Issue 100 AUTUMN 2026

The newsletter of EPCC, the UK's first National Supercomputing Centre

epcc news

UK National Supercomputing Centre



100th issue

Directors' Welcome

Welcome to the 100th edition of EPCC News.

Reaching this milestone is an opportunity to reflect on just how much has changed since the first edition appeared. Over these 100 newsletters, we have seen high performance computing become an essential part of research and innovation, witnessed the rise of big data and artificial intelligence, and supported advances in a wealth of different disciplines at the intersection of academia, industry and the public sector. The technologies we work with have transformed dramatically, but one thing has remained constant: the people of EPCC.

As this centenary edition demonstrates, our greatest strength has always been the talent, commitment and creativity of our staff. Behind every system we operate, every research breakthrough we enable, every training course we deliver and every partnership we build, are colleagues whose expertise and enthusiasm make EPCC what it is. This edition rightly celebrates a cross section of our people and the contributions they make every day.

While we are proud of what has been achieved, we are equally excited about what lies ahead. Major work is underway on the Next National Supercomputer Service, helping to ensure the system will be able to shape the future of advanced computing in the UK. Our teaching and training programmes continue to evolve to meet new challenges and opportunities, and our collaborations with international partners are growing ever stronger, both in Europe and beyond.

Change has been a constant throughout these 100 editions, and it continues today. Thanks to our remarkable people at EPCC – now the UK National Supercomputing Centre – we continue to both respond to and drive the changes that enable the effective exploitation of novel computing throughout industry, academia and commerce.



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Meet EPCC at SC26

EPCC will be represented across the SC26 conference programme. **Find us at Booth 3455 and at sessions throughout the conference.** We hope to meet you in Chicago! For full details see:

https://www.epcc.ed.ac.uk/whats-happening/events/sc26

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EPCC is a UK National Supercomputing Centre based at The University of Edinburgh, which is a charitable body registered in Scotland with registration number SC005336.

Update on the Next National Supercomputer



We're pleased to report that, after a long period of development, the procurement process for the Next National Supercomputer was launched at the end of July 2026 and is proceeding at pace. We expect the winner to be announced in early 2027.

EPCC is involved in the procurement process for the first time, in its role as the National Supercomputing Centre and with myself as chair of the Supercomputer Procurement Group. This is a very welcome change which we hope will lead to a better service and a quicker transition from the implementation phase to the service delivery phase of the project in the first quarter of 2028.

While full details of the system will only be known after the procurement, it will be a large-scale GPU-accelerator based system similar to the large-scale systems that are being deployed by the European High Performance Computing Joint Undertaking (EuroHPC JU). While it is disappointing that the UK has not moved more quickly, this has at least allowed many commonly used codes to be ported to such systems during this decade. While much work remains to be done, a number of key applications will be available on the system from day one – and many more niche codes are already being ported by their communities.

With that in mind, we are very pleased to report that the Computer Room 4 (CR4) extension project at our ACF data centre is progressing at pace and is currently on schedule (see also page 4). This project will extend CR4 from a 6MW to 30MW room with 24MW available to the supercomputer itself. To give you an idea of scale, Edinburgh Airport consumes an average of around 1.7MW of electricity, the room capability is therefore around 14 "Edinburgh Airports" of power in a space the size of a sports hall.

The cooling and electrical distribution infrastructure dominates CR4 with around 70% of the building dedicated to this. In September this year we were honoured to host a visit by the UK Government Minister Kanishka Narayan to "sign the steelwork" as it was completed. Our main contractor, Robertson, was very proud to be able to tell him they have used British Steel throughout.

Sadly we are also planning the end of the ARCHER2 service. Inexplicably, UKRI decided to close the service more than 12 months before the new supercomputer will arrive. We will celebrate its successes in the next issue of EPCC News where we hope we'll also be able to confirm the details of the new system.

Mark Parsons
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The Advanced Computing Facility: building on strong foundations





For the 100th issue of EPCC News, I want to tell the story of our supercomputing data centre: its origins, what it is today, and what it will be in the future.

The Advanced Computing Facility (ACF) is located near Edinburgh on a country estate that was first established in 1722. In 1946 the estate was acquired by The Edinburgh Centre for Rural Economy and the University of Edinburgh.

The origins of the ACF itself can be traced back to October 1976, when the original building, the Edinburgh Regional Computing Centre (ERCC), was officially opened by the then rector of the University of Edinburgh, Mr Magnus Magnusson.

The ERCC was the biggest computer complex in Scotland at the time: costing more than £2m, it took just over two years to build and would serve the Universities of Edinburgh, Glasgow and Strathclyde. Its services included an ICL 2980, a leading computer of the 1970s, which was used by central and local government and Scottish-based industry. Up to 5000 people are thought to have had access to the system. We believe this machine was the second of its kind in Europe, with the first one prioritised for use by the European Space Agency.



The ERCC building became a regional office for the Guiness brewing company in 1987, and then for the Edinburgh Virtual Environment Centre (EVEC) in 1997, which used the original large computing room for motion capture and the development of early virtual reality environments.

In the early 2000s, Edinburgh Parallel Computing Centre (the future EPCC, established in 1990) hosted the Cray T3D, the first national supercomputing service in Edinburgh. It was recognised around this time that future large-scale parallel machines would need a larger home.



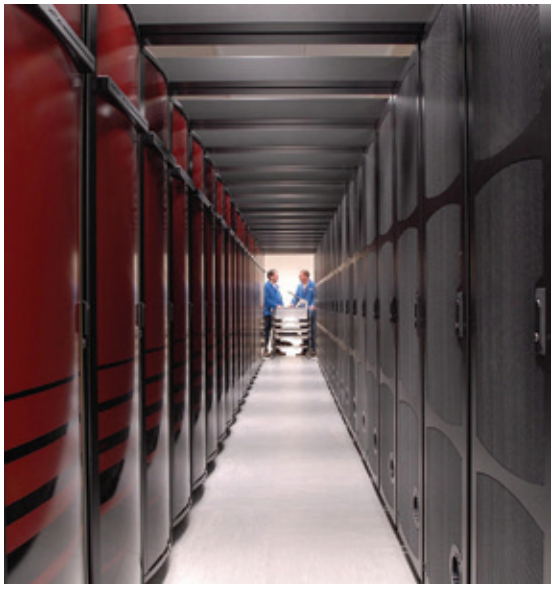
On 1 July 2005, the former ERCC building on the Bush Estate was formally reopened as the Advanced Computing Facility by the then Chancellor of the University, Prince Philip, the Duke of Edinburgh.

Evolution of the ACF

Our first modifications created two computer rooms – Computer Room 1 (cr1) and Computer Room 2 (cr2) – to house different systems.

2008

As part of an expansion of the HECToR (High End Computer Terascale Resource) UK National Supercomputing Service, Plant Room B (prB) was built to house infrastructure to cool the specialist equipment installed in cr1.



2011

The site grew again to include Computer Room 3 (cr3) and Plant Room C (prC). This large expansion provided the cooling infrastructure and space required to host the new UK National Supercomputing Service, ARCHER (Academic Research Computing High End Resource).



2019–2020

Changes made to cr3 and prC to accommodate ARCHER2, the successor to ARCHER (decommissioned November 2026).

