SEEC Synergistic Environments for Experimental Computing

Synergistic co-design to deliver multiplicative speed-up

Algorithms 216x · Software 4x · 88x Hardware · N-body

Agenda

Workshop Introduction by Dr. Mark Gardner	**08:30 – 08:45**
Applications & Algorithms I	**08:45 – 10:00**
• *Multilevel Parallelism for Computational Fluid Dynamics Codes on Heterogeneous Platforms* Prof. Chris Roy	[08:45-09:10]
• *cuART: Fine-Grained Algebraic Reconstruction Technique for Computed Tomography Images on GPUs* Xiaodong Yu	[09:10-09:35]
• *Transforming Irregular Applications for Parallel Computing Architectures* Jing Zhang	[09:35-10:00]
Break and Posters	**10:00 – 10:20**
Models of Communication and Computation	**10:20 – 11:10**
• *Models and Techniques for Power-Aware High-Performance Computing* Vignesh Adhinarayanan	[10:20-10:45]
• *Characterizing and Tuning Disk I/O for HPC Systems* Sarunya ("Kwang") Pumma	[10:45-11:10]
Applications & Algorithms II	**11:10 – 11:35**
• *Identification of novel miRNA-mediated regulation in oncogenic pathways* Sharmi Banerjee (Remote)	[11:10-11:35]
Lunch [Not Provided]	**11:35 – 13:05**
Libraries and Frameworks	**13:05 – 14:45**
• *GLAF: A Framework for Enhancing Performance, Programmability and Portability of Heterogeneous Platforms* Konstantinos Krommydas	[13:05-13:30]
• *MetaMorph: A Library Framework for Interoperable Kernels on Multi- and Many-core Clusters* Ahmed Helal	[13:30-13:55]
• *Portability Problems: Platforms, Performance, and Programming Paradigms* Paul Sathre (Remote)	[13:55-14:20]
• *Cognizant Networks: A Model for Session-based Communications and Adaptive Networking* Umar Kalim	[14:20-14:45]
Break and Posters	**14:45 – 15:05**
Accelerator-based Computing	**15:05 – 16:30**
• *Introduction to Automata Processing ("Think Processor in Memory")* Xiaodong Yu	[15:05-15:30]
• *Directive-Based Pipeline Extensions for Accelerators in High Performance Computing* Xuewen ("Harry") Cui	[15:30-15:55]
• *Automatic Vectorization of Parallel Algorithms on Modern Multi/Many-core Processors* Kaixi Hou (Remote)	[15:55-16:20]
Sit-Down Q&A Discussion and Wrap-Up: Dr. Hao Wang	**16:20 – 17:00**