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The Information Science & Technology Center

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**Colorado State University's
Information Science and Technology Center (ISTeC)
presents two lectures by**



Dr. Richard Linderman

**Chief Scientist, Information Directorate
Air Force Research Laboratory
Rome, N.Y.**

**ISTeC Distinguished Lecture
in conjunction with the
Electrical and Computer Engineering Department and
Computer Science Department Seminar Series**

**"Applications for Green, Interactive,
High Performance Computers"**

Monday, September 20, 2010

Reception: 10:30 a.m.

Lecture: 11:00 – 12:00 noon

Location: Lory Student Center Room 205

**Joint Electrical and Computer Engineering Department
and Computer Science Department Special Seminar
*sponsored by ISTeC***

**"Real-time Large Scale Neural Memory Modeling with
Interactive High Performance Computing"**

Monday, September 20, 2010

Lecture: 2:30 – 3:30 p.m.

Location: Lory Student Center Room 224

ABSTRACTS

“Applications for Green, Interactive, High Performance Computers”

Technology advances driven by the gaming and graphics markets are delivering multi-core processing options with ten-fold price-performance and power-performance advantages over conventional High Performance Computing (HPC) nodes. This allows HPCs to explore new areas such as real time interactive applications and embedded processing. A new 500 teraflops machine mixing IBM cell Broadband Engine, Intel Xeon and Nvidia GPGPU technology is discussed as an example of what is presently possible. Technological impediments to achieving exascale computing such as shrinking base energy consumption, reducing data transport energy requirements, multi-core hardware and parallel software will be discussed

“Real-time Large Scale Neural Memory Modeling with Interactive High Performance Computing”

Research and development in modeling and simulation of human cognizance functions requires a high performance computing (HPC) platform for manipulating large-scale mathematical models. Traditional computing architectures cannot fulfill the attendant needs in terms of arithmetic computation and communication bandwidth. In this work, we examine novel hybrid computing architectures for the simulation and evaluation of large-scale associative neural memory models.

SPEAKER BIOGRAPHY

Dr. Richard W. Linderman, a member of the scientific and professional cadre of senior executives, is the Chief Scientist, Information Directorate, Air Force Research Laboratory, Rome, N.Y. He provides principal technical oversight of a broad spectrum of information technologies including fusion and exploitation; command and control; advanced architectures; information management; communications and networking; defensive information warfare; and intelligent information systems technologies. Dr. Linderman was commissioned as a second lieutenant in May 1980. Upon completing four years of graduate studies, he entered active-duty, teaching computer architecture courses and leading related research at the Air Force Institute of Technology. He was assigned to Rome Air Development Center in 1988, where he led surveillance signal processing architecture activities. In 1991, he transitioned from active-duty to civil service as a senior electronics engineer at Rome Laboratory. He pioneered three dimensional packaging of embedded architectures and led the Department of Defense community exploring signal and image processing applications of high performance computers. Dr. Linderman holds six U.S. patents and has published more than 90 journal, conference and technical papers. Dr. Linderman is a Fellow of the IEEE and an AFRL Fellow.

To arrange a meeting with the speaker, please contact MaryAnn Stroub at (970) 491-2708 or mstroub@engr.colostate.edu.

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