ICL UT NEWSLETTER

OCTOBER 2009

SC '09

If you're planning to attend SC '09 in Portland, OR November 14-20, make sure you complete a travel form first and do so ASAP. The advanced conference registration deadline is October 12th. Be sure and visit the **conference website** for more information. If you have any questions about the conference registration process, see Leighanne.

ICL is Hiring

With several new projects underway (or soon to be), ICL is in need of additional full-time research staff. We also have opportunities for graduate research assistants. We're looking for talented and motivated individuals for the following areas:

- Automated Performance Tuning for Scientific Applications
- Compiler Evaluation and System Characterization
- Multicore Scientific Application Modeling and Optimization
- Performance Evaluation for Grid and Cloud Computing
- Software for Numerical Linear Algebra

If you know someone who might be interested, please have them visit our **job openings page** for more information and to apply.

ICL Part of FutureGrid Effort

ICL has been an active participant in Grid computing research since its inception in the 90's. With this month's announcement of an NSF Track2 award of $10.1M for FutureGrid, that tradition continues. FutureGrid is a high performance grid test bed that will allow scientists to work collaboratively to develop and test novel approaches to parallel, grid, and cloud computing. Indiana University will lead a group of eight national and international partners, including ICL and UTK, in the project. The focus of ICL's work on FutureGrid will be performance monitoring and performance benchmarks. See Indiana's **press release** for more information about the project.

PAPI 3.7.0 SOFTWARE RELEASE

The newest release of PAPI classic is now available. With support for the latest Intel and AMD processors, along with resurrected support for PAPI on Windows, this latest version offers a whole host of updates. See the **release notes** for more information. Visit the **PAPI website** to download this latest version. Also new is the **PAPI Forum**, designed to facilitate discussion about anything related to PAPI, including both classic and component versions of the software.

RECENT PAPERS

Alvaro, W., Kurzak, J., Dongarra, J. **Optimizing Matrix Multiplication for a Short-Vector SIMD Architecture - CELL Processor**, Parallel Computing, Volume 35, pp. 138-150, 2009. PDF

Danalis, A., Pollock, L., Swany, M., Cavazos, J. **MPI-aware Compiler Optimizations for Improving Communication-Computation Overlap**, Proceedings of the 23rd annual International Conference on Supercomputing (ICS '09), Yorktown Heights, NY, USA, ACM, pp. 316-325, June, 2009. PDF

Dongarra, J., Bosilca, G., Delmas, R., Langou, J. **Algorithmic Based Fault Tolerance Applied to High Performance Computing**, Journal of Parallel and Distributed Computing, Volume 69, pp. 410-416, 2009. PDF

Hadri, B., Ltaief, H., Agullo, E., Dongarra, J. **Tall and Skinny QR Matrix Factorization Using Tile Algorithms on Multicore Architectures**, Innovative Computing Laboratory Technical Report (also LAPACK Working Note 222 and CS Tech Report UT-CS-09-645), ICL-UT-09-03, September 4, 2009. PDF

Hoefler, T., Lumsdaine, A., Dongarra, J. **Towards Efficient MapReduce Using MPI** EuroPVM 2009 **Video**

Youseff, L., Seymour, K., You, H., Zagorodnov, D., Dongarra, J., Wolski, R. **Paravirtualization Effect on Single- and Multi-threaded Memory-Intensive Linear Algebra Software**, Cluster Computing Journal: Special Issue on High Performance Distributed Computing, Springer Netherlands, Volume 12, No. 2, pp. 101-122, June 2009. PDF

RECENT CONFERENCES

AUG 31-SEP 04 New Orleans, LA
IEEE Cluster Conference
(Aurelien **PDF**, Fengguang **PDF**)

SEP 1-4 Lyon, France
International Conference on Parallel Computing 2009 (Pierre)

SEP 2-10 Espoo, Finland
Euro PVM/MPI 2009 (George)

SEP 9 Edinburgh, UK
Scottish Computational Mathematics Symposium (Jack)

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INTERVIEW

Asim YarKhan

Senior Research Associate

Tell us a little bit about where you're from and your education background.

I grew up in Karachi, Pakistan. My mother is German and my father is Pakistani so I got a mixed cultural background from an early age. When I first went to college, I spent one semester at the University of Stuttgart, but I found that my German language skills were not up to the challenge. I then came to the US and did my undergraduate studies at the College of Wooster, a small liberal arts college in Ohio. After completing a bachelors in CS & Math, I went to Penn State University to get a masters in Computer Science. After that, I did a masters in Applied Math at the University of Akron. I started a PhD at UT way back (ICL/CS were in Ayres Hall), but I never completed it. I worked for a data mining startup company in Knoxville for a few years, and that was an interesting experience. However, the company ran out of VC capital soon after shipping their first product, so I was out looking for employment. I met with Jack and here I am...

You've been with ICL since 2001. What all have you worked on during these past 8 years?

