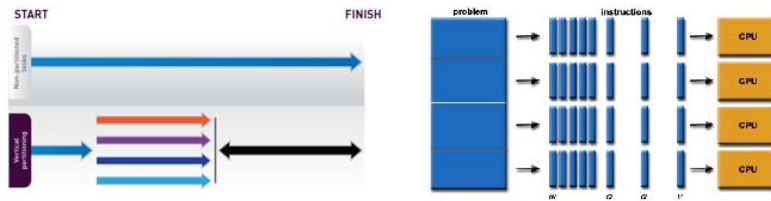




EPSRC Centre for Doctoral Training in Pervasive Parallelism



Industry Partner Newsletter: Issue 2

Welcome to the second edition of the EPSRC CDT in Pervasive Parallelism Industry Partner Newsletter. We'd like to begin by sending Season's Greetings to all our partners, and to thank you for your support during our first months. In this edition we alert you to our latest developments and remind you of some opportunities highlighted in the previous newsletter.

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Request for Information:

We would appreciate it if you could please email us information about internships your company can offer, any ideas for projects or problems that you would like our students to research, and information about yourself and your research interests, so that we can add this to our website, as suggested by many partners at the last Industrial Advisory Board meeting. Please see sections 3 and 4 below for details. Also, if you would like to suggest any companies or individuals that we should invite to be additional partners, we would welcome your suggestions (see section 5). Thank you!

1. Students Complete the Pervasive Parallelism Course

As well as defining our whole CDT, "Pervasive Parallelism" is the name of a one semester course undertaken by our new students. The course helps the students to shape their initial thoughts and literature review, and culminates with the submission of a project

plan for the remainder of their MSc by Research year. All our students have now submitted their project plans. We hope you will find this list of titles interesting, and encourage you to contact any of the authors to find out more. Contact details are on our Students page: <http://pervasiveparallelism.inf.ed.ac.uk/students/>

- Chris Cummins: Dynamic Autotuning of Algorithmic Skeletons
- Simon Fowler: Supervised Session Actors
- James Ganis: Resource Aware Particle Filters
- Adam Harries: Sparse Submatrix Specialisation in Skeletal Graph Applications on GPUs
- Artemy Margaritov: Streaming of Branch Direction Predictor for Performance and Density.
- Mark Miller: Dynamic and Parallel Relationship Descriptors
- Davide Pinato: Evaluation of Rule Misses in a Real SDN Network
- Martin Ruefenacht: Implementing two-sided MPI using RDMA hardware
- Galini Tsoukaneri: On the Feasibility of Inferring User Location and Mobility Patterns in Crowdsourcing Environments
- Justus Zarins: Accelerating Markov Chain Monte Carlo (MCMC) Bayesian Inference Algorithms on Tree Structures via Parallelisation

2. Capital Equipment Acquisition Progressing

In collaboration with the EPSRC CDT in Data Science, we are in the process of acquiring a substantial "Big Compute, Big Data" computing resource for CDT students. Bids are now in, and under scrutiny, with a view to deployment in March. The resource will include a compute cluster, with more than 1,000 cores, a GPU cluster, with 10-20 GPGPU nodes and a big memory cluster with at least 1TB RAM per server. We will also be buying a number of smaller experimental systems, with diverse processing and networking facilities. The whole process involves spending £380K awarded jointly to the two CDTs from EPSRC's Capital Equipment for CDTs scheme.

3. 'Research and Project Ideas' Web Page Developments

Our Research and Project Ideas page (<http://pervasiveparallelism.inf.ed.ac.uk/research-project-ideas/>) is now live, and remains open for your suggestions of topics which may be of interest to our students and applicants.

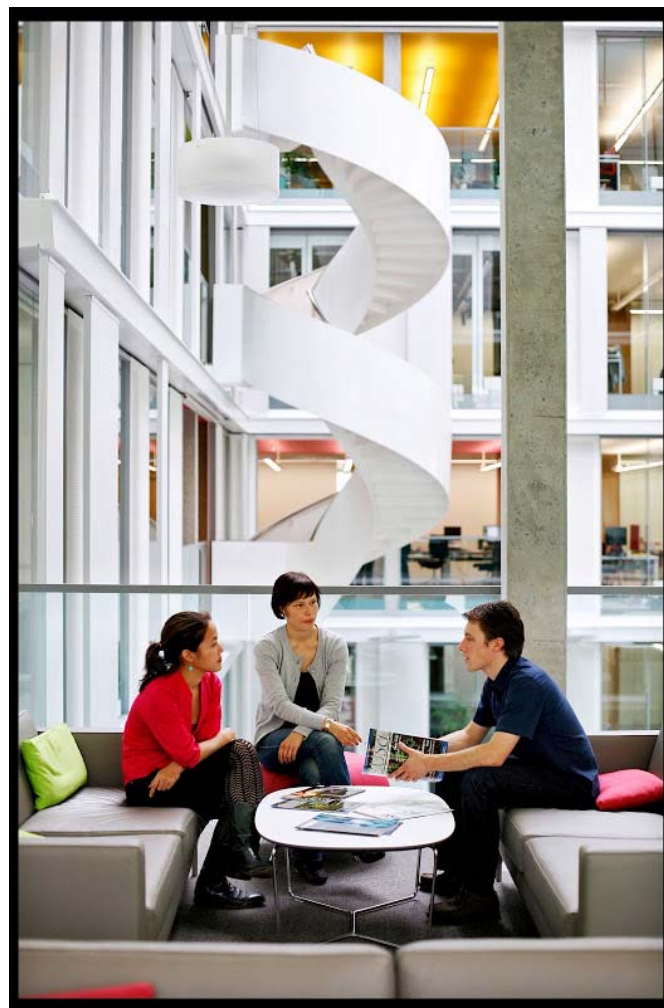
In the meantime we have been populating the page with suggestions from our own academics. A selection of titles follows; please feel free to get in touch with the contact named on the page if you would like to find out more.