December 2020

Computer Room 4 (cr4) and plant room D (prD) added as part of the Edinburgh and South East Scotland City Region Deal (ESES CRD), to support the Edinburgh International Data Facility (EIDF). In parallel, a new 30MVA power supply, substation, and switching building were installed, significantly enhancing the site's electrical capacity and resilience.

June 2025

UK Government announces that the University of Edinburgh will host the UK's Next National Supercomputer.

July 2025

UK Government announces that EPCC is to be the UK's first National Supercomputing Centre. The ACF was uniquely positioned for this role by years of sustained investment by the University of Edinburgh and the ESES CRD: cr4 was explicitly designed to support world-class computing and data infrastructure, while the existing 30MVA power supply has the electrical capacity required for the next generation of supercomputing systems. These are expected to be approximately 50 times more powerful than ARCHER2, with correspondingly greater power and cooling requirements.

Preparing for the future

Following a comprehensive design and procurement process, an extension to cr4 and its related plant room is now well underway (see photo opposite). This work includes the construction of the extension and associated infrastructure upgrades to support the operation of the facility.

As we move forward into a new technological age, the ACF and EPCC will continue to grow with the needs of the UK.

Referring back to the comments by Magnus Magnusson fifty years ago at the opening of the ERCC, EPCC and the University of Edinburgh have worked together to deliver what the ACF is today: "a computing facility for the universities themselves, for government and for industry", with a wealth of knowledge and expertise to support the needs of the UK.

Throughout the history of growth and change outlined here, one thing has remained constant – the drive and determination to ensure that EPCC and the ACF can be trusted to deliver major computing infrastructure of strategic importance to the UK.

Paul Clark, EPCC
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acf

Secure, faster, simpler: EIDF's summer of improvements

A new home for confidential data, faster multi-GPU scheduling and a simpler Portal.

The team behind the Edinburgh International Data Facility (EIDF), EPCC's private research cloud for data science, AI and research computing, has spent the summer improving its services. Researchers and organisations can now run their jobs faster, more easily and more securely.

Confidential Data Workspace

A headline change is the launch of the Confidential Data Workspace, a secure EIDF service designed for projects handling private, sensitive, consented personal, or commercially confidential, data. It provides a controlled environment where data can be stored and analysed safely while helping users meet their data protection and governance obligations.

Access is through remote desktop only, with SSH and copy/paste disabled for regular users. A dedicated router VM manages all external access and keeps audit logs to record every action. Project teams stay in control of data import and export, user accounts, and which external resources are permitted.

The service is well suited to research involving health, clinical, personal or commercially sensitive information, where security, auditability and governance are essential. GPU access within the workspace is planned for future development.

Read more at:
https://edin.ac/3Ttx5Jq

EIDF GPU Service

The EIDF GPU Service has also had a boost, with an upgraded scheduling system that reduces the time taken to schedule jobs requiring more than one GPU. This will be a welcome improvement for users running larger, multi-GPU workloads.

EIDF Portal

The EIDF Portal has gained a range of enhancements aimed at making project planning simpler and more transparent. Users can now switch to a new view that shows per-service usage and billing information for their project, alongside new feedback options, service bundles and clearer application guidance.

A no-login price estimator, available from the Portal login page, lets prospective users plan the cost of compute and storage before they apply. The helpdesk has also been streamlined and the number of categories reduced to make submitting a query quicker.

Pricing

EIDF has updated prices across all its services to reflect changes in electricity, staff and hardware costs. Current pricing is available on the EIDF homepage and via the estimator on the Portal login page.



The EIDF Cerebras CS-3 Service.

EIDF
Edinburgh International Data Facility

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About EIDF

EIDF is open to all. Researchers and teams from academia, business, and the public and third sectors are all welcome to apply, whether based at the University of Edinburgh or elsewhere.

To find out more, or to discuss whether EIDF is right for your project, contact:
eidf-team@epcc.ed.ac.uk

EIDF
https://www.eidf.ed.ac.uk

Confidential Data Workspace
https://edin.ac/3Ttx5Jq

100 issues of EPCC News

EPCC News has recorded our evolution since 1990. Here are some highlights from our archive.

Issue 10
April 1990: Edinburgh Parallel Computing Centre is born



This issue announced the inauguration of the Edinburgh Parallel Computing Centre, which brought together the University of Edinburgh's parallel computing research.

Issue 23
Summer 1994: Cray T3D is delivered to the University



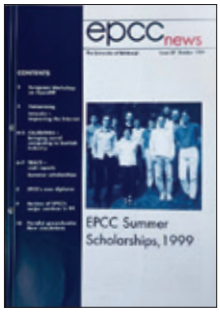
The £8m service, Europe's fastest supercomputer, was primarily designed to support Grand Challenge research.

Issue 29
December 1996: Cray T3E arrives



The liquid-cooled system boasted 96 processors, to be upgraded to 128.

Issue 37
October 1999: EPCC Diploma in High Performance Computing launches



Students were to gain a solid grounding in developing applications for HPC platforms, with an emphasis on the application of knowledge to real-life problems – a philosophy we continue to follow today.

Issue 42
Spring 2001: MSc in HPC launches



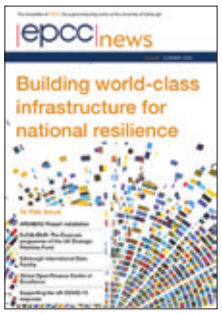
The programme extended EPCC's existing core HPC training offering while maintaining a strong practical focus.

Issue 54
Summer 2005: Advanced Computing Facility opens



The facility hosted a range of high performance computers with a combined performance of 20 teraflops and "a vast" storage area network of 155 Tb.

Issue 87
Summer 2020: First phase of ARCHER2 arrives



ARCHER2 phase one was a Cray Shasta system with an estimated peak performance of 28 petaflops. This issue also previewed the Edinburgh International Data Facility (EIDF).

100 100 100

Issue 94
Autumn 2023: TeamEPCC wins the ISC23 Student Cluster Competition



TeamEPCC was declared the outright winner across the competition, having obtained the best performance across a series of benchmarks and applications.

Issue 97
Summer 2025: EPCC installs the largest Cerebras CS-3 cluster in Europe



The cluster comprises four CS-3s using Cerebras' latest third-generation Wafer Scale Engine processors, the largest commercially available AI chip ever built.

Issue 98
Autumn 2025: EPCC becomes the UK's first National Supercomputing Centre



This new designation by the UK Government recognised EPCC as a centre of supercomputing excellence, our strong record of delivery, and our global standing.

To read recent issues of EPCC News, see our website:
www.epcc.ed.ac.uk/whats-happening/newsletters-brochures

STAFF SPOTLIGHT: Chao Tang

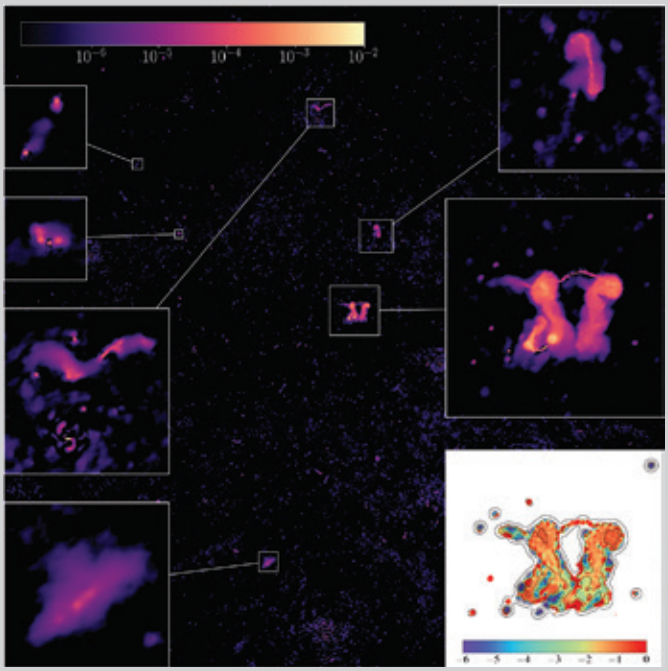
Chao Tang first came to EPCC as a PhD student. He is now an Applications Developer and following research interests developed during his studies.

