

ICL NEWSLETTER

OCTOBER 2010

IESP Heads to Hawaii

The 2nd workshop of 2010 for the International Exascale Software Project, and the 5th since 2009, will be held in Maui on October 18-19. Some of the goals for the upcoming meeting include:

- Refining the current version of the Roadmap (v 1.0)
- Exploring how laboratories, universities, and vendors can work together on coordinated HPC software
- Exploring governance structure and management models for IESP

The full list of goals for the invitation only workshop can be found on the [IESP website](#) along with more information about the meeting including the full agenda.



NICS Seminar Program and IGMCS

UT's National Institute for Computational Science (NICS) will be conducting a seminar series this fall at UT for all those involved in computational science efforts. Students, faculty and staff are invited to attend the seminars, which began last month and are held on Thursday's 2:00-4:00 pm in the ICL conference room (Claxton 233). For more information, including the seminar agenda, visit the Interdisciplinary Graduate Minor in Computational Science [Seminar Series webpage](#).

CCGSC Wrap Up



Another successful edition of Clusters, Clouds and Grids for Scientific Computing (CCGSC) was held last month at the Highland Lake Inn in Flat Rock, NC. ICL's representation this year was the largest ever, with 13 staff and students attending out of the slightly more than 60 total attendees, which also included several former ICLers. Nearly 40 talks were given during the four day conference, with topics covering everything from cluster based computing and tools to languages, libraries, programming environments and high speed networks. For the complete agenda and a list of attendees, talk abstracts, and photos, visit the [CCGSC website](#).

RECENT PAPERS

Agullo, E., Augonnet, C., Dongarra, D., Ltaief, H., Namyst, R., Thibault, S., Tomov, S. **Faster, Cheaper, Better – a Hybridization Methodology to Develop Linear Algebra Software for GPUs.** *GPU Computing GEMs, vol.2 (to appear)*, University of Tennessee Computer Science Technical Report UT-CS-10-658 (also LAPACK working note 230), Sep 15, 2010. [PDF](#)

Bosilca, G., Bouteiller, A., Danalis, A., Herault, T., Lemarinier, P., Dongarra, J. **DAGuE: A Generic Distributed DAG Engine for High Performance Computing.** University of Tennessee Computer Science Technical Report UT-CS-10-659 (also LAPACK working note 231), Sep 15, 2010. [PDF](#)

Bosilca, G., Bouteiller, A., Danalis, A., Faverge, M., Haidar, H., Herault, T., Kurzak, J., Langou, J., Lemarinier, P., Ltaief, H., Luszczek, P., Yarkhan, A., Dongarra, J. **Distributed Dense Numerical Linear Algebra Algorithms on Massively Parallel Architectures: DPLASMA.** University of Tennessee Computer Science Technical Report UT-CS-10-660, Sep 15, 2010. [PDF](#)

Du, P., Weber, R., Luszczek, P., Tomov, S., Peterson, G., Dongarra, J. **From CUDA to OpenCL: Towards a Performance-portable Solution for Multi-platform GPU Programming.** University of Tennessee Computer Science Technical Report UT-CS-10-656 (also LAPACK working note 228), Sep 6, 2010. [PDF](#)

Kurzak, J., Nath, R., Du, P., Dongarra, J. **An Implementation of the Tile QR Factorization for a GPU and Multiple CPUs.** *PARA'10*, University of Tennessee Computer Science Technical Report UT-CS-10-657 (also LAPACK working note 229), Sep 15, 2010. [PDF](#)

RECENT 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, Wes A.

SEP 9 - 13 SAN DIEGO, CA
Parallel Software Tools and Tool Infrastructures (PSTI 2010) Peng [PDF](#)

SEP 12-15 STUTTGART, GERMANY
EuroMPI 2010
Jack, Aurelien, Anthony, George

SEP 15 - 16 LEXINGTON, MA
HPEC 2010 Piotr

SEP 20 - 23 SAN JOSE, CA
GPU Technology Conference (GTC 2010)
Hatem, Stan

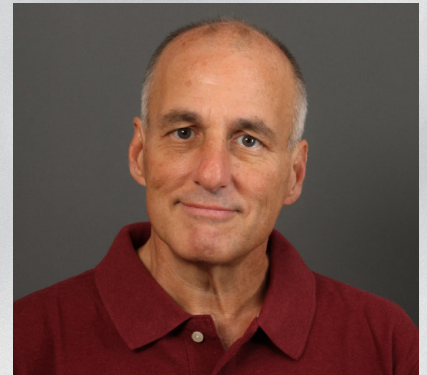
SEP 21 - 23 ARLINGTON, VA
NSF Workshop on Software Development Environment for Science & Engineering Applications Shirley

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

INTERVIEW

Mitch Horton

Post Doctoral Research Associate



As one of ICL's newest employees, how did you learn about the group?

I took Dr. Dongarra's Parallel Architecture class in the Spring of 2006. The teaching load was split between Jack, Graham, George and Stan.

Tell us what you were doing before joining the group and what you're working on now.

