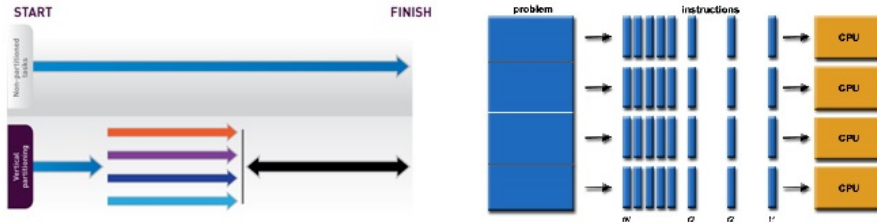


# EPSRC Centre for Doctoral Training in Pervasive Parallelism



## EPSRC CDT in Pervasive Parallelism Industry Partner Newsletter Issue 4, May 2015

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### 1. Compute and Data Cluster Operational

The "James and Charles" compute and data cluster, funded by an EPSRC CDT capital equipment grant, is now operational. The cluster is shared by students of the Pervasive Parallelism and Data Science CDTs, with spare cycles (if there are any!) open to others within the School of Informatics. Each of the 21 "James" nodes houses four 16 core AMD Opterons, while each of the ten "Charles" nodes offers two 16 core Intel Xeons and one or two Tesla K40m GPUs. Additionally the two big memory nodes, "Anna" and "Mary" are similar to the James nodes but each have 1TB of memory. The grant also funded a range of smaller equipment, including networking testbeds and other novel compute systems.

### 2. Industrial Advisory Board

Our IAB will meet as part of our Internal Conference event on June 2-3. As previously, we will have an open format in which you will be encouraged to give us your thoughts, comments and feedback on the Centre and its progress. One issue to think about in advance concerns CDT recruitment. If you are able to tell us, we'd be delighted to hear about the universities (and departments) which you find most attractive in terms of your own graduate recruitment strategies. These may be good targets for our own efforts (not to steal your future employees of course, but rather to further develop their peers into doctoral-level recruits for you).

### 3. Recruiting the 2015 Cohort

At the time of writing, we have ten firm acceptances of places to form our 2015 student cohort, and a further two offers in the making. As with the 2014 cohort, the new students will span a wide range of research areas and research institutes within the School. We are also pleased to have achieved a significantly better gender balance than is currently typical across the School. The new students will result in at least seven additional members of staff joining our pool of active primary supervisors, and around thirty staff in total being involved in CDT supervision teams.

### 4. Awards and Promotions

We are delighted to congratulate CDT supervisor pool members James Cheney, Ilias Diakonikolas and Vijay Nagarajan on their promotions to Readerships. Recent Pervasive Parallelism-related grant successes include:

- "C3: Scalable & Verified Shared Memory via Consistency-directed Cache Coherence" (Nagarajan, Topham, Jackson + colleagues in St Andrews)
- "A New Simulation and Optimisation Platform for Marine Technology" (Weiland)
- "Resource Bounded Graph Query Answering" (Fan)

## 5. Progress of the 2014 Cohort

Our first cohort of students have now completed their "taught course" components, with exams to follow shortly, and are continuing to focus on their Masters research projects. Each student has recently undergone an informal intermediate progress check, presenting their findings and plans to their supervision team, and receiving feedback. We are delighted with the shape of the projects so far.

Students continue to take advantage of research skills courses offered by VOX Coaching and the University's Institute for Academic Development, with recent attendances at sessions on "Impact and Influence", "Technical Writing", "Poster Production" and "How to Do an Informatics PhD". They have also begun to attend technical conferences and workshops, including:

- PLACES'15 (Programming Language Approaches to Communication- and Concurrency-centric Systems) workshop, London - <http://places15.by.di.fc.ul.pt/>. Attended by PPar student Simon Fowler.
- EASC2015: Solving Software Challenges for Exascale, Edinburgh Centre for Parallel Computing - <http://www.easc2015.ed.ac.uk/home>  
The PPar student Justs Zarins presented a lightning talk and poster titled "*miniBEAST : MCMC miniapp case study*".
- International HPC Summer School 2015, Toronto - <https://ihpcss2015.computecanada.ca/wp/>  
PPar student Martin Rufenacht will present a poster here.
- ACM Symposium on Virtual Reality Software and Technology (VRST), Edinburgh - <http://conferences.inf.ed.ac.uk/vrst2014/>. The PPar student Mark Miller presented his poster on "*Poxels: Polygonal Voxel Environment Optimizations for Improved Storage and Rendering*" here.
- PADL'15 (Practical Aspects of Declarative Languages), Portland - <http://www.cs.nmsu.edu/padl15/> have accepted a paper co-authored by the PPar student Simon Fowler, on "*Reactive Single-Page Applications with Dynamic Dataflow*".