My EPCC journey began with a PhD project that combined astronomical imaging with high performance computing (HPC). This brought together my previous studies in signal and image processing and my research experience in data centres and networking. It was exactly the kind of research topic I wanted to explore. I had also visited Edinburgh before and really enjoyed my time in the city, so joining EPCC felt like a natural choice.

During my PhD, I developed AI-accelerated imaging algorithms and associated software packages. Through this work, my interests increasingly developed towards the intersection of AI, HPC and scientific computing.

I received a great deal of support throughout my PhD. My supervisor, Adrian Jackson, provided invaluable guidance on the HPC aspects of my research. I also benefited from feedback from Mark Bull, particularly when reaching important milestones and planning the next stages of my research.

One of the things I value most about EPCC is the diversity of its research environment. PhD students work on very different topics, but we are all connected through HPC. Conversations with people from different areas can inspire new ideas, and there is always someone to discuss a particular HPC problem with. PhD seminars, poster sessions and technical meetings also provide many opportunities to exchange ideas. During my PhD, I was fortunate to attend the International HPC Summer School, SC25 and IEEE Cluster.



Radio image reconstruction of the peculiar galaxy pair “dancing ghosts” at 817 MHz using HyperAIRI.



The supportive working environment was a key reason for continuing my journey at EPCC. After my PhD, I joined the UK AI Factory Antenna (Pilot-UKAIFA) project as an Applications Developer. Pilot-UKAIFA helps organisations across the UK adopt AI technologies and access the computing resources they need, while also strengthening collaboration between European HPC centres in AI. The project is a great match for the interests I developed during my PhD.

During just my first few months of working at EPCC, have had opportunities to explore agentic AI through bootcamps and workshops and to use what I have learned to develop internal AI tools. I am currently collaborating with other team members to develop agentic AI capabilities for EPCC’s SAFE HPC management system, helping users create customised usage reports more easily.

The transition from PhD student to EPCC staff member has felt smooth and natural. I look forward to contributing to future projects and applying the knowledge and experience I have gained at EPCC to a wider range of scientific and industrial challenges.

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STAFF SPOTLIGHT: Daniyal Arshad

Daniyal Arshad completed an MSc with EPCC and is now an Applications Consultant.

Five years ago I flew from Pakistan to Edinburgh – my first time on foreign soil – with a British Council GREAT Scholarship and a place on an MSc in HPC with Data Science. I didn't know then that the degree would open a door to EPCC, now the UK's first National Supercomputing Centre, or that I would come to feel at home in a field I was only beginning to understand.

My MSc journey began as the world was still emerging from the Covid-19 pandemic, and travel restrictions meant I joined a month later than my peers, but I was struck by the personal support I received. My programme manager and the wider student support team went above and beyond in helping me through the administrative and logistical challenges I faced.

During my MSc, learning on the Cirrus and ARCHER2 UK national HPC services with lecturers who work on such systems daily gave me a solid grounding in HPC architectures and parallel programming. One particular coursework project showed me what was achievable in this field: we profiled a molecular dynamics program and, through compiler and manual optimisations, achieved a 30x speedup. By the time I submitted my dissertation, I knew I wanted to keep working on these systems alongside the people who run them.

Joining EPCC after I graduated has given me the chance to sharpen my skills in both academic and industrial projects. This June, I presented two peer-reviewed papers at ISC High Performance 2026 in Hamburg, Germany: one on improving HPC system efficiency through job scheduling, the other exploring spectral element methods on the Tenstorrent RISC-V accelerator. Through an EPCC research project, I now evaluate emerging RISC-V architectures, exploring how they could shape future supercomputers.

Beyond my own projects, I also supervise MSc students through their work on national HPC systems, watching them find their footing the way I found mine. I have designed and coordinated a week-long knowledge exchange placement, delivering HPC training to a visiting researcher who took those skills back to their community. And I have represented EPCC at public exhibitions – most notably the Royal Society Summer Science Exhibition – showing hundreds of visitors, from complete newcomers to research fellows, what supercomputing is and what our work makes possible.

As I look to the future, I'm excited about the projects I work on, the people I get to work with and, most importantly, the connections I get to make at home and abroad!



Daniyal Arshad, EPCC
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STAFF SPOTLIGHT: Elena Breitmoser

Elena Breitmoser first came to EPCC through a European Commission-funded visitor exchange programme. She is now an EPCC Project Manager.

The first time I heard of EPCC was in 1997 when my flatmate recommended TRACS, a European research visitor programme, while we were both working on our PhDs in theoretical astrophysics.

TRACS supported researchers to attend HPC coding courses to make use of the Cray T3D UK National Supercomputing Service at EPCC, while joining a host whose subject was related to their own. So in April 1998 I made my first trip to Edinburgh, staying for two months in student accommodation alongside a group of students from across Europe, and parallelising my Fortran code (even then people were predicting that Fortran wouldn't be around much longer).

After finishing my PhD in 2000, the opportunity arose to join EPCC as a staff member. One of my first work projects was TRACS and then its successor, HPC-Europa, but now I was the person providing technical support to visiting researchers.

I also saw the launch of EPCC's first MSc programme, contributing through lecturing and student supervision, and for four years I was one of the Project Preparation and Dissertation course organisers.

For many years the main focus of my work was applying MPI and OpenMP on EPCC's HPC infrastructure. Over time I saw the Cray T3D replaced by the Cray T3E, then HPCx, HECToR, ARCHER, and ARCHER2, and I also witnessed the sudden surge in popularity of Python in the 2010s.

More recently, I became involved with the Edinburgh International Data Facility, initially through piloting work with the Scottish Government before any hardware had arrived. I was also introduced to EPCC's Safe Haven by taking on work for a Scottish medical imaging project.

I have been part of several projects linked to the Institute for Research Software (previously the Software Sustainability Institute), including FAIR-IMPACT (on the FAIRness of research software), and others.