- Next Generation Network Functions
- Performance Portability for Sound Synthesis
- From Data Types to Session Types: A Basis for Concurrency and Distribution (ABCD)
- Auto-Parallelisation
- Co-design of DSP Cores and Compilers
- Complexity Metrics for Testing Concurrent programs
- Compilers that Learn to Optimise
- Quantitative Modelling Process Algebra
- Design, Analysis and Optimisation of Next-Generation Mobile Cellular Networks
- Distributed algorithms and protocols for mobile and wireless networks
- Memory Consistency Models and Cache Coherency for Parallel Architectures
- Parallelism Discovery
- Patterns and Skeletons in Parallel Programming
- Processor Design
- Reconfigurable Data-Parallel Structures for Embedded Computation
- Searching the Embedded Program Optimisation Space

We would like this page to also list our industry partners and their research areas and email addresses (for those who approve this), so that students and applicants can make contact if they are interested in working on one of your suggested project ideas.

Please provide any of the following points of information that you would like included on the 'Research and Project Ideas' page:

- A title and idea for a research project (or more than one). The description of the idea can be between a couple of sentences and a few paragraphs.
- Let us know if you would be happy to be named personally as an industry partner (in addition to naming your company).
- A few lines about your research area and interests.
- Your preferred email address to be provided on the website. If you'd prefer not to provide your email address, we will list the CDT PPar email address under your project idea and/or research interests, and will note that emails will be forwarded to you.
- A photo of yourself (these will only be used if provided by most of the industry partners).



4. Promoting Company Internships (Reminder)

CDT PPar students will be strongly encouraged to undertake industrial internships during their PhD stage. Internships will give industry partners the opportunity to “try before you buy” - to find out if a given student is suitable for working at your company before they are recruited - and to gain a new perspective from the student. They will give the students a good appreciation of the real-world problems faced by industry, and will make them better-equipped to tackle those problems upon graduation, if not earlier.

If your company can offer one or more internships between now and the end of the next academic year (August 2016), we would appreciate it if you could please fill in the Industrial Internship Template at the link below. If you can offer more than one distinct internship, please feel free to fill out a separate form for each topic. We will use this information to populate the “Industrial Internships” page on our website: <http://pervasiveparallelism.inf.ed.ac.uk/internships/>

Please fill in the Internship Information Template:
<http://goo.gl/forms/SW1Nn3UB1U>

The core CDT PPar students will not undertake internships until the next academic year, but our affiliated students, and other PhD students within the School of Informatics, will be looking for internships more immediately.

If your company runs a large internship scheme, in addition to providing the link to the internship page, please provide some direction about how to find internships that would be relevant to you personally, and to the students in the CDT PPar. For example, under which headings should they look for internships related to parallelism, concurrency and distribution?

5. Suggesting New Industrial Partners (Reminder)

A number of our current partners suggested that our industrial events could provide a useful forum at which to meet other industrial colleagues - whether they be people you already know or people you would like to know - or companies who are consumers of the technology you provide. If you have any suggestions as to companies or individuals you would like us to invite then please let us know.

6. Student Applications for 2015-16

Applications have begun to arrive for our second cohort of students, who will join us in September 2015. To date we have received six completed applications and are aware of around ten more which are brewing. This is well in advance of the corresponding point last year. We hope to be able to report on our first offers in the next

newsletter, and will continue our publicity push in the meantime.

7. Save the Date: Industrial Advisory Board Meeting and Internal Conference, 2-3 June 2015

We have scheduled our next industrial get together and Industrial Advisory Board (IAB) meeting for June 2nd-3rd 2015, in the Informatics Forum, University of Edinburgh. Our first draft plan is as follows. Please let us know if you have any feedback, e.g. if you would like to hear presentations from staff or PhD students in a particular research area, or if you would like to see any other types of sessions included.

2nd June	12.00 noon	Meet for lunch
	13.00 – 14.30	Research presentations from Staff and Senior PhD students
	14.30 – 15.00	Break
	15.00 – 17.00	Research presentations from Staff and Senior PhD students
	17.00 – 18.30	Reception with posters and company booths
	19.00	Dinner
3rd June	09.30 – 11.00	Research presentations from Staff and Current CDT students
	11.00 – 11.30	Break
	11.30 – 13.00	Research presentations from Staff and Current CDT students
	13.00 – 14.00	Lunch
	14.00 – 15.00	Industrial Advisory Board Meeting

Thank you for reading. Please send any questions or information requested above to amanda.grimm@ed.ac.uk.