

ModSim 2024– Day One, August 14 2024

7:30-8:00 am	Registration and Welcome to ModSim
<i>Introductions and Keynote Speaker</i>	
8:00-8:30 am	Introduction to the 2024 ModSim Workshop – Adolfy Hoisie
8:30-9:15 am	Keynote Speaker; Bill Magro - <i>HPC at a Crossroads: Navigating the AI and Cloud Revolution</i>
<i>Session: Metrics for Sustainability – Session Lead: Dan Ernst</i>	
9:15-9:45 am	<i>Sustainability in HPC, a look at LUMI - Fredrik Robertsen</i>
9:45-10:15 am	<i>Semiconductor ModSim and the CHIPS+Science Act - Rick McCormick</i>
10:15 -10:45 am	Break
<i>Session: Sustainability of Software and Tools – Session Lead: Dan Ernst</i>	
10:45-11:15 am	<i>Co-designing for Sparseness: Simulating Next-Generation Memory Systems - Jeff Young</i>
11:15-11:45 am	<i>Understanding OSS Project Sustainability with Convergence Approaches - Vladimir Filkov</i>
11:45am-12:15 pm	<i>Sustainable ModSim Software and Tools: A Case Study in gem5 - Jason Lowe-Power</i>
Lunch Pickup: 12:15 – 1:15 p.m.	
1:15 - 2:30 p.m.	<i>Panel: Software Ecosystem Sustainability: Moderator: Jason Lowe-Power Panel Participants: Jeff Young; Gwen Voskuilen; David Donofrio; Almadena Chtchelkanova</i>
2:30-3:00 p.m.	Break
<i>Session: Modeling and Simulation of Sustainable Computing – Session Lead: Rob Hoekstra</i>	
3:00-3:30 p.m.	<i>Predicting Sustainable High Performance Computing - Dejan Milojicic</i>
3:30-4:00 p.m.	<i>Can Co-Design of Systems and Applications Deliver Sustainability? – Ana-Lucia Varbanescu</i>
4:00-4:30 p.m.	<i>Simulation of Architectures for a Sustainable Computer Ecosystem - Simon McIntosh-Smith</i>
4:30 – 5:00 p.m.	<i>Sustainable Computing at Scale – Srilatha (Bobbie) Manne</i>
5:00-5:10 p.m.	Closing Remarks
	End Day One

ModSim 2024 – Day Two, August 15, 2024

8:10-8:15am	Opening Remarks – Adolfo Hoisie
Session: Influence on the Evolving Computing Ecosystem – Session Lead: Lizy John	
8:15-8:45am	<i>Collaborative System-on-Chip Design with the Open-Source ESP Platforms - Luca Carloni</i>
8:45-9:15am	<i>A VU on Digital Twins to Improve the Performance and Technological Sustainability of Data Centers in the Continuum– Alexandru Iosup</i>
9:15-9:45am	<i>Using Architectural Simulation to investigate Chiplets for Scalable and Cost Effective HPC Beyond Exascale - John Shalf</i>
9:45-10:15am	Break
10:15-11:30am	<i>Ad-Hoc Panel: To be Announced – Moderator: Bruce Childers</i>
Lunch Pickup: 11:30 am - 12:30 pm	
Contributed Presentations Session: – RAPID-FIRE: Session Leaders: Martin Schulz and Almadena Chtchelkanova	
12:30 - 12:40 pm	William Won – LIBRA: Enabling Workload-aware Multi-dimensional Network Topology Optimization for Distributed Training of Large AI Models
12:40 - 12:50 pm	Kunal Pai – Potential and Limitation of General-Purpose Superconducting Cores
12:50 - 1:00 pm	Ozgur Kilic – REDWOOD: AI-Driven Dynamic Modeling of Distributed System for Optimizing Resilience and Data Management
1:00 - 1:10 pm	Lingda Li – Representation Learning for the Performance Modeling of Traditional and Emerging Computer Architectures
1:10 - 1:20 pm	Zhiling Lan – Multi-Fidelity Modeling for Multi-Traffic Network Interference Analysis
1:20 – 1:30 pm	Jack Jones – Using SimEng’s integration with SST as a case study for its use as a sustainable ModSim tool
1:30-2:00 pm	Break
2:00 - 2:10 pm	Keving Brown – Efficiently Composing and Controlling Hybrid Simulations of PDES and Machine Learning Models
2:10 - 2:20 pm	Jens Domke – A Case for 3D-Stacked Cache in HPC – Lessons Learned after Many Months of Simulations
2:20 - 2:30 pm	Ozgur Kilic – Modeling the Performance and Scaling of Scientific Workflows with Resource-efficient Workflow Mini-apps
2:30 - 2:40 pm	Matt Sinclair – Designing Better Tools For Power- and Sustainability-Aware Co-Design
2:40 - 2:50 pm	Morgan Kromer – Reducing Barriers to Entry with BLUEprinter: Basic Layout Unification for Emulation
2:50 - 3:00 pm	Vijay Janapa Reddi – Software-Hardware Co-Design of Energy-Efficient SoCs: The EPOCHS ModSim Experience Report
3:00 - 3:10 pm	Torsten Hoefler – Earth Virtualization Engines - Advanced Simulation for Sustainability
3:10 - 3:30 pm	Break
3:30-4:15pm	Poster Q&A Session
4:00–6:00 pm	Reception with Refreshments

ModSim 2024– Day Three, August 16, 2024

8:15-8:30 a.m.	<i>Dr. Sudhakar Yalamanchili – White Paper AWARD Presented by Hyesoon Kim</i>
Session: Sustainable Technologies from the Edge to the Extreme – Session Lead: Hal Finkel	
8:30-9:00 a.m.	<i>Quantifying the carbon footprint of computing: Post, Present, and Future – Udit Gupta</i>
9:00-9:30 a.m.	<i>Exascale and Post Exascale Computing in Japan - AI for Science, Quantum-HPC Hybrid, and FugakuNEXT – Satoshi Matsuoka</i>
9:30-10:00 a.m.	<i>All Tomorrow’s Memories (and Kernels) - Bruce Jacob</i>
10:00-10:30 a.m.	<i>Processing in Memory for Energy-Efficient Computing - Kevin Skadron</i>
10:30-11:00 a.m.	<i>Break</i>
11:00am - 12:15 pm	<i>Panel Topic: <u>Computer Architecture & Sustainability</u>: Moderator: Noel Wheeler; Panel Participants: Hameed Badawy; Hal Finkel; AI Geist; Rishi Khan; Torsten Hoefler</i>
12:15-12:30 p.m.	<i>Workshop Wrap-up</i>