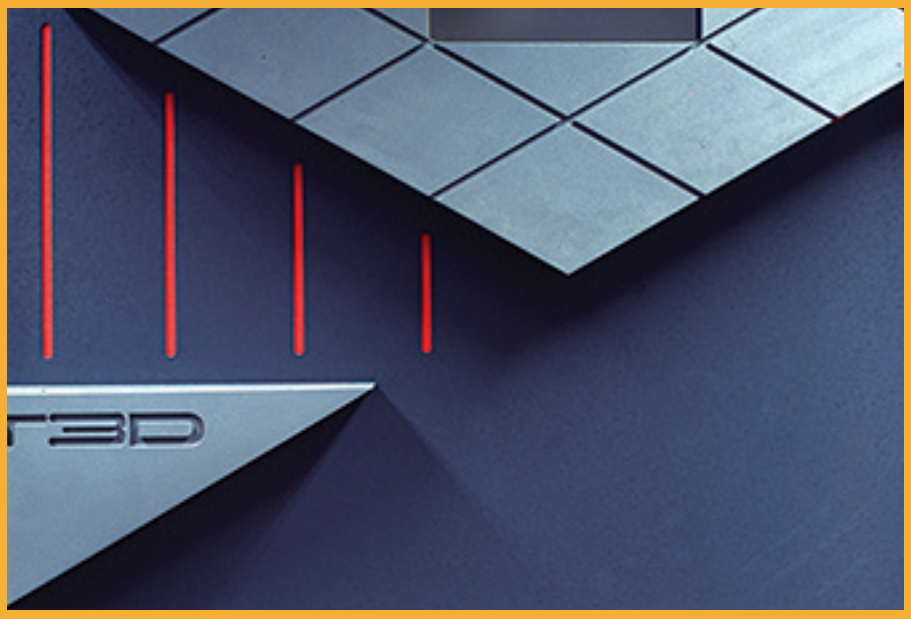
Last year I joined the UK Society of Research Software Engineering as a trustee, where I have mainly been involved with the mentoring programme and the Policy and Funding working group.

This year brought an exciting opportunity to become part of Pilot, the UK AI Factory Antenna. I provide consultancy and training to support external organisations on their AI journey within the UK, and also collaborate with HLRS, the high performance computing centre in Stuttgart, Germany.

It looks like things will stay interesting.



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The Cray T3D at EPCC

STAFF SPOTLIGHT: David Henty

EPCC Programme Manager David Henty joined EPCC in early 1995 to support the recently installed Cray T3D, the first national parallel supercomputer in the UK.

Like a number of the people who started around the same time as me, I learned parallel programming as a computational physicist at the University of Edinburgh as part of the UKQCD collaboration. We had been developing programs to simulate lattice quantum chromodynamics (QCD), originally on a Meiko i860 machine called "Maxwell" but latterly on the Cray T3D itself. As my postdoc funding was coming to an end, and I had become more interested in parallel programming than in physics, the timing of the T3D service was very fortunate for me.



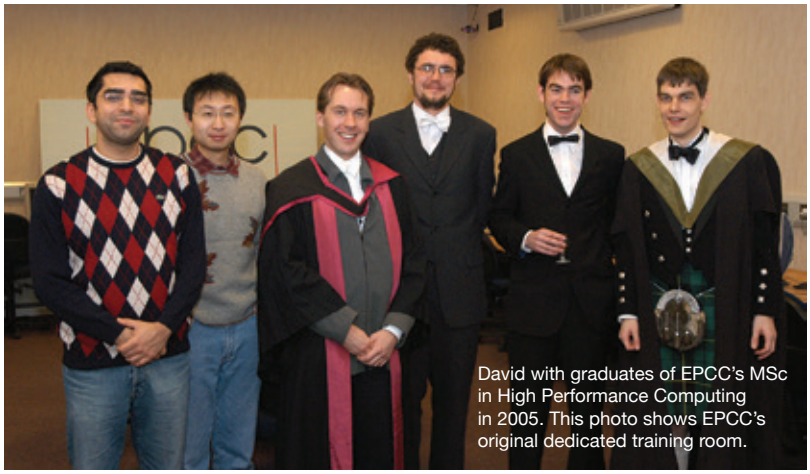
David Henty (centre, leaning on monitor) with members of the UKQCD project and an early Meiko computer. Photo taken circa 1992.

As someone who was largely self-taught in all aspects of computing, one of my earliest memories of EPCC is attending a course run by colleagues about the new MPI message-passing standard. It was a revelation to attend a course where I felt I actually understood most of what was being taught and that was right at the forefront of exciting developments in computing technology.

Over 30 years later I am now teaching the MPI course on ARCHER2, the UK National Supercomputer. Although it has evolved substantially over the years, the core of the course and its key examples are basically the same as those developed all those years ago. Far from being a sign of my laziness, I'd argue this illustrates that the core concepts of parallel programming have remained the same, even if we now use a system that is almost half a million times more powerful than the Cray T3D.

MPI forms a core part of the compulsory courses on our MSc in HPC programmes, and I'm confident that students will continue to make practical use of that knowledge in the coming years (including on the Next National Supercomputer here in Edinburgh).

Although the hardware has changed beyond recognition, a modern GPU-based exascale supercomputer still uses message-passing to communicate between nodes, just as the Cray T3D could do back in 1995.



David with graduates of EPCC's MSc in High Performance Computing in 2005. This photo shows EPCC's original dedicated training room.

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Education and training at EPCC

https://www.epcc.ed.ac.uk/education-and-training

STAFF SPOTLIGHT: Lorna Smith

Lorna describes the evolution of her role at EPCC since joining us in 1997.



Photo by Andrew Perry



I started at EPCC in 1997, having recently completed a PhD in computational chemistry. I began by supporting scientists on the Cray T3D, then the UK National Supercomputer. The T3D was a huge change in compute power for me, and I was immediately hooked. One of the reasons I have remained at EPCC for so long is my on-going fascination with novel technologies and what will come next.

In my time I have supported a wide range of National Services – HPCx, HECToR, ARCHER and ARCHER2. Each has had its unique experiences. For example, HPCx is memorable for EPCC's close collaboration with our colleagues at Daresbury Laboratory. And having been heavily involved with ARCHER2 from the design of EPCC's procurement response to working as the deputy director of the Computational Science and Engineering service for over five years, I am simply proud of the success of this service.



In 2005, I took a lead role in the delivery of EPCC's BlueGene/L, a truly novel system focused on reducing physical space, cost and power draw, which I credit with sparking my interest in the environmental sustainability of such systems.

I have always enjoyed working on European projects. CRESTA stands out for me, an EPCC-led 13 partner exascale co-design project. With exascale now here, it seems fitting that I am now working on the SPE project, which is looking at post-exascale strategy.

More recently, I have been able to combine a passion for the environment with my work at EPCC. Environmental sustainability is increasingly embedded in UK research policy and I am focused on ensuring EPCC maximises the scientific and societal return from the energy consumed and emissions produced by our site. I have also been lucky to secure a champions role within the UK NetDRIVE project, which allows me to look at the environmental sustainability of the whole digital research infrastructure.

Finally, I have always had an interest in public engagement, feeling strongly that we should be explaining the value of supercomputers to society. This work culminated recently in our presence at the Royal Society Summer Science exhibition, which provided a unique opportunity to engage with the public.

So why have I stayed with EPCC for so long? A fascination with novel technologies and what comes next in the world of supercomputers. A real enjoyment of interdisciplinary work and a satisfaction in supporting a user community delivering world-class science. Finally, the ability to adapt my role within the centre as new directions and technologies emerge.

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Photos: BlueGene/L (bottom left) and (top right) ARCHER.

STAFF SPOTLIGHT: Stephen Booth

Stephen's involvement with supercomputing began in 1987 when he came to Edinburgh to study for a physics PhD.

My final year undergraduate project had made use of the Cray-1S supercomputer (then at the Rutherford Appleton Laboratory), and Edinburgh (particularly the Physics department) was one of the places where exciting computing was happening.

