

## Dr. Richard Loft

### Bio:

Dr. Richard Loft is the Director of the Technology Development Division (TDD) in the Computational and Information Systems Laboratory (CISL) at the National Center for Atmospheric Research (NCAR). In this capacity he oversees CISL's R&D efforts in areas such as technology tracking, algorithmic research, application refactoring, and the development of useful tools and services for the broader science community.

Dr. Loft's educational background spans multiple disciplines in the physical sciences and engineering. As an undergraduate he studied chemistry at Harvey Mudd College, graduating in 1977, and received a Ph.D. in Physics from the University of Colorado, Boulder in 1988. His thesis research in lattice quantum chromodynamics introduced him to high-performance computing (HPC), where he has worked ever since. He joined Thinking Machine Corporation, an HPC startup, in 1989, where he developed SIMD algorithms for a variety of scientific disciplines. Has authored over 30 peer reviewed publications and two book chapters.

Dr. Loft has worked at the National Center for Atmospheric Research (NCAR) since 1994. At the IEEE Supercomputing Conference in 2001, his team received an honorable mention Gordon Bell prize for developing the highly-scalable atmospheric dynamical core called the High Order Method Modeling Environment (HOMME), which was subsequently integrated into the widely used Community Earth System Model (CESM). In 2005, he was NCAR Principal Investigator on an NSF project to deploy and evaluate ultra-scalable models on an IBM Blue Gene/L system. Beginning in 2003, Dr. Loft helped make the technical and science case for a petaflops-scale HPC system dedicated to Earth system science, and for the state-of-the-art NCAR-Wyoming Supercomputing Center (NWSC) to house it. He subsequently led NCAR's participation in NSF's experiment in grid computing, the decade-long TeraGrid project, and its follow-on, the Extreme Science and Engineering Discovery Environment (XSEDE) program. Recognizing the need to encourage the next generation to take up careers in high performance computing, in 2007 Dr. Loft created the Summer Internships in Parallel Computational Science (SIParCS) program at NCAR, which has trained over 100 students in computational science over the last decade.