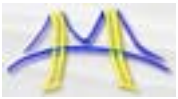
BEARS 2009



Parallel Computing Laboratory (PAR Lab)
565 Soda Hall, 2:00 – 4:00pm

Please join us in our new lab where we will share our posters on:

- Auto-tuning and the Roofline Model
- Parallel CSS
- Data Parallel Large Vocabulary Continuous Speech Recognition on Graphics Processing Unit
- "RAMP Blue: Architecture, Implementation and RDL" and "RAMP Gold: Outline, Platform & Architecture"
- Optimizing Collective Communication on Multicores
- Scalability of PGAS Languages
- Parallelizing Audio Feature Extraction
- Randomized Active Testing
- Saving Stroke Victims via Fast BloodFlow Simulation
- Communication-avoiding iterative methods
- Debugging Multithreaded Programs
- Improving Program Synthesis Scalability
- In-Place Auto-Tuning of Structured Grid Kernels
- Tessellation OS (Part I)
- Modeling and simulation of red blood call light scattering
- YADA: Yet Another Data Parallel Language
- Avoiding communication in sparse matrix computations
- Theoretical Analysis of Regexes
- Lithe: Enabling Efficient Composition of Parallel Libraries
- Synthesis of Parallel Sparse Codes
- Optimizing Image Feature Extraction
- Communication-Optimal One-Sided Matrix Factorization
- Machine Learning for Auto-tuning
- Overview of Content Based Image Retrieval
- Advantages of Silicon Photonics for Multi-socket Systems
- WISE: Worst-case Input from Symbolic Execution
- Data Structures in Virtual Worlds
- A Hybrid Eigensolver for Image Segmentation
- Toward Optimal Sound Reproduction: Closing the Acoustic Loop

The heart of our research agenda at the Parallel Computing Laboratory is the development of parallel software. This agenda is driven by compelling applications developed by domain experts in the many areas of expertise: applications, software engineering, programming languages, libraries, testing, operating systems, and computer architecture. We focus on exciting new applications in the areas of

personal health, image retrieval, music, speech understanding, and web browsers-areas that need much more computing horsepower to run well, rather than on legacy programs that already run well on today's computers.

The Par Lab is the result of Berkeley being the unanimous top choice by Intel and Microsoft for a $10M, 5-year Universal Parallel Computing Research Center. Samsung Electronics is our affiliate member.