

### 3rd SEEC Workshop (August 21, 2015)

Torgersen Hall 1020

#### Workshop Introduction, Opening Comments, and Discussion

8:15 AM - 8:25 AM

#### Session 1: Systems Modeling and Provisioning for Performance and Power

8:25 AM - 9:20 AM

- *Runtime Power Modeling to Enable Energy Optimizations in General-Purpose Graphics Processing Units* REMOTE  
Vignesh Adhinarayanan, Ph.D. Student (15 min)
- *Energy-Efficient Scientific Visualization Pipelines.* REMOTE  
Vignesh Adhinarayanan, Ph.D. Student (15 min)
- *Cognizant Networks: A Model for Session-based Communication and Adaptive Networking*  
Umar Kalim, Ph.D. Student (25 min)

#### Break and Discussion

9:20 AM - 9:30 AM

#### Session 2: Libraries and Frameworks

9:30 AM - 10:25 AM

- *CU2CL: Automated Source-to-Source Translation from CUDA to OpenCL*  
Paul Sathre, Research Staff Member (15 min)
- *Aeromancer: A Workflow Manager for Large-Scale MapReduce-Based Scientific Workflows*  
Sarunya (Kwang) Pumma, Ph.D. Student (15 min)
- *MetaMorph: A Modular Library of Malleable Accelerator Primitives for Heterogeneous Parallel Computing*  
Ahmed Helal, Ph.D. Student (25 min)

#### Break and Discussion

10:25 AM - 10:35 AM

#### Session 3: Dwarfs to Applications: Parallelization and Optimization, Part I

10:35 AM - 11:30 AM

- *Automatic SIMDization of Parallel Sorting on x86-based Manycore Processors* REMOTE  
Kaixi Hou, Ph.D. Student (25 min)
- *GPU-based Acceleration for CT Image Reconstruction*  
Xiaodong Yu, Ph.D. Student (15 min)
- *Optimizing the "Be the Data" Application in ICAT Cube*  
Sajal Dash, Ph.D. Student (15 min)

#### Lunch Break

11:30 AM - 12:45 PM

#### Session 4: Unstructured/Irregular Computation

12:45 PM - 2:00 PM

- *Eliminating Irregular Patterns for Compressed Sparse Matrix Primitives on Manycore Processing* REMOTE  
Hao Wang, Research Associate (25 min)
- *Transforming Irregular Algorithms for Heterogeneous Computing: Case Studies in Bioinformatics* REMOTE  
Jing Zhang, Ph.D. Student (25 min)
- *Building A General Search Engine For Unstructured Data*  
Harold Trease, Senior Research Scientist (25 min)

#### Break and Discussion

2:00 PM - 2:10 PM

#### Session 5: Dwarfs to Applications: Parallelization and Optimization, Part II

2:10 PM - 3:30 PM

- *Accelerating InDel Detection on Modern Multi-Core CPU Architecture*  
Da Zhang, Ph.D. Student (15 min)
- *Directed Optimization of Stencil-based Computational Fluid Dynamics Applications*  
Islam Harb, Ph.D. Student (25 min)
- *10x10 Heterogeneous Architecture with OpenDwarfs on FPGAs*  
Anshuman Verma, M.S. Student (15 min)
- *GLAF: A Visual Programming and Auto-Tuning Framework for Parallel Computing* REMOTE  
Konstantinos Krommydas, Ph.D. Student & ICTAS Fellow (25 min)

#### Wrap-Up Discussion and Q&A (Led by Senior Graduate Students)

3:30 PM - 4:30 PM