I graduated with a PhD in Computer Science from the EECS Department at the University of Tennessee in May of 2010.

I'm working in the Numerical Linear Algebra group helping Stan with MAGMA related projects. Currently we are looking at using QUARK to dynamically schedule the Cholesky, QR, and LU factorizations for a future MAGMA release.

At home, I'm carefully reading every word of Jim Demmel's Applied Numerical Linear Algebra book.

A background process is to read as much as possible from the relevant publications from the group.

Even though you've only been with us for a few weeks, what do you enjoy about the group?

There exists a concentration of a type of intelligence here, 20 years in the making, that one would be hard pressed to find at any other point in either space or time.

A separate remark is that numerical linear algebra makes my heart sing.

It is also a true statement that individuals seem to be assimilated into the collective without loss of individuality.

I feel that the connections between people are constantly being refreshed on a number of disparate levels. In such an intrinsically isolated type of work, perhaps this is vital.

What do you like to do when you're not working? Do you have any hobbies?

When am I not working?

- a) I am an insatiable reader. My favorite book would have to be the accumulated works of: Hunter S. Thompson, Robert A. Heinlein, Isaac Asimov, William Gibson, Tom Wolfe, Stephen Donaldson, Richard Marcinko, Tom Clancy, Lee Child, David Baldacci, J.R.R. Tolkien, and Austin Grossman. All other books are tied for second place.
- b) Movies. My children remark that a movie must have at least black stick figures on a white background for me to fall completely in love with it. About once per month, my oldest son and I burn through a stack of something like a dozen new releases back to back.
- c) Disc golf. My two sons and I play disc golf maybe 20 times a year on average.
- d) Exercise. It is three miles from my house to the UT campus. I run to and from work every day.
- e) My youngest son made the mistake of uttering the acronym GRE within earshot of me and so he's benefitting from my help in studying for the exam.
- f) I build a lot of Legos with my seven year old grandson.
- g) It looks like I'm still hooked on Super Mario Brothers. The grandson is having to pry his Nintendo DS from my clutches on occasion. I'm much better at it than he is.
- h) Definitely not sleep.

Tell us something about yourself that might surprise people.

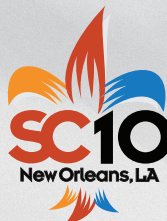
I am a Quan Yin practitioner.

EECS Cluster Usage Information

Need info on using the department's clusters? The EECS IT staff has comprehensive information about the cuda and grig clusters on the [EECS Clusters website](#). Contact Paul in ICL Help (iclhelp@cs.utk.edu) with questions or for more information.

SC10 Registration

SC10 is fast approaching. **Early registration** ends Oct. 15th, so please register and secure your accommodations if you haven't already. The **technical program schedule** is now available, so make your plans accordingly. The annual ICL group dinner will most likely be on the usual Wednesday, but plans haven't been finalized yet. A message will be sent out to the group and to the alumni list once arrangements are complete.



RELEASES

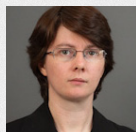
LAPACK 3.2.2

Primarily a bug fix release, 3.2.2 also includes the CMAKE build system. See the [release webpage](#) for the complete list of fixes.

PEOPLE



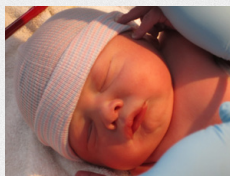
Ian Jones and **Adam Scarborough**, who have been visiting ICL and ORNL since May, are returning the UK this month. Best of luck, Ian and Adam!



Welcome to **Dulceneia Becker**, who joined the group late last month!



Former ICLer **Jeff Larkin**, who's now with Cray in Oak Ridge, and his wife Carla welcomed their first child last month, a boy named Owen. Congratulations to you both!



Jack Conducts Europe Talk Circuit in September

Last month, Jack extended his frequent flyer miles by giving invited or keynote lectures at [Euro-Par in Italy](#), followed by [EuroMPI in Germany](#) and concluding with the [NumAN conference in Greece](#).

UPCOMING CONFERENCES

OCT 17 - 19 MAUI, HI
IESP
Jack, Terry, Tracy, Teresa

OCT 18 - 19 ARGONNE, IL
ALCF Early Science Workshop 2010
Dan, Shirley

OCT 21 PARIS, FRANCE
Final Review SAFE-OS
Thomas

RECENT LUNCH TALKS

SEP 3 Tracy R.
Travel

SEP 10 No Talk

SEP 17 Asim
QUARK: QUeuing And Runtime for Kernels [PDF](#)

SEP 24 Songhua Xu from ORNL
Facilitating Information Access through Visual and Intelligent Assistance [PDF](#)

OCT 1 Piotr
Thinking Outside the Tera-scale Box [PDF](#)

UPCOMING LUNCH TALKS

OCT 6 Xiaohua Zhang

OCT 15 No Lunch Talk (IESP)

OCT 22 Jeff Larkin from Cray

OCT 29 TBA

DATES TO REMEMBER

OCT 7-8 Fall Break (no classes)

OCT 23 UT Football (vs. Alabama) - Time TBA

OCT 31 Halloween