I started at ICL working with the GrADS (Grid Application Development Software) project. It was a large collaboration between several universities working on approaches to simplifying grid computing. That project gave me the opportunity to meet some of the major researchers in the distributed and grid computing communities. I have also worked with the GridSolve (aka NetSolve) project to rewrite the code and add various features. The VGrADS project (currently finishing up) was a follow on to the GrADS project, and it focused on virtualizing grid resources. I also worked on the TBLAS project (related to the PLASMA project), which provides a task based runtime to enable distributed linear algebra.

What have you enjoyed working on the most and why?

Many of the projects I have been involved in have included task scheduling at some level. This is probably the most consistent theme running through my work here at ICL. I have particularly enjoyed working with GrADS and VGrADS because of all the interesting people that I had occasion to interact with during those projects.

If you weren't doing research at ICL, what would you want to be doing?

It's hard to say. My original interest in CS was in artificial intelligence, so I might be more actively engaged in that kind of work.

What are your non-work interests or hobbies?

Away from work, I spend most of my time with my family. My older son Alexander is 7 years old, and my younger Nicholas is only 17 months old. The two kids and their interests and activities keep us busy during almost all non-work times. So in the last seven years I'd say I've learned all about toy trains and have been exposed to baseball. Now with Nicholas, I am learning all about trucks! I also enjoy hiking (part of the reason we have decided to stay close to the mountains of East TN) and reading (usually science fiction) when I get the chance.

Tell us something about yourself that might surprise some people.

I can still do cartwheels when I am feeling particularly spry!

PEOPLE

Departures

Bilel has accepted a position with NICS at ORNL and will be leaving ICL this month. Best of luck, Bilel!

Haihang has also accepted a position with NICS and will depart ICL this month after 7 years with the group. Best of luck, Haihang!

Arrival

Brian Sheely begins his ICL tenure this month and will be working with both Dan and George. Welcome aboard, Brian!

Congratulations

Congratulations to **Pierre** and his wife Celine on the birth of their daughter Azélie September 11th!

Former ICLer **Sathish Vadhiyar** has won the Indian National Academy of Engineering (INAE) Young Engineer Award. He is now with the Supercomputer Education and Research Centre at the Indian Institute of Science in Bangalore India. Congratulations Sathish!

UT Dining Discount

Beginning October 1st, UT's contracted campus dining vendor, ARAMARK, is offering a 15% discount to all UT Knoxville faculty and staff at its campus-wide dining establishments. This applies to IHOP, Subway, Einstein Bros. Bagels, Kentucky Fried Chicken, McAlister's Deli, Quiznos, restaurants in the Rocky Top Café, Smokey's, Starbucks, the Ready for the World Cafe and campus convenience stores. In order to receive the discounts, users must apply for a UT Rewards Card between Oct. 1 and 16th. Applications can be made at 108 Presidential Court, the third floor of Dunford Hall or go to the sign-up table in Arena Dining, the Ready for the World Cafe or Smokey's during regular business hours. You will need your UT ID to apply.

SEP 14 - 15 Dresden, Germany
3rd Parallel Tools Workshop (Dan PDF)

SEP 13 - 16 Wroclaw, Poland
PPAM 2009 (Jack, Jakub)

SEP 24 Oak Ridge, TN
MPI I/O meeting (George)

SEP 29 - 30 College Park, MD
PERI All Hands Meeting (Dan, Shirley)

UPCOMING CONFERENCES

OCT 2 - 3 Indianapolis, IN
FutureGrid All-Hands Meeting (Piotr)

OCT 13 - 14 Santa Fe, NM
Los Alamos Computer Science Symposium (Hatem)

OCT 17 - 21 Tsukuba, Japan
International Exascale Software Project (Jack, Terry, Tracy, Leighanne)

RECENT LUNCH TALKS

SEP 4 Heike
Trace-based Performance Analysis for the Petascale Simulation Code FLASH PDF

SEP 11 Emmanuel
Performance and Tuning of Linear Algebra Tile Algorithms for Multicore Architectures PDF

SEP 18 Jack Spoke

SEP 25 Erika Fuentes
Erika's adventures in Microsoft: An Inside View to Parallelism in the .NET Framework

UPCOMING LUNCH TALKS

OCT 2 Vinod Tipparaju from ORNL
OCT 9 George
OCT 16 No lunch or talk
OCT 23 Siva Rajamanickam
OCT 30 TBA

DATES TO REMEMBER

OCT 3 UT Football (vs. Auburn) 7:45pm
OCT 10 UT Football (vs. Georgia) TBA
OCT 15-16 UT Student Fall break (no classes but university open)
OCT 31 UT Football (vs. South Carolina) TBA
NOV 1 Daylight Savings Time (set your clock back one hour)

INNOVATIVE COMPUTING LABORATORY
THE UNIVERSITY of TENNESSEE

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Available on-line at: **http://icl.cs.utk.edu/newsletter/2009/icl-news-2009-10.pdf**
Comments and suggestions can be sent to: icl-news@cs.utk.edu