Vail Computer Elements Workshop

The Vail Computer Elements Workshop is sponsored by the Vail Computer Elements Workshop, in cooperation with

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THE ADVANCED COMPUTING SYSTEMS ASSOCIATION

VCEW 2023 Program

All Times Mountain Daylight Time (UTC-6)

Program Chair: Rich Zippel, Google
Program Co-Chair: Brian Hirano, Micron

Sunday June 11

5:00 pm   Local attendees: Registration and informal gathering
6:30 pm   Dinner: Left Bank
8:30 pm   **Keynote:** *Verifiable Election Technologies: Enabling Voters to Confirm that their Votes are Accurately Counted* — Josh Benaloh, Microsoft

Monday June 12

7:30 am   Continental Breakfast: The Lodge at Vail
8:30 am   *Welcome*: Jim Hughes, Apple, VCEW Executive Committee Chair

Session 1   Processors
8:45 am   *Challenges of Designing Processors given Data Center Power Constraints*, Ryan Tabrah, Intel
9:30 am   *The Parameter and Chip Wars: Moving Beyond Model-Centric AI to Sustainable Data-centric AI for Systems*, Vijay Reddi, Harvard University
10:15 am   15-Minute Break

10:30 am   *DRAM at the End of Moore's Law: Device and System Implications*, Thomas Vogelsang, Rambus
11:15 am   *Memory-Semantic SSD™: CXL-Era Memory Expansion with DRAM and NAND Flash Media*, Rekha Pitchumani, Samsung
12:00 pm   Lunch: The Lodge at Vail

Session 2   Software
1:30 pm   **Server Telemetry – Expanding the Horizon Beyond Code Optimization (by video)*, Corey Gough, Intel
2:15 pm   **Computation Energy Efficiency – present and future (by video)*, Efi Rotem, Intel
3:00 pm   15-Minute Break
3:15 pm   *Revisiting Server Memory Architectures*, Chris Peterson, Meta
4:00 pm   **System Foundations for Disaggregated Memory (by video)*, Pankaj Mehra, Elephance Memory
5:00 pm   Reception in Vail Village
6:30 pm   Dinner: La Nonna

Panel Session   Compute Express Link (CXL)
8:30 pm   *Participants to be decided*

Tuesday June 13

7:30 am   Continental Breakfast: The Lodge at Vail

Session 3 Security
8:45 am   *Compromising cryptographic keys through spontaneous faults in the wild*, Nadia Heninger, UCSD
9:30 am   *TBD*, Josh Hill, KeyPair Consulting
10:15 am   Capability Security, Cambridge CHERI and ASU BGAS. Andy "Cap" Glew

11:00 am   15-minute BreakSession 4   Consumer Electronics
11:15 am   *QC-HPC hybrid computing for simulation & data-analysis hybrid applications*, Hiroaki Kobayashi, Tohoku University
12:00 pm   Lunch: The Lodge at Vail

1:30 pm – 4:00 pm   **Free time to enjoy Vail**

4:00 pm   Planning session for VCEW 2024
5:00 pm   Reception
6:30 pm   Dinner: Lancelot

Wednesday June 14

7:30 am   Continental Breakfast: The Lodge at Vail
              Grab and go lunches will be available starting at 10:30

Session 5 HPC
8:45 am   **RISC V in an HPC World (by video)*, Charlie Cheng, Andes Technology
9:15 am   Apollo M/L Super Computer, David Baker, Luminous Computing

10:00 am   15-Minute Break

Session 6 Quantum
10:15 am   *Quantum-centric supercomputer-speed, quality and scale*, Andrew Wack, IBM
11:00 am   *Quantum Compilers*, Thomas Alexander, IBM
11:45 pm   *Final Thoughts*: Jim Hughes

Program brought to you by your VCEW 2023 Session Chairs

Processors: Yahya Sotoudeh, Intel and Edmund Gieske, Micron
Consumer Electronics: Atsushi Hasegawa, University of Tokyo and Yoshio Masubuchi, Kioxia
Quantum: Andrew Wack, IBM and Antia Lamas-Linares, Amazon
Security: Amy Santoni, Intel and John Kelsey, NIST
Software: Rajshree Chabukswar, Intel and Brian Hirano, Micron
HPC: Pete Wilson, BSC and David Baker, Luminous Computing