

ModSim 2023 – Day One, August 9, 2023

7:30-8:00 am	Registration and Welcome
<i>Introduction and Keynote Speaker</i>	
8:00-8:30 am	Introduction to the 2023 ModSim Workshop – Adolfy Hoisie
8:30-9:15 am	Keynote Speaker; Bob Colwell: <i>What You Should Know About the CHIPS Act</i>
<i>Session Title: Disruptive Software & Workflows – Session Lead: Robert Hoekstra</i>	
9:15-9:45 am	<i>DeepSpeed4Science: Enabling System Support for Large Signature AI4Science Models at Scale - Leon Song</i>
9:45 -10:15 am	Break
10:15-10:45 am	<i>A View of Post-Exascale Computational Science and the Emerging Mix of HPC, AI, and Quantum - Rick Stevens</i>
10:45-11:15 am	<i>Digital Twins and Omniverse Workloads and System Design – Ian Karlin</i>
11:15-11:45 am	<i>Towards smart(er) High-Performance Networking Driving Future Simulations – Torsten Hoefler</i>
Lunch Pickup: 11:45 – 12:45 p.m.	
12:45 - 2:30 pm	<i>Panel: CHIPS is it Real?: Moderator: Shekhar Borkar; Panelist: Jim Ang; Brad Beckmann; Steve Pawlowski; Martin Schulz; Dev Shenoy</i> <i>10 Minute Position Presentations by Panelist followed by Q&A</i>
2:30-3:00 p.m.	Break
<i>Session Title: Future Technologies – Session Lead: Jason Lowe-Power</i>	
3:00-3:30 p.m.	<i>Classical Simulation and Noise Modeling to Advance Quantum Frontiers - Gokul Subramanian Ravi</i>
3:30-4:00 p.m.	<i>Challenges in AI Infrastructure for Enterprise Foundation Models - Jeff Burns</i>
4:00-4:30 p.m.	<i>Modeling and Simulation Challenges of Neuromorphic Architectures – Suma George Cardwell</i>
4:30–4:45 p.m.	<i>Software-Hardware Co-Design of Domain-Specific SoCs - Pradip Bose</i>
4:45–5:00 p.m.	<i>RISC-V GPU Modeling and Simulation - Hyesoon Kim</i>
5:00-5:10 p.m.	Closing Remarks
End Day One	

ModSim 2023 – Day Two, August 10, 2023

8:00-8:45 am	Keynote: Bill Harrod: <i>Modeling and Simulating Future Computer Architectures for Data-intensive Applications</i>
Session Title: Quantitative Co-design / ModSim Methodologies – Session Lead: Brian Page	
8:45-9:15am	Scalable modeling of Cloud hardware digital twins using hybridized Life Cycle Analysis (LCA) methodologies- Justin Richter
9:15-9:45am	Co-Design and Systems Modeling for Advanced Scientific Computing Research – Hal Finkel
9:45-10:15am	Performance Modelling Facing Disruptive Technologies on the Horizon – Gerhard Wellein
10:15-10:45am	Break
10:45-11:45am	Ad-Hoc Panel: GPU vs. CPU – Bruce Childers; <i>Panelist: Satoshi Matsuoka; Jose Moreira</i>
Lunch Pickup: 11:45 am - 12:45 pm	
Contributed Presentations Session: – RAPID-FIRE: Session Leaders: Martin Schulz and Almadena Chtchelkanova	
12:45-12:55 pm	Taekyung Heo – Chakra: Advancing Performance Benchmarking and Co-design using Standardized Execution Traces
12:55-1:05 pm	Mikhail Isaev – Calculon: guiding algorithm-architecture codesign of scale-out systems for future LLMs
1:05-1:15 pm	Jeff Young – Characterizing The Next Generation of Disruptive Memory Accelerators
1:15-1:25 pm	Sabbir Ahmed – Lowering the Barrier of Entry in Modeling and Simulation Using SST Enhancements
1:25 -1:35 pm	Jason Lowe-Power – Enabling Giga-scale graph accelerators simulations: A Case study improving performance
1:35-2:00 pm	Break
2:00-2:10 pm	Kevin Brown – The Kronos Project: Hybrid Discrete Event Simulations
2:10-2:20 pm	Matt Sinclair – Leveraging open source simulators to enable HW/SW co-design of next-generation HPC systems
2:20-2:30 pm	Luisa Gonzalez-Guerrero – Enabling message-driven architecture evaluation for the extreme heterogeneity era with MOSAIC
2:30-2:40 pm	Lingda Li – Generic Performance Modeling using Learned, Independent Program and Architecture Representations
2:40-2:50 pm	Jack Jones – Leveraging Arm's Scalable Matrix Extension in Accelerating Matrix Multiplications Kernels
2:50-3:15 pm	Break
3:15-3:25 pm	Vijay Janapa Reddi– Architecture 2.0
3:25-3:35 pm	Weicong Chen – Early Experience in Modeling Performance Implications of DPU-Offloaded Computation
3:35-3:45 pm	Dean Chester – Modeling Next Generation Network Fabrics
3:45-3:55 pm	Marco Apolinario – Enabling High-Performance ADC-Less In-Memory Computing for Deploying SNNs Through Hardware-Aware Training
3:55-4:05 pm	Matt Sinclair – Closing the Gap: Improving the Accuracy of gem5's GPU Models”
4:05-4:15 pm	Break
4:15-5:15 pm	Poster Q&A Session
4:05–6:30 pm	Reception with Refreshments

ModSim 2023– Day Three, August 11, 2023

8:00-8:15 a.m.	<i>Dr. Sudhakar Yalamanchili – White Paper AWARD Presented by Hyesoon Kim</i>
Session Title: Disruptive Architecture – Session Lead: Hyesoon Kim	
8:15-8:45 a.m.	<i>Realizing Petabit/s IO and sub-pJ/bit System-wide Communication with Silicon Photonics - Keren Bergman</i>
8:45-9:15 a.m.	<i>3D Electronic-Photonic Integrated Circuits for Future Computing From Nanoscale to Exascale: Modeling, Simulations, and Benchmarking – S.J. Ben Yoo</i>
9:15-9:45 a.m.	<i>The Rise of Memory Centric Computing Systems – Steve Pawlowski</i>
9:45-10:15 a.m.	<i>AI: The Second Great Computing Workload - Doug Burger</i>
10:15-10:45 a.m.	Break
10:45am-12:00 pm	<i>Panel: Future Technologies Moderator: Noel Wheeler: Panelist: Eric Cheng; John Leidel; Simon McIntosh-Smith</i>
12:00-12:15 p.m.	Workshop Wrap-up – Adolfy Hoisie