My PhD was sponsored by Meiko Scientific and so my work concentrated on their machines. The transputer was an attempt to implement the CSP model of parallelism in hardware. As part of my industrial sponsorship I wrote some codes to demonstrate the capabilities of the system, including a fractal landscape generator whose direct descendants still live on the internet.

Though record breaking when first released, the raw performance of transputers were soon eclipsed by more conventional processors. By 1990, when EPCC was founded, I was part of the University's Physics department, working on a system that used Intel i860 processors as the main CPU.

By the launch of our first full national service, the Cray T3D, I was a full member of the EPCC support team. This was Cray's first massively parallel processor, with 512 DEC Alpha processors. The system at Edinburgh was serial number 1 so we were fairly early adopters of the technology.

We also installed a Cray T3E. Its operating system was particularly interesting, using a micro-kernel architecture with a single unified OS running across the entire machine.

After the T3E came a series of national HPC services: HPCx, HECToR, ARCHER and ARCHER2. All were broadly similar in architecture and software, as there was now a general consensus about how HPC clusters should be built; all used multi-core and/or multi-CPU nodes, requiring programmers to address two different levels of parallelism in the same machine. HPCx gave us a very early insight into these problems as it was ahead of the curve in terms of on-node parallelism. My own work on this architecture often looked at optimisations techniques for collective communication particularly the important (and expensive) all-to-all communications needed to implement distributed Fourier transformations.



The EPCC team in the early 1990s. The group includes Stephen Booth (back row, far left) and EPCC's first Director, Sir David Wallace (front row, centre).

Around 2002, as part of the bid to run the HPCx national service, EPCC developed a basic web portal for user registration and project management. By the start of the HECToR service, I found myself the main developer of this "Service Administration From EPCC" (known as SAFE).

One of the changes we made was to allow SAFE to manage multiple independent services while still providing inter-service consistency where needed. Most services run by EPCC are now managed by a single SAFE instance. As well as providing continuity of service, we have also made SAFE available for use by UK Tier-2 sites (including Cirrus, the EPCC-run Tier-2 system which is now an NCR: UK National Compute Resource).

Stephen Booth, EPCC
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Fractal landscape generator

https://spbooth.github.io/scriptmountains

Fostering collaborations with the private and public sectors

André Vieira joined EPCC in 2026 as the Pilot-UKAIFA Collaboration Manager. With experience in both industry and academia, he works to attract organisations looking for support with AI training or implementation.



I graduated in civil engineering, with a focus on structural bridge designs, in Brazil. After graduation I worked as a structural engineer before completing a masters in Brazil and a PhD in structural engineering in the UK then joining a Brazilian railway company. My role there involved technical expertise in bridge structures, railway logistics and contract management.

I returned to the UK to work in the University of Edinburgh's Information Services Group as a Research Facilitator, providing consultancy and support on University digital resources for researchers. From there I joined EPCC to work on Pilot, the UK AI Factory Antenna programme, where I now connect industry, academia and public bodies that aim to adopt AI in their business.

Pilot-UKAIFA

Having launched earlier this year, Pilot-UKAIFA is now extending its presence across the country, providing training and consultancy-style projects to organisations, and establishing its position as a point of support for businesses interested in AI.

In my role I strengthen EPCC's connections with companies, government and academia, incentivising collaborative work and identifying the demands suitable to EPCC capabilities.

To accomplish this, I ensure EPCC has a presence at key relevant events in the UK and abroad, using EPCC's network to identify possible collaborative partners, conduct workshops and roadshows across the country, and keep attracting companies based on their AI demands.

André Vieira, EPCC
a.vieira@epcc.ed.ac.uk

Interested in Pilot-UKAIFA?

Get in touch to discuss how Pilot-UKAIFA can benefit your organisation.

Email André at:
a.vieira@epcc.ed.ac.uk

Or contact the team at:
info@ukaifa.org.uk

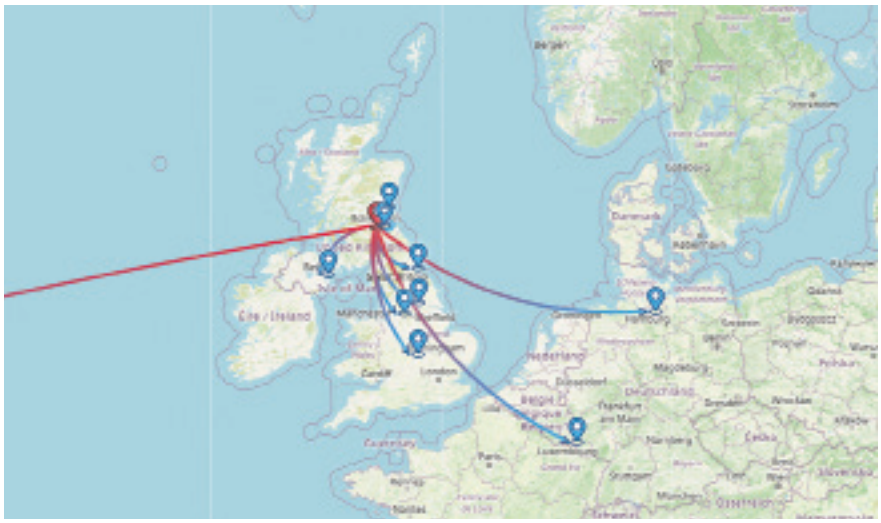
Complete the Pilot-UKAIFA Expression of Interest form:
https://edin.ac/3STZsjS

Stay updated

Visit the Pilot-UKAIFA website to read more about the programme and forthcoming training and events: **https://www.ukaifa.ai**

Removing the barriers to knowledge exchange

Led by EPCC, the CAKE NetworkPlus supports lasting collaboration, knowledge exchange and community building across the UK's large-scale computing landscape.



CAKE
COMPUTATIONAL ABILITIES KNOWLEDGE EXCHANGE

CAKE (Computational Abilities Knowledge Exchange), funded by EPSRC and UKRI, operates across the UK's Digital Research Infrastructure (DRI) programme. The project has now reached its half way point, and we are pleased to report it has already achieved numerous successes in support of its goals.

Community building

The CAKE website acts as a hub for our community, with the DRI Landscape section detailing the people, projects and capabilities of UK DRI. It also includes an interactive map to highlight connections across the UK and beyond. Alongside this sits CAKEbox, a community-driven knowledge base of DRI resources, tools and community contributions, and also a list of funding opportunities across the landscape.

CAKE's own activities include supporting Knowledge Exchange Fellowships to facilitate knowledge exchange (KE) and sustainable collaboration across the full range of UK Digital Research Infrastructure communities. CAKE Fellowships include funding of up to £4000 to enable peer-to-peer support and mentoring.

Eight Fellows have been appointed to date, and their activities include working to drive better community engagement in Fortran, and building data and coding literacy in business education.

We also support people to enable them to undertake placements and visits, and this has enabled numerous people to make connections and drive better collaboration.

Examples include supporting UK researchers to attend and participate in conferences such as ISC High Performance and the Future of Open Research, and supporting international workshops in the UK.

