

ICL NEWSLETTER

SEPTEMBER 2010

ICL Annual Retreat



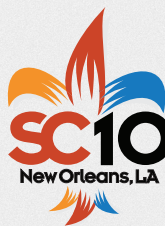
This year's retreat on August 12th and 13th in Townsend was our 11th annual offsite gathering designed to get away from campus and talk about where we are and where we're going as a group. As usual, breakfast and lunch were catered as the staff delivered more than 30 talks about ICL research and administration.

UT Group Insurance Changes

New health insurance plan options are now available, which expand eligibility for UT employees and dependents. Visit the [Tennessee Partners for Health website](#) for more information. Open enrollment begins Sept. 15th.

Supercomputing 2010 Registration

If you plan on attending SC '10 this year in New Orleans, be sure and complete the ICL travel form and the conference registration. Pre-registration is still open, and those planning to attend should register soon to avoid the pre-registration deadline of Oct. 15th. See the [SC '10 Conference Registration site](#) for more information and to register.



HPC Challenge Awards at SC '10

The HPC Challenge Awards BoF at SC'10 has been scheduled for Tuesday, Nov. 16th from 12:15-1:15 pm in Room 389. See the complete abstract of the BoF session [here](#).



Kraken is Growing

Kraken, the Cray XT5 housed at The National Institute for Computational Science (NICS) in Oak Ridge managed by UT, will soon grow to 100 cabinets, extending its computing capability to 1.17 petaflops and 147 terabytes of memory. For more information, see [the piece in UT Today](#).

RECENT PAPERS

Du, P., Luszczek, P., Dongarra, J. **OpenCL Evaluation for Numerical Linear Algebra Library Development**. *2010 Symposium on Application Accelerators in High-Performance Computing (SAAHPC '10)*, Knoxville, TN. July 13-15. [PDF](#)

Du, P., Parsons, M., Fuentes, E., Shaw, S., Dongarra, J. **Tuning Principal Component Analysis for GRASS GIS on Multi-core and GPU Architectures**. *FOSS4G 2010*, Barcelona, Spain. Sept. 6-9. [PDF](#)

Du, P., Luszczek, P., Tomo, S., Dongarra, J. **Mixed-Tool Performance Analysis on Hybrid Multicore Architectures**. *First International Workshop on Parallel Software Tools and Tool Infrastructures (PSTI 2010)*, San Diego, CA. Sept. 13-16. [PDF](#)

Song, F., Ltaief, H., Hadri, B., Dongarra, J. **Scalable Tile Communication-Avoiding QR Factorization on Multicore Cluster Systems**, *SC'10*, New Orleans, LA, ACM SIGARCH/ IEEE Computer Society, November 13-19, 2010. [PDF](#)

RECENT CONFERENCES

AUG 2 Nashville, TN
PetaApps Meeting
George

AUG 2-5 Snowbird, UT
CScADS Workshop on Performance Tools for Petascale Computing
Dan
PAPI Breakout Report [PDF](#)
Presentation [PDF](#)

AUG 9-11 Snowbird, UT
CScADS Workshop on Automatic Tuning
Anthony, Jack, Jakub, Shirley
[Photo/Presentations](#)

AUG 31 - SEP 3 Ischia - Naples, Italy
Euro-Par 2010
Jack

AUG 31 - SEP 3 Orsay, France
PETAL Workshop
Thomas

UPCOMING CONFERENCES

SEP 1 - 2 Salt Lake City, UT
Performance Engineering Research Institute (PERI) All-hands meeting
Dan, Shirley

SEP 7 - 10 Flat Rock, NC (Invitation Only)
Clusters, Clouds, and Grids for Scientific Computing
George, Aurelien, Anthony, Jack, Peng, Thomas, Heike, Jakub, Piotr, Shirley, Terry, Fengguang

SEP 13-16 San Diego, CA
Parallel Software Tools and Tool Infrastructures (PSTI 2010)
Peng [PDF](#)

INTERVIEW

Thomas Herault

Visiting Scientist



Tell us a little about yourself (where you're from, your educational background, etc.)

I attended the University Paris-Sud at Orsay for my bachelor degree in 1993, and stayed there until I got my Ph.D. in computer science ten years later. My Ph.D. was on a theoretical topic in computer science (self-stabilization) and how to mend failures (quicker than they would naturally) on self-stabilizing systems. A self-stabilizing system is like an ant colony: if some faults happen (like someone kicking the ground), it will heal, and after a chaotic period, everything will be back to normal. The problem with self-stabilizing systems is that even if you move a single ant from its place, the whole colony may have to enter this chaotic period to heal. My Ph.D. was about designing algorithms to avoid this and mend quickly if the fault is small. After the Ph.D. I got a position as assistant professor in the same university, but I started working on more practical issues, like fault tolerance in MPI with the MPICH-V project. Five years later, I began my visit to ICL.

As a visiting scientist, you've been with ICL now for nearly two years. Why did you want to move here and work with the group?

I had already visited ICL for shorter periods of time (1 week to 1 month) before. In 2008, I had the opportunity to ask for a two-year leave from my university, and after having spent about 15 years at the same place, I wanted to see new skies. I met George at a MPI Forum, and when he told me ICL was looking for people, I jumped on the occasion.

