

Dan Ernst

Session 5

Title: Grasping the Opportunities in Front of Us: HPC Systems Built for Purpose

Abstract:

In their 2018 Turing Lecture, John Hennessy and David Patterson declared a "new golden age of computer architecture", predicting an increase in domain-specific computing optimizations to counteract the end of Dennard scaling. The years since have indeed seen the stagnation of general-purpose computing and a shift in successful progress to architectures with more domain acceleration.

These shifts have opened up exciting new opportunities for HPC practitioners, but capturing them will require thinking differently about the architecture of systems, the way users interact with them, and the ways our community measures success.

Bio:

Dan Ernst is the Director of Supercomputing System Technology at Nvidia, where he leads pathfinding efforts for Nvidia's Supercomputing products. Prior to Nvidia, Dan has led technology pathfinding in multiple domains across HPC and cloud systems architecture, including leading the memory architecture team at Microsoft Azure and as principal investigator and architect for Cray's exascale computing programs. Dan received his Ph.D. in Computer Science and Engineering from the University of Michigan, where he studied high-performance, low-power, and fault-tolerant microarchitectures.