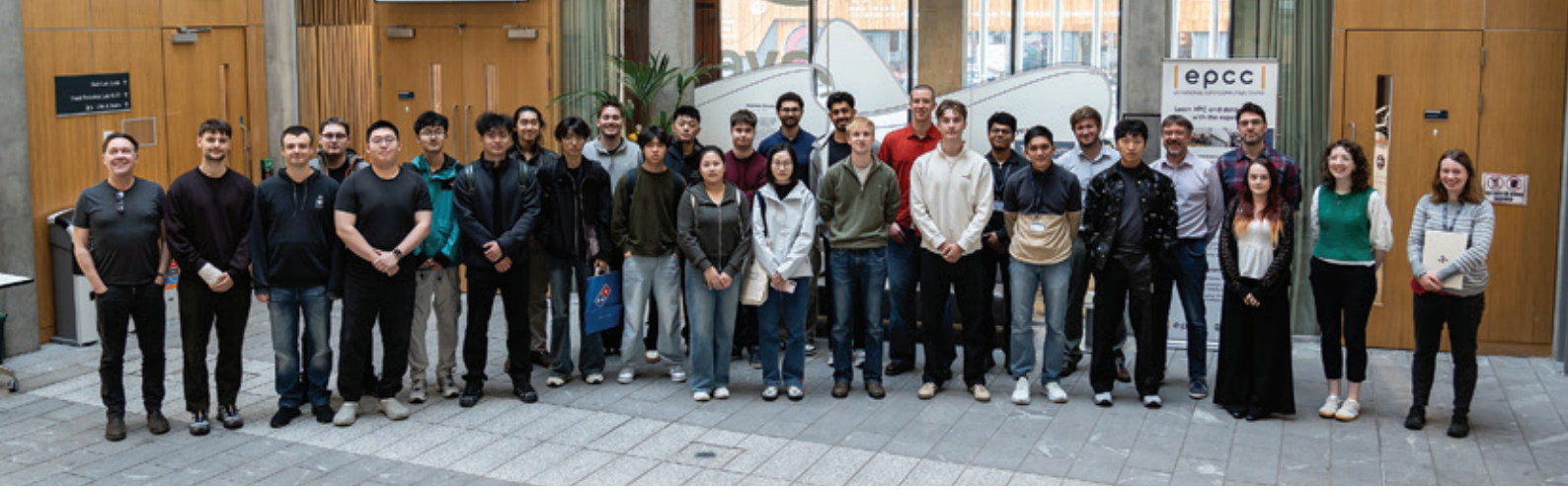
CAKE also represents the UK DRI programme at conferences including RSECon, CIUK, ISC High Performance and SC. This has been an effective and important route to connecting what is happening in the UK with the wider world.

Nick Brown, EPCC
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We are keen to engage with people from a wide range of domains and have several open funding opportunities.

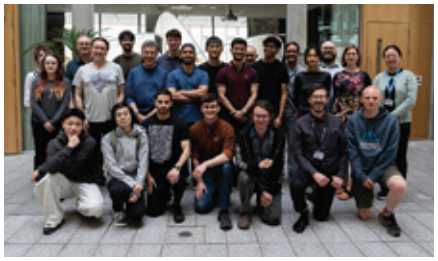
For details, see the CAKE website:
https://cake.ac.uk

CAKEbox
https://www.cake.ac.uk/CAKEbox



A quarter century of postgraduate education at EPCC

EPCC has long been recognised as a provider of high-quality training in high performance computing. From the handful of students who joined the first cohort of the MSc in High Performance Computing in 2001 to the more than 100 students currently enrolled with us today, teaching and training have always been at the heart of our identity.



The PGT student experience

This September EPCC's teaching team welcomed our newest cohort of students to Edinburgh and online with a series of bespoke events.

An MSc can be a fast-paced and intense experience. For an on-campus student, the default timeline from induction to completion is 12 months. Staff at EPCC know how intimidating an MSc can be – in fact several current EPCC staff are graduates of our programmes.

EPCC understands the university experience is more than just the taught content. By taking time to celebrate the wins (often with pizza), and by helping students prepare for the next steps in their careers, a lot of work goes into fine-tuning and tailoring the student experience so that it is both educational and enjoyable.

Each EPCC student is supported throughout their full academic journey by a team of dedicated staff with a focus on student wellbeing and academic development. Without these key individuals, the EPCC postgraduate programmes would not be as successful as they are.

Postgraduate taught study at EPCC

EPCC's supercomputing expertise is shared via two postgraduate taught programmes: *High Performance Computing,* and *High Performance Computing with Data Science*. Both are available either on-campus (full-time and part-time) or online (part-time intermittent) and can be completed at different levels of postgraduate award, from Postgraduate Certificate up to MSc.

In addition, our Postgraduate Professional Development Award allows experienced individuals to enter a specialist programme to take individual courses of interest. This has proven to be a wonderful opportunity for working professionals to learn niche topics, such as our course *Fundamentals of HPC System Administration*.

The future of education at EPCC

Current and forthcoming projects, such as hosting the UK AI Factory Antenna, present invaluable opportunities to expand the postgraduate curriculum in line with how the field and EPCC itself are evolving. Areas of development include specialised paths for HPC system administrators and the responsible implementation of artificial intelligence in work and research.

Jemma Auns, EPCC
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Education & Training at EPCC

Read more about how EPCC can help take your career to the next level:

www.epcc.ed.ac.uk/education-and-training

Early careers support at EPCC

Summer 2026 marked the third time EPCC has participated in the Employ.Ed on Campus scheme, which provides internship opportunities for University of Edinburgh students. Each year, we've welcomed talented students from the School of Engineering to the Advanced Computing Facility, where they experience first-hand what is involved in powering and cooling supercomputers, and apply their studies to provide useful insights that support our operations. Here one of this year's interns, Thian Celine Iskandar, talks about her time with EPCC.



Thian (right) and Harry.
Photo by Andrew Perry.

"Throughout my internship I was supported by the nurturing environment at EPCC.
"Special thanks to Zoë Payne (my manager), Paul Clark (Director of HPC Systems), Harry Rhodes (my fellow intern), and all the EPCC Systems team, whose guidance and collaboration were crucial."

Thian Celine Iskandar

During my time as a Data Centre Engineering intern at EPCC, I supported high-performance computing infrastructure, focusing on both electrical and mechanical systems. This role aimed to deliver sustainable improvements and enhance my understanding of operations at the Advanced Computing Facility (ACF).

EPCC's focus on sustainability through hybrid cooling systems, utilising Scotland's cold climate, provided an interesting challenge during the 2026 heatwaves. I primarily focused on optimising the dry air cooling towers (DAC). Working alongside my fellow intern Harry, I gained experience isolating these towers, safely managing high-voltage systems to ensure safety for ourselves and the cleaning team.

My role also involved assessing the cooling system's efficiency before and after changes, which included both the cleaning and adjustments to the computer cooling distribution units (CDU). I conducted detailed data analysis using Python and Excel, considering factors such as coolant temperatures and weather conditions. I also evaluated the Building Energy Management System (BEMS), identifying sensor and control issues to guide future site developments.

Additionally, I developed an energy attribution model for fair cost distribution across systems and calculated Power Usage Effectiveness (PUEs). This required updating electrical hierarchy documentation, tracking on-site cabling and metering, and identifying documentation gaps impacting billing accuracy.

Finally, I contributed to Dash4Action, a NetDRIVE funded project looking at creating sustainable computing and data facilities.

