional impact has ensured Northern Ireland continues to be the number one international investment location for US cyber security development projects (Source: fDi Markets FT, 2023).

CSIT leveraged its unique position as a leading academic research centre in cyber security to bring industry leaders together to establish NI Cyber, the region's cyber security cluster.

NI Cyber works to foster collaboration, innovation, and growth across its vibrant community of industry, academic institutions and training providers, organisations, and individuals working in cyber security. It provides a platform for members and stakeholders to share knowledge, resources, and expertise in an inclusive environment that benefits all participants.

NI Cyber both supports and represents the region's cyber security community, ensuring that NI remains an attractive and innovative location for cyber security companies to form and scale. Since its inception, NI Cyber has built strong connections locally and nationally, working with Cyber Ireland and the wider UKC3 cybersecurity cluster collaboration ecosystem.

This burgeoning cyber security innovation ecosystem has grown significantly and now numbers over 125 companies employing approximately 2,750 cyber security professionals generating over £237m direct GVA to the economy (Source: NI Cyber security Snapshot, 2024), with an ambition to reach 5,000 by 2030.

The Royal Society recognised CSIT's cyber security innovation ecosystem in its 2020 'Research and Innovation Clusters' report, while the UK Research and Development Roadmap, published by the Department for Business, Energy and Industrial Strategy (BEIS) in 2020 highlights CSIT as a case study on how investment in research, development and innovation can deliver economic impact to the surrounding area and beyond.
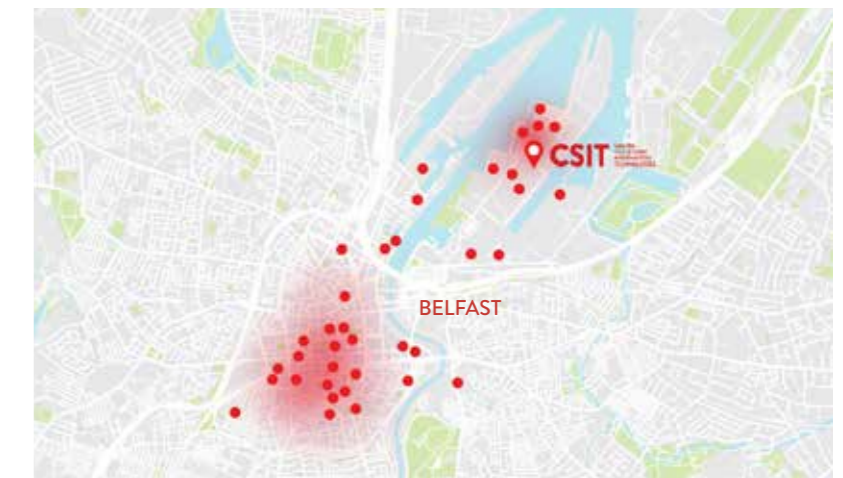
BELFAST IS ONE OF THE WORLD'S MOST CONCENTRATED CYBER SECURITY CLUSTERS, WITH MORE THAN 125 CYBER SECURITY BUSINESSES AND TEAMS

CSIT IMPACT ON UK CYBER SECURITY INNOVATION

During CSIT Phase 2 CSIT delivered an incubator programme, CSIT Labs, helping new businesses to start, scale and engineer cyber security products. 17 start-ups from across the UK graduated from the incubator programme over three cohorts.

Our CSIT Labs experience has since been applied on a truly national scale. In order to support early-stage ideas and start-ups, the UK Department for Digital, Culture, Media and Sports (DCMS) has funded major UK national initiatives in which CSIT has been a co-founding partner. These include HutZero, Cyber101, LORCA,Ignite and Cyber Runway.

Through the LORCA programme (2018 - 2022), CSIT, in partnership with Plexal and Deloitte, supported the accelerated growth of 72 innovative cyber companies. These companies collectively raised £200m in investment, generated over £38m in revenue and have created more than 600 jobs, CSIT's research informed the product roadmaps of these companies and the centre's engineering team providing six weeks of specialist technical consultancy and delivery to each company to help bring their product roadmaps to reality and to market.

CSIT is a delivery partner on Cyber Runway, the UK's largest cyber security accelerator, funded by the Department of Science, Innovation and Technology (DSIT). Cyber Runway works with founders from idea to scale-up to fast-track their growth. Since 2021 CSIT has worked with Cyber Runway to support over 250 companies to launch products, raise funding and secure pilots.

It is a truly national programme, and has welcomed startups from across the UK, with over half of our alumni companies originating from outside of London and the South East.

SINCE 2021 CSIT HAS HELPED CYBER RUNWAY SUPPORT OVER 250 COMPANIES

CSIT ANNUAL CYBER SECURITY SUMMIT

The most powerful innovation happens at the 'Intersection', where ideas and concepts from diverse industries, cultures, and disciplines collide.

CSIT's Annual Cyber Security Summit brings together a select group of national and international cyber security experts from government, industry, entrepreneurs, venture capital, civic society and academia to discuss future challenges and opportunities in the cyber security sector, which helps to inform CSIT's research and innovation roadmap.

SHAPING GOVERNMENT POLICY AND SUPPORTING IT GLOBALLY

Since being established CSIT has worked closely with Government agencies such as the Home Office, DSTL, GCHQ and NCSC through our advisory board to help shape the technology landscape. Furthermore, our staff have advised local and national government departments, including DCMS and DSIT, on a variety of strategic initiatives and policies in relation to cyber security.