## 6. Attending Pervasive Parallelism Lunches and Seminars + Informatics Ventures Events

Those of you either permanently or occasionally within easy reach of Edinburgh's School of Informatics are welcome to attend our programme of seminars and lunch time talks. These are normally held within the Informatics Forum, but occasionally at other venues in Edinburgh. You can find details of the lunchtime programme of short introductory talks at:

<http://www.inf.ed.ac.uk/student-services/parallelism-cdt/cdt-in-pervasive-parallelism-events/pervasive-parallelism-lunch-programme>

and of our Pervasive Parallelism seminar series at:

<http://www.inf.ed.ac.uk/student-services/parallelism-cdt/cdt-in-pervasive-parallelism-events/cdt-in-pervasive-parallelism-seminar-series>

Announcements of and changes to Pervasive Parallelism seminars and lunches are circulated to the PPar-Announce mailing list. Please let us know if you would like your email address to be added to this list.

We also draw your attention to the extensive programme of events offered by Informatics Ventures, in its mission to support Scotland's technology entrepreneurs:

<http://www.informatics-ventures.com/events>

The next Informatics Ventures event will take place on 26<sup>th</sup> May. At this "Pitch and Grill" session, you can hear pitches from 10 technology start-up companies, have an opportunity to "grill" them, and then enjoy a barbecue on the Informatics Forum roof terrace:

<http://www.informatics-ventures.com/pillars/connect/ivtuesday-pitch-grill>

Please note that attendees must register in advance.

Many of the Informatics Ventures events are also available for online viewing.

**informatics**  
ventures

## 7. Reminder: Company Support for CDT Projects

In the last newsletter we included details about our model for company support of student projects, which includes three levels of contribution and resulting access to IP. This information is now on the CDT PPar website, for easy reference: <http://pervasiveparallelism.inf.ed.ac.uk/company-support-student-projects/>

If you would like to discuss sponsoring a studentship, in full or in part, please let us know, and we will put you in touch with one of our School's Business Development Executives.

## 8. Update: Internal Conference & Industrial Engagement Event, 2-3 June, Edinburgh

Our [Internal Conference](#) programme includes the **Industrial Advisory Board** meeting, a **reception** with student posters and company booths, and **dinner** for industry partners, the School's Business Development Executives and the CDT's Executive Management Committee. Industry partners can bring **promotional materials** (e.g. banners, brochures) to display for the duration of the event on 2<sup>nd</sup> June, to advertise your company and its research to event attendees and additional students and staff who work in the Informatics Forum.

The conference will feature the following speakers:

### Keynotes:

[Professor Philip Wadler](#), Chair of Theoretical Computer Science

- Talk title: "[The Inevitable Coincidence: A Basis for Concurrency and Distribution](#)"

[Professor Steve Renals](#), Chair of Speech Technology

- Talk title: "[\(Deep\) Neural Networks for Speech Recognition](#)"

[Professor Nigel Topham](#), Chair of Computer Systems

- Talk title: "[Many Cores Make Light Work](#)"

[Dr Vittorio Ferrari](#), Head of CALVIN Research Group on Visual Learning

- Talk title: "[Visual Learning and Recognition at CALVIN](#)"

### PhD Students:

Nikolay Bogoychev, PhD student focusing on GPGPU, MT (machine translation) and GPGPU in MT

- Thesis title: "[Exploiting the Raw Computational Power of GPUs in Machine Translation Decoding](#)"

Arpit Joshi, PhD student focusing on Computer Architecture

- Thesis title: "[Architectural Support for Persistent Memory](#)"

Stan Manilov, PhD student focusing on Computer Systems

- Thesis title: "[Parallelism Detection and Mapping to Heterogeneous Multi-core DSPs](#)"

William Ogilvie, PhD student focusing on Computer Systems and Optimizing Compilers

- Thesis title: "[Improving Machine Learning Based Compiler Heuristics](#)"

In addition, the 10 students in the first cohort of the CDT in Pervasive Parallelism will give short presentations about their MSc projects, which will be completed in August.



The titles of the students' presentations will be posted on the [event page](#) on 18<sup>th</sup> May.

Please register by 19<sup>th</sup> May, via the Eventbrite page: <http://bit.ly/1ANCSn1>

We look forward to seeing many of you on 2-3 June.

Thank you for reading, and for your support of our the EPSRC CDT in Pervasive Parallelism. If you have any questions or comments in response to this newsletter, please don't hesitate to contact us at:

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