Overall, my time at EPCC exposed me to the evolving world of data centres and supercomputers. I contributed to improving the cooling system, increasing the ACF's efficiency and capacity, and the analyses I conducted will positively influence the construction of the UK's Next National Supercomputer and its supporting plant room. This experience has greatly increased my interest in data centre systems, and I am excited to continue researching ways to improve electrical and mechanical efficiency in future projects.

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Sustainability activities at EPCC

EPCC is committed to creating a future that provides world-class computational and data services that offer solutions to the climate emergency while protecting the environment we live in.

NetDRIVE

The NetDRIVE project works to better understand how digital research can move towards Net Zero targets. EPCC's three funded NetDRIVE Champions describe their recent activities.

Kirsty Pringle

Kirsty is working to build a community of research software engineers interested in embracing more sustainable software practices. She chairs the Green Research Software Engineering (RSE) Special Interest Group, which ran a community session at RSECon26 in September to explore how to embed green software practices in existing training, helping to make sustainability a routine part of software engineering education. With UKRI aiming for Net Zero by 2040, developing these skills is increasingly important for the next generation of RSEs and researchers.

The group also runs the Green RSE Award, sponsored by the Institute for Research Software. This year they were delighted to award it to NetDRIVE Champion Jess Huntley (STFC), in recognition of her contribution to advancing greener research software practices.

Andy Turner

Andy is working to embed sustainability across high-performance computing (HPC). Work is underway to enhance the Green Software Use on HPC open source training by introducing a new episode focused on developing responsible computing plans for research projects. This will equip researchers with practical frameworks to assess and minimise the environmental footprint of their HPC workflows from project inception, encouraging thoughtful consideration of computational resource allocation, energy-efficient algorithms, and carbon-aware scheduling strategies.

In collaboration with the Green Algorithms Dashboard team and other UK HPC facilities, Andy is evaluating how this carbon footprinting tool can be integrated into UK national HPC facilities. The dashboard provides researchers with transparent insights into the environmental impact of their computations, enabling informed decisions about when and how to run workloads. By making carbon metrics visible and actionable, this initiative has the potential to shift research culture towards greater environmental accountability.

Andy is also investigating approaches to make large-scale HPC facilities responsive to electricity grid requirements. This includes exploring dynamic power adjustment capabilities that allow HPC systems to reduce consumption during peak demand or increase usage when renewable generation from wind and solar exceeds grid needs. Such flexibility could transform HPC facilities into active participants in the UK's transition to renewable energy, helping absorb surplus clean energy when available or reducing power demands when required.



All photos by Andrew Perry.

Lorna Smith

Lorna has been working to understand and improve the efficiency of EPCC's Advanced Computing Facility (ACF) and developing associated best practice for other such sites. She is working with colleagues at Queen Mary University and Durham University on the NetDRIVE Dash4action project, developing action plans for sustainable facilities.

Lorna has also worked with Paul Clark, EPCC Director of HPC Systems, to install sensors at the ACF to track wildlife and to ensure biodiversity is maintained, even enhanced, during preparations for hosting the UK's Next National Supercomputing Service.

Lorna and Kirsty Pringle have together developed training in advocating for environmentally sustainable change within organisations. Recognising that the barrier to change in research institutions is often a lack of skills and/or support to translate concern into organisational change, the course aims to empower motivated individuals.

Finally, Lorna has been working on a climate and computing game with EPCC colleague Darren White. The game, which introduces the societal benefits of supercomputers, the environmental challenges, and some of the solutions available, was used in EPCC's exhibit at the Royal Society Summer Science Exhibition in London in June.



Research: minimising the power demands of GPUs

Graphical processing units (GPUs) are increasingly important in digital research, especially for machine learning and AI applications. Funded by NetDRIVE, the ISpace project has been looking at how to decrease the emissions caused by running simulations on GPUs.

The project assessed two ways to save energy: capping the power of the GPUs and limiting their working frequency. These options were tested with a wide range of research software, from fluid dynamics to molecular modelling, and on different AMD and NVIDIA GPU platforms.

Each test stresses GPUs differently and causes different reactions to power or frequency capping. ISpace found that by capping power, energy savings of 10% to 30% are possible with only a minimal increase in runtime.

The next phase of the project will study how to find optimal power caps to minimise runtime energy consumption and overall emissions, taking into account both runtime and embedded emissions. Once finalised, the results of this project will guide system administrators and users on how to best tune and run software to minimise emissions without limiting research.

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Green Algorithms Dashboard

www.green-algorithms.org/dashboard

Green RSE Special Interest Group

https://socrse.github.io/green-sig

NetDRIVE

https://uknetdrive.org

Institute for Research Software

INSTITUTE FOR RESEARCH SOFTWARE

The Institute for Research Software strengthens research by advancing essential software and empowering the people behind it.

Established in 2010 as the Software Sustainability Institute, we are the UK's leading authority on research software and work at the centre of an international movement to make it more effective, sustainable and properly recognised.



Better software, better research

The Software Sustainability Institute became the Institute for Research Software on 1 September 2026.

When we were established in 2010, research software was essential to research but received little recognition. Our original name focused on one pressing challenge: making research software sustainable by improving its quality, maintainability and usability, and building the skills and practices needed for reliable, reproducible research.

Since then, research software has gained greater recognition, both as a research output and as an essential part of research infrastructure. Research Software Engineering has emerged as a profession, and institutions and funders now pay far more attention to the people, skills, policies and investment it requires.

We have driven much of that progress through our work on advocacy for the Research Software Engineering movement, our Fellowship Programme, training, events, research and guidance, and through direct investment in maintaining important research software. But some challenges remain: research reproducibility and integrity, equitable access, FAIR software, and the maintenance of essential digital infrastructure. Our new identity reflects a broader role: connecting the people who build and maintain software with the institutions and funders that shape how it is supported.

We remain the same Institute, with the same relationships, programmes and commitments built up over 15 years, and the same motto: "Better Software, Better Research."

Director Neil Chue Hong said: "Research software and the people behind it should be valued, supported, and invested in as essential to research. That conviction has driven our work for 15 years, and we are proud and excited to carry it forward as the Institute for Research Software."

RSECon26



In September, we took part in RSECon26, the flagship event of the Society of Research Software Engineering. This year's conference brought together researchers, engineers and institutions to discuss a collective vision for the future of Research Software Engineering, one where software is recognised as a fundamental research product, and where the people who build it are recognised as central to research and discovery.

RSECon26 centred on two key themes: RSEs as part of the research journey, and enhancing credit and reproducibility through research software quality, performance and evidence. Over a decade since the RSE role was formalised, recognition remains uneven across institutions, and the intellectual contribution behind software often goes undocumented.

RSECon27 will be held in Edinburgh, and our Project Manager, Kirsty Pringle, will serve as co-chair, consolidating our role at the heart of the RSE community's future direction.

Find out more about RSECon26 at **https://rsecon26.society-rse.org**

International Research Software Conference 2026

Also in September, we were proud to partner with the Research Software Alliance (ReSA) to help bring the International Research Software Conference (IRSC) to life. Located in Sheffield, and co-located with RSECon26, the conference brought together leaders and decision-makers from national and international RSE associations, infrastructure providers, funders, policymakers, publishers, university consortia, and open science and open source communities to shape the future of research software in the age of generative AI.



Our involvement in organising IRSC reflects our ongoing commitment to strategic coordination and long-term sustainability in the research software community, and we were delighted to connect with peers shaping this rapidly changing landscape.