Who else are you collaborating with outside of ICL and what are you working on with them?

As an assistant professor at University Paris-Sud, I participated in many projects that I've continued to follow while visiting ICL. Some projects are still going: I work with Laura Grigori (INRIA Saclay), Radek Stompór (University Paris 7) and Julian Borill (Berkeley) on Microwave data analysis for petascale computers; Franck Cappello

(UIUC / INRIA Saclay) on Fault Tolerance for Petascale Computing; Sylvain Peyronnet (University Paris-Sud) on Fault Detection in Large Scale Systems; and Sylvain Peyronnet and Sebastien Tixeuil (University Paris 6) on Security and Confidentiality of Operating Systems. This last project is an interesting challenge of the French NSF that ends this month, in which we were able to develop new research themes for University Paris-Sud on security.

What have been some of the biggest adjustments for you moving here from France?

It probably has been the weather. I was told about it, but I guess you really need to live through it to realize. I'm also probably the only guy in town naive enough to have bought a car without air conditioning. A word of advice for the next European guy who arrives here during the winter: air conditioning is not a fancy option.

What do you like to do in your spare time? Do you have any hobbies?

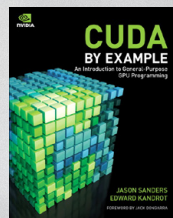
I spend most of my spare time with friends socializing, hiking, boating, and from time to time visiting places around Knoxville. I also belong to a group of people who like to over-engineer the design of apparatuses that worked quite well before we decided to improve them.

When the time comes to move back to France, what are you going to miss most about being here?

I hope I can delay this as late as possible! From a professional point of view, the unbelievably stimulating environment we have here to work at ICL. From a personal point of view, the friends who will stay here of course, and probably my 1,200 square feet home... In Paris, I lived in a 360 square feet flat, and it was more expensive!

GPU Programming Book

Written by two senior members of NVIDIA's CUDA software development team, *CUDA By Example: An Introduction to General-Purpose GPU Programming* stands to be an important resource for GPU programmers. Btw, Jack wrote the Foreword of the book. Get a copy from Amazon.com [here](#).



CS Alumni Accts. to Disappear

Existing CS alumni computing accounts will be phased out soon. Due to university software licensing issues and the e-mail transitions to the Exchange 2010 email system, alumni will soon lose their accounts unless they can acquire faculty sponsorship. For more information, contact ICL Help at iclhelp@eecs.utk.edu.

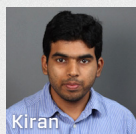
RELEASES

MAGMA Gemms for Fermi GPUs

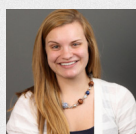
To be included in the upcoming release of the MAGMA 0.3 library, these improved Gemms will also be part of CUBLAS 3.2. Visit the [MAGMA software page](#) to download.

PEOPLE

ARRIVALS



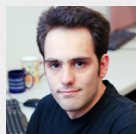
Kiran Kasichayanula and **Ajay Katta** have joined the group as GRAs. Kiran will be working with the performance analysis group while Ajay will be working with Shirley and Stan. Welcome to you both!



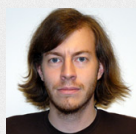
Bonnie Browne (Shirley's daughter) is now working with the group through December on a joint project with Information International Associates of Oak Ridge. Welcome, Bonnie!

Dulceneia Becker has joined the group as a Senior Research Associate and will start the middle of this month working with the linear algebra group. Welcome Dulceneia!

DEPARTURES



Vincent Berthoux, a visiting student who's been with us since June, will be returning to France this month. Best of luck, Vincent!



Brian Zachary will be leaving the group this month to join the IT support staff at ORNL. Best of luck, Brian!

UPCOMING CONFERENCES Continued

SEP 12-15 Stuttgart Germany
EuroMPI 2010
Aurelien, Anthony, George

SEP 15 - 16 Lexington, MA
HPEC 2010
Piotr

SEP 20 - 23 San Jose, CA
GPU Technology Conference (GTC 2010)
Hatem, Stan

SEP 21 - 23 Arlington, VA
NSF Workshop on Software Development Environment for Science & Engineering Applications
Shirley

SEP 28- OCT 2 Atlanta, GA
2010 Grace Hopper Celebration of Women in Computing
Shirley

RECENT LUNCH TALKS

AUG 6 EECS Professor Michael Berry
Scenario Discovery Using Nonnegative Tensor Factorization and Visual Analytics [PDF](#)

AUG 13 Retreat

AUG 20 Mitch
A Novel Technique for CTIS Image-Reconstruction [PDF](#)

AUG 27 EECS PhD student Wes Kendall
Scalable Systems for Ultrascale Visualization [PDF](#)

UPCOMING LUNCH TALKS

SEP 3 Tracy R.

SEP 10 No Lunch Talk (CCGSC)

SEP 17 Asim

SEP 3 Songhua Xu from ORNL

DATES TO REMEMBER

SEP 4 Football (versus UT Martin - 6pm)

SEP 6 Holiday - UT closed (Labor Day)

SEP 11 Football (versus Oregon - 7 pm)

SEP 18 Football (versus Florida - 3:30 pm)

SEP 25 Football (versus UAB - TBA)