EPSRC Centre for Doctoral Training in
Pervasive Parallelism

The biggest revolution in the technological landscape for fifty years

THE UNIVERSITY *of* EDINBURGH
informatics

EPSRC
Engineering and Physical Sciences
Research Council

|epcc|

Parallelism, concurrency and distribution are at the root of a revolution in computer science, driving the biggest disruption to the technological landscape for fifty years.

The impact of parallelism is pervasive, and the need for fundamental research to address it is globally recognised by government, industry and academia.

Students in the EPSRC Centre for Doctoral Training in Pervasive Parallelism work at the heart of the pervasive parallelism challenge.

The dedicated training and internship opportunities make students highly employable and in demand by both academia and cutting-edge industry.

What is pervasive parallelism?

For performance and energy reasons, parallelism and heterogeneity now permeate all layers of the computing infrastructure. This pervasive parallelism renders the approaches of the sequential era increasingly unviable.

Heterogeneous parallel hardware requires new methods of compilation for new programming languages supported by new system development strategies. Parallel systems, from nano to global, create difficult new challenges for modelling, simulation, testing and verification, posing a set of interconnected problems of enormous significance.

We urgently need solutions to maintain the familiar pace of technological progress, and the benefits it brings to so much of modern life.

How does the CDT address this challenge?

Spanning theory and practice, the Centre educates the graduates who will undertake the fundamental research and design required to transform methods and practices.

Pervasive Parallelism students develop not only deep expertise in their own specialisms, but also, crucially, an awareness of the relationships between all facets of the challenge. These cross-cutting synergies will allow us to unlock the true potential of current and future technologies, enabling the industry to develop exciting new applications in healthcare, entertainment, science, energy and the digital economy.

Our strong ties with industry increase the speed with which these advances will be exploited and developed, providing an opportunity for Pervasive Parallelism graduates to work at the core of the new computing era.

What does the programme involve?

We offer a 4-year programme, combining a 1-year MSc by Research and a 3-year PhD. The programme is focused throughout on students' development into independent researchers, under the guidance of an expert supervision team.

CDT students benefit from being part of a tight-knit cohort: they take classes and attend events with fellow students in their year. This provides a supportive, unique environment, and facilitates productive interactions and collaborations.

The formal components of the programme are supplemented by a Pervasive Parallelism seminar series and lunch programme, industrial engagement events and an annual student conference.

Students also have the opportunity to undertake 3- to 6-month internships with leading companies.

Who is the programme aimed at?

Students with an excellent undergraduate or taught postgraduate degree in one of the following subjects:

- Informatics
- Computer Science
- Mathematics
- Electrical Engineering
- Physics

What funding is available?

Full and partial funding is available from the Engineering and Physical Sciences Research Council (EPSRC), the School of Informatics and a number of our industry partners. Additional funding for international students is available through a number of scholarships. Please see our website for full details.

pervasiveparallelism.inf.ed.ac.uk

Industry Partners

The CDT enjoys strong links with industry, benefitting both our students and our industry partners. Industry partners engage with our Centre through a combination of the following:

_ Shaping the direction of our training through the Industrial Advisory Board

_ Funding studentships

_ Meeting and collaborating with students and supervisors at industrial engagement events

_ Providing internships

_ Recruiting graduates

To find out more about becoming an industry partner, please visit our website or email **ppar-cdt@inf.ed.ac.uk**

Our industry partners currently include the companies shown left. We are developing links with additional companies on an ongoing basis.

ACE Associated
Computer Experts bv

Altran

Amazon Development Centre
(Scotland) Ltd.

ARM Limited

Codeplay Software Ltd.

Contemplate Ltd.

CriticalBlue

Erlang Solutions Ltd.

Freescale Semiconductor, Inc.

IBM Research

Intel

Keysight Technologies

Microsoft Research

Oracle Labs

Qualcomm Technologies, Inc.

Samsung Electronics
R&D Institute UK

Synopsys, Inc.

Wolfson Microelectronics

Why choose this programme?

The CDT is the first centre in the UK to teach and research parallelism in such breadth and depth. Our supervisory team consists of experts from across the full spectrum of research areas related to parallel computing, including: architecture, networks and compilation; programming languages and software; modelling, proof and concurrency theory; applications and HPC.

Our supervisors, drawn from the School of Informatics and the Edinburgh Parallel Computing Centre (EPCC), have formidable track records, and include many holders of advanced research fellowships and distinguished awards.

The involvement of EPCC, one of Europe's leading supercomputing centres, provides a globally impressive infrastructure for use in the training of our students.

We also benefit from strong support from our industry partners, who provide funding, guidance and internship opportunities, and are eager to recruit our graduates.

How to Apply

We strongly advise you to contact potential supervisors before or during the process of writing your application. The relationship with your supervisors is key to a successful PhD experience.

Please visit our website to find a list of Pervasive Parallelism supervisors and full instructions on how to apply.

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Edinburgh has regularly been voted one of the most desirable places to live in the world.

Why choose the University of Edinburgh?

The School of Informatics at the University of Edinburgh enjoys the highest level profile within the international research community, and recent Research Assessment Exercises have confirmed its place as the top Informatics research centre in the UK. Moreover, the School holds a Silver Athena SWAN award, in recognition of its commitment to advancing the representation of women in science, mathematics, engineering and technology.

The University of Edinburgh is a world-changing, world-leading university, which is globally recognised for its research, development and innovation, as well as the quality of its teaching and student experience.

Edinburgh has regularly been voted one of the most desirable places to live in the world. The city offers an exciting array of entertainment, history, culture and sport, with the lush Scottish countryside and coastline just a few miles away.

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Pervasive Parallelism

Find out more and apply at
pervasiveparallelism.inf.ed.ac.uk

Contact us at
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