Find out more about IRSC at https://www.researchsoft.org/irsc

Fellowship Programme

Our Fellowship Programme aims to improve and promote good computational practice across all research disciplines and support those doing this important work. Our Fellows are recognised as ambassadors of good practice in their own areas of work, thanks to their dedication to promoting better software practices.



Fellows receive a £4,000 budget for organising or attending activities. They are matched with mentors and take part in regular monthly Community Calls and the annual Collaborations Workshop. Additional opportunities include involvement in steering committees and participation in study or focus groups. Once Fellows' inaugural period ends, they remain an active part of the community as continuing Fellows: once a Fellow, always a Fellow.

Applications for the new cohort of Fellows are now closed, and successful applicants will be announced in December 2026.

Keep up with the latest updates about the Fellowship Programme at https://www.software.ac.uk/programmes/fellowship-programme

Green DiSC: a Digital Sustainability Certification

Green DiSC is a new certification scheme that provides a roadmap for research groups and institutions wanting to tackle the environmental impacts of their computing activities.

Until now, computing groups have lacked such a roadmap. To address this, we've partnered with the team behind the Green Algorithms project at the University of Cambridge, led by our Fellow Loïc Lannelongue, to develop the framework.

Find out more about Green DiSC at https://www.software.ac.uk/GreenDiSC

Denis Barclay, EPCC
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Institute for Research Software

https://www.software.ac.uk

EPCC Outreach: making supercomputing fun and accessible

EPCC's outreach team works to demonstrate that supercomputers are powerful tools, built and used by people from diverse backgrounds across the world, that can solve real-world problems. Our message is simple: supercomputing, AI and data science are open to everyone. With the impending retiral of ARCHER2, Darren White looks at the past five years of outreach and public engagement that have been funded as part of this UK National Supercomputing Service.

During this past five years, the EPCC outreach team has attended four Big Bang Fairs, five New Scientist Lives, five Edinburgh Science Festivals and, in 2026, we were selected as one of 13 participants at the Royal Society Summer Science Exhibition. We reached over 250,000 members of the public at these events, in addition to smaller activities such as public talks and school visits. All of this has contributed to a varied, impactful and, importantly, a fun time enabling outreach at EPCC.

Activities

Wee Archie. Originally created as part of the preceding ARCHER UK National Supercomputing Service contract in 2016, our beloved Raspberry Pi mini-supercomputer 'Wee Archie' underwent a revamp to replace its framework software.



Sock-sorting. This competition to sort socks by pattern as quickly as possible demonstrates parallelism, showing how supercomputers split big tasks among many processors to work faster. Always a big hit with children and adults alike!

Virtual Reality (VR) tours. Available at live events and online, these allow anyone to virtually walk through the ARCHER2 computer room and supporting plant room, viewing the massive hardware up close. For our exhibit at the Royal Society this year we also developed a 3D video of North Sea wind turbine farms generated from data from simulations run on ARCHER2.



micro:bits We have expanded our use of these pocket-sized computers. In one workshop activity, visitors programmed micro:bits to simulate how a virus spreads through a crowd. We have also used micro:bits to demystify artificial intelligence (AI). Using the micro:bit CreateAI platform, visitors collect real-world data by moving with the device, so training their own model to recognise specific movements.

Supporting careers

Through schemes such Nuffield Research Placements, In2STEM and Career Ready, as well as our own local work experience placements, over 30 Sixth Form students have worked on real science projects alongside EPCC experts.

These programmes have given students a taste of life in STEM, helping them build confidence, learn new skills, and decide whether a career in science or technology is right for them.

EPCC Outreach Team

None of these activities would have been possible without the passion of my EPCC colleagues, who truly care about public engagement.

I grew up in a working-class family and know the positive impact that outreach and public engagement can have on children from underprivileged backgrounds. I was regularly involved with outreach





during my undergraduate and PhD studies at the University of Sheffield. Since joining EPCC in 2015, outreach and public engagement have continued to be a priority for me, as I am living proof that people from any background can have successful careers in STEM. In 2024 I was able to make this part of my day-to-day work when I took on the role of EPCC's Outreach Function Lead.



I also want to highlight some key EPCC colleagues who have shown commitment to public engagement.

Lorna Smith has been the driving force of outreach during my time at EPCC, constantly pushing to improve what we do, coming up with fun ideas for events and activities, and she has been a great inspiration to me.

Alistair Grant is the genius behind Wee Archie, designing and building the current systems and is continually helping develop (and fix!) updates alongside Amy Krause, who developed the most recent iteration of the framework. Alistair also helped develop many of our activities and spearhead involvement in new events. Without him neither Wee Archie nor the current outreach programme would exist.

Laura Moran has helped turn our work experience scheme into a system that has improved our reach in the local area.



Chris Wood has consistently driven our involvement of the Nuffield and In2STEM schemes, as well as helping organise our attendance at several large events.

Mario Antonioletti's passion for outreach has been infectious, regularly attending events and championing our parallel sorting activity. Mario is a big part of why I felt welcome in the EPCC outreach team when I first started.



Spyro Nita has been a regular volunteer at events and was the main driving force behind our VR activities, such as the tour of ARCHER2.

Sébastien Lemaire helped increase the range of VR options with his 3D simulation work.



Finally, Oliver Thomson Brown, Jemma Auns, Linnea Gilius, Shrey Bhardwahj, Eleanor Broadway, Ruairidh MacLeod, Claire Barras, Juan Rodriguez Herrera, and Luca Parisi, to name a few, have also all



helped make sure our ARCHER2 outreach programme has been so successful. I'm very lucky to be part of such an engaged and passionate team, and I can't wait to see what we come up with next.

Darren White, EPCC
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EPCC Outreach website

https://discover.epcc.ed.ac.uk

epcc
UK National Supercomputing Centre

THE UNIVERSITY of EDINBURGH



Study HPC with us

We offer Masters' degrees in High Performance Computing (HPC); HPC with Data Science; and Imaging, Vision, and HPC.

EPCC is the UK's national supercomputing centre. We are a major provider of HPC training in Europe, and have an international reputation for excellence in HPC education and research.

Our Postgraduate Taught programmes in High Performance Computing (HPC), and HPC with Data Science have a strong practical focus and provide access to leading-edge systems such as Cirrus and the EIDF GPU Service, which supports data processing and AI workloads.

EPCC's MSc students have the opportunity to undertake their dissertations in a wide range of HPC areas, which may include outside collaborations within the sector.

Choose from an array of course options, including available modules from the School of Informatics and the wider College of Science and Engineering.

Taught programmes can be undertaken on-campus (full and part-time) and online (part-time).

We also teach a joint MSc programme in Imaging, Vision, and High Performance Computing in collaboration with Heriot-Watt University, UK.

EPCC provides PhD opportunities related to HPC, computational and data science, parallelism, software sustainability and software engineering. PhD programmes are available both full and part time.

Our graduates are in high demand in both academia and industry in the UK and abroad.

EPCC is part of the University of Edinburgh, which was ranked 34th among the world's top universities by QS World University in 2026, and placed in the top 30 by THE World University Rankings 2026.

"My MSc at EPCC gave me a strong foundation in HPC and opened doors that continue to shape my career. Today, I apply that knowledge every day in my work on Cloud and AI compute at Arm."
Hristo Belchev *MSc in HPC with Data Science graduate, now an Engineer with Arm*

www.epcc.ed.ac.uk/msc