- **UK Cabinet Office** - National Cyber Security Strategy 2016 to 2021

- **Department of the Economy** - Industrial Strategy for Northern Ireland

- **Department of Finance** - NI Cyber Security Strategic Framework for Action

- **Royal Society** - Progress and research in cybersecurity: Supporting a resilient and trustworthy system for the UK

- **UK Department for Digital, Culture, Media and Sport (DCMS**) - UK Cyber Security Sectoral Analysis 2020 - 2024

- **UK Department for International Trade** - UK Cyber Security Export Strategy

- **UK Foreign and Commonwealth Office** - UN International Cyber Norms GGE and OEWG

- **UK Delegation to ITU** - T Study Group 17 (Security)

- **UK Delegation to ETSI** - TC Cyber including WG on securing artificial intelligence and quantum safe cryptography

- **All-Ireland Cyber Security Group**

- **Northern Ireland Cyber Leadership Board**

- **UK Cyber Growth Partnership**

- **DCMS College of Experts**

- **CPNI STEM Forum**

- **AI Council membership**

- **National Cyber Advisory Board membership**

- **Whitepaper** on 'Security in the Era of Global Semiconductor Initiatives', July 2024

- **Annual NI Cyber Security Snapshot** (with Perspective Economics)

Recently CSIT staff delivered two major policy reports with the support of DCMS and DSIT respectively:

- **Shaping the Metaverse: Policy Engagement with Immersive technologies in the UK** - July 2023

- **Study of Research and Guidance on the Cyber Security of AI** - May 2024

RECOGNITION

The impact of CSIT's research and innovation activities has been recognised on the national and international stage, including:

- **Professor Máire O'Neill** - awarded the 2024 Royal Irish Academy Gold Medal in Engineering Sciences for pioneering research contributions in the areas of hardware security and applied cryptography.

- **David Crozier** (former CSIT Head of Strategic Partnerships and Engagement), CBE for services to the Economy, 2024.

- **Dr Godfrey Gaston** (former CSIT Operations Director), MBE for services to cyber security innovation, 2023.

- **UKRI Research Software Engineer Fellowship** - awarded to Dr Domhnall Carlin, 2021.

- **RAEng Bhattacharyya Award**, Finalist, 2021, recognising successful collaboration between industry and academia.

- **Professor Máire O'Neill**, honorary OBE for services to computer security, 2021.

- **NI's first Regius Professorship** - awarded to Professor John McCanny in 2016, and subsequently to Professor Máire O'Neill in 2020.

- **Dr Niall McLaughlin** - Finalist in the Mobile World Scholar Challenge at MWC19 in Barcelona for his work on Deep Learning for Mobile Malware Detection.

- **Professor Máire O'Neill** - Blavatnik Award for Young Scientists 2019 UK Awards Finalist - Physical Sciences & Engineering.

Professor Sir John McCanny and Professor Máire O'Neill at the 2024 RIA Gold Medal Award Ceremony

- **Professor Sir John McCanny** (former CSIT Director) - received Northern Ireland's only Knighthood in the 2017 New Year's Honours list in recognition for his services to higher education and economic development.

- **Dr Sandra Scott Hayward** - received the Outstanding Leadership Award 2016 by the Open Networking Foundation for her work on the Security Working Group.

- **Queens Anniversary Prize 2015** - CSIT was honoured by Her Majesty Queen Elizabeth II for its work in strengthening global cyber security.

- **PicoPUF** - led by Dr Neil Hanley, Prof Maire O'Neill, and Dr Chongyan Gu, won the 2015 INVENT award grand prize for innovative start-ups.

- **Professor Máire O'Neill** - awarded a Royal Academy of Engineering 2014 Silver Medal, which recognises **outstanding** personal contribution by an early or mid-career engineer that has resulted in successful market exploitation.

- **Professor Sir John McCanny** awarded the Royal Irish Academy's Cunningham medal (2011), also its most prestigious honour.

FUNDERS

CSIT has been fortunate to have had strong and supportive core funding partnerships with InnovateUK, the Engineering and Physical Sciences Research Council, UK Government NI and Invest Northern Ireland who shared our vision and took the bold step investing in world leading cyber security research harnessed to a strong entrepreneurial team of innovators to deliver impact and a dynamic ecosystem. This has proved strategically important in delivering economic impact for Northern Ireland as a region and for the whole of the United Kingdom.

THE FUTURE

CSIT has exciting plans for the future. We will consolidate and raise our level of impact nationally and internationally, continuing to fulfil our key role linking industry, government and academic expertise to promote economic growth.

Under the theme of "Securing Complex Systems", CSIT will research and develop new technologies, acting as a nucleating point to accelerate and promote disruptive business opportunities that arise for the wider benefit of the UK cybersecurity industry. CSIT will seed new research activity in emerging areas of cyber security including: Semiconductor Chip Security, Secure and Resilient Cyber-Physical Infrastructure, Securing Machine Learning, as well as targeting Space Security as a new sectoral focus, with the aim of attracting new funding to drive collaborative research and innovation in these areas.

CSIT is also involved in Momentum One Zero, a £70M project within the Belfast Region City Deal that aims to transform Northern Ireland's digital economy by substantially increasing the digital innovation activity taking place in the region. Momentum One Zero provides a novel multi-disciplinary environment, combining world leading expertise across cyber security (via CSIT), advanced wireless technologies, data science/AI and scalable computing, alongside internationally recognised excellence in food security/sustainability and health sciences. It offers CSIT exciting multidisciplinary research opportunities across its target sectors, including Digital Health, Agri-food and Fintech.