CCT Colloquium Series

High Performance Computing Going Mainstream

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Abstract:
HPC has progressed far beyond the niche technology it was in the 1980's and 1990's. According to IDC's analysis, HPC represents an $8B market; the annual Supercomputing Conference features an ever-growing number of software and hardware vendors accessing this market with a wide range of products; computational engineering and science methods increase competitiveness in many new market ares; last but not least, technology developed under HPC projects is becoming essential for every-day science and engineering tasks. At Purdue, we see computational research moving to larger, more ambitous scales. The Computing Research Institute (CRI), located in the Cyber Center of Purdue University's Discovery Park, is taking leadership in this process of HPC going mainstream. In addition to pushing the forefront of HPC through advanced research projects, we are facilitating the use of this technology in engineering and science projects at Purdue and in industry. This talk will give an overview of CRI and its roadmap. It includes (1) a research agenda in both HPC application projects and the underlying computer systems technology, (2) a tutorial program that helps HPC newcomers get up to speed, and (3) discussions with industrial partners to identify means for increasing competitiveness through HPC technology.

Speaker's Bio:
Rudolf Eigenmann is a Professor at the School of Electrical and Computer Engineering at Purdue University. He is also the Interim Director of the Computing Research Institute and Associate Director of the Purdue's Cyber Center. His research interests include optimizing compilers, programming methodologies and tools, performance evaluation for high-performance computers and Internet sharing technology. He has published his work in over 130 papers in international conferences, journals, and workshops. Dr. Eigenmann received his Ph.D. in Electrical Engineering/Computer Science in 1988 from ETH Zurich, Switzerland. From 1988 to 1995 he worked as a research scientist at the Center for Supercomputing Research and Development, University of Illinois at Urbana Champaign, where he also served as the leader of the Center's Cedar Fortran compiler group. He is the recipient of a 1997 NSF CAREER award and serves on the editorial boards of the International Journal of Parallel Programming, the IEEE Transaction on Parallel and Distributed Systems Journal, and the IEEE Computing in Science and Engineering Magazine. He has served as the chairman of Computer Engineering at Purdue's School of ECE and as the chairman of the High-Performance Group of the Standard Performance Evaluation Corporation (SPEC). He has also been the general chair and program chair of such conferences as the ACM Symposium on Principles and Practice of Parallel Programming, the International Conference on Parallel Processing, the Workshop on Languages and Compilers for High-Performance Computing, and the Workshop on High-Level Interfaces for Parallel Systems.

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