

The School of Electrical and Computer Engineering DISTINGUISHED SEMINAR SERIES 2023

The Distinguished Seminar Series of the School of Electrical and Computer Engineering (ECE) presents the work of internationally recognized researchers. This seminar series is intended to provide an open platform for the faculty & students to have a dialog with leading researchers in various fields of ECE, and to build a dynamic and vibrant culture of research and academic exchange in the ECE department. All seminars are free and open to the public.

ECE

High-performance systems and networks for an increasingly AI world

3:45-5:00p.m. Friday, October 20 | ATRC 102



Dr. Craig Stunkel

Principal Engineer
in HPC Networking,
NVIDIA

Abstract: Over the last few decades, high-performance systems and supercomputers have evolved from blazingly-fast single processors to clusters with 10's or 100's of thousands of commodity processors bound together by high-speed networks. Within the last decade, these systems have become fast enough to enable practical deep learning, a branch of artificial intelligence (AI) that attempts to mimic the learning and reasoning capabilities of the brain to perform complex tasks. Current deep learning algorithms require enormous compute and network capability, especially for training. These algorithms require all processors to periodically collaborate to calibrate model parameters between successive training steps. This places a premium on efficient "reduction" calculations.

In this talk, Dr. Stunkel will overview how NVIDIA is attempting to address these AI challenges and make some predictions on technologies that will impact future system designs.

Speaker Bio: Dr. Craig Stunkel is currently a Principal Engineer in HPC Networking at NVIDIA, where he contributes to efforts involving NVIDIA's Quantum InfiniBand high-speed networks that are prevalent in supercomputers and deep learning systems. Prior to joining NVIDIA in 2020, Craig was a Principal Research Staff Member at IBM's T. J. Watson Research Center in Yorktown Heights, NY, and codDesigned and contributed to many generations of HPC networks, starting with the IBM SP supercomputers in the 1990s.

Craig received the B.S. and M.S. degrees in electrical engineering from Oklahoma State University in 1982 and 1983, and the Ph.D. degree in electrical engineering from the University of Illinois, Urbana in 1990. Dr. Stunkel is a Fellow of the IEEE, for contributions to the design and implementation of high-performance interconnection networks.

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