2nd SEEC Workshop (January 19, 2015) — Torgersen Hall 1020

Workshop Introduction, Opening Comments, and Discussion — **8:45 – 8:55 AM**

Session 1: Systems Modeling and Provisioning — **8:55 AM – 10:10 AM**

- Enabling Efficient Power Provisioning for Enterprise Applications
  Balaji Subramaniam, Ph.D. Student (25 min)
- *Runtime Power Modeling to Enable Energy Optimizations in GPGPUs*
  Vignesh Adhinarayanan, Ph.D. Student (25 min)
- *Cognizant Networks: A Communication Model for Context-Aware Systems*
  Umar Kalim, Ph.D. Student (25 min)

Break and Discussion — **10:10 AM – 10:20 AM**

Session 2: Libraries and Frameworks — **10:20 AM – 11:30 AM**

- *CU2CL: Automated Source-to-Source Translation from CUDA to OpenCL*
  Paul Sathre, Research Staff Member (25 min)
- *Aeromancer: A Workflow Manager for Large-Scale MapReduce-Based Scientific Workflows*
  Sarunya (Kwang) Pumma, Ph.D. Student (15 min)
- *A Framework of Automatic SIMDization on x86-based Manycore Processors*
  Kaixi Hou, Ph.D. Student (25 min)
- *MetaMorph: A Modular Library of Malleable Accelerator Primitives for Heterogeneous Parallel Computing*
  Paul Sathre, Research Staff Member (15 min)

Lunch Break — **11:30 AM – 12:30 PM**

Session 3: Unstructured/Irregular Computation — **12:30 PM – 1:45 PM**

- *Eliminating Irregular Patterns for Compressed Sparse Matrix Primitives on Multicore & Manycore Processors*
  Hao Wang, Research Associate (25 min)
- *Transforming Irregular Algorithms for Heterogeneous Computing: Case Studies in Bioinformatics*
  Jing Zhang, Ph.D. Student (25 min)
- *Unstructured Search and Graph Analysis in Big Data*
  Harold Trease, Senior Research Scientist (25 min)

Break and Discussion — **1:45 PM – 1:55 PM**

Session 4: Dwarfs to Applications: Parallelization and Optimization, Part I — **1:55 PM – 2:50 PM**

- *On the Programmability and Performance of Parallel Platforms for Common Idioms*
  Konstantinos Krommydas, Ph.D. Student & ICTAS Fellow (25 min)
- *O3FA: A Finite Automata-based Pattern Matching Engine for Out-of-Order Packets*
  Xiaodong Yu, Ph.D. Student (15 min)
- *Optimizing the "Be the Data" Application in ICAT Cube*
  Sajal Dash, Ph.D. Student (15 min)

Break and Discussion — **2:50 PM – 3:00 PM**

Session 5: Dwarfs to Applications: Parallelization and Optimization, Part II — **3:00 PM – 3:50 PM**

- *Accelerating the Detection of Insertions and Deletions in Short-Read Sequence Data*
  Da Zhang, Ph.D. Student (15 min)
- *Performance Optimization of Structured-Grid Computation on GPUs*
  Xuewen (Harry) Cui, Ph.D. Student (15 min)
- *Performance Characterization for CFD Across Multiple Platform*
  Islam Harb, Ph.D. Student (25 min)

Wrap-Up Discussion and Q&A (Led by Hao Wang and Senior Graduate Students) — **3:50 PM – 4:30 PM**