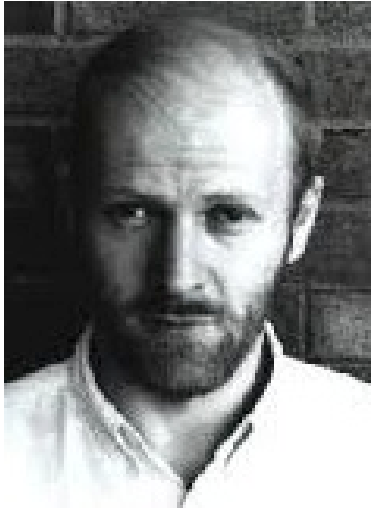


Information Science and Technology Seminar Speaker Series



Edward Givelberg
Johns Hopkins University

Simulations, Databases and Data-Intensive Computing

Wednesday, August 7, 2013

3:00 - 4:00 PM

TA-3, Bldg. 1698, Room A103 (MSL Auditorium)

Abstract: We are researching an architecture for a data-intensive computer, a system capable of performing computational tasks that require $O(N \log N)$ arithmetic operations, where N is the size of the data set and is very large.

We have developed the MPI-DB software library that provides scientific computing processes with an easy to use abstraction layer to read, write and perform general computations with large arrays stored in a database.

MPI-DB is a client-server framework, which is being developed as a prototype of the operating system of the data-intensive computer, consisting of a computational front end, a fast network and a database back end.

MPI-DB is being used by the Johns Hopkins Turbulence research group to automatically create databases containing simulation results and to expose the stored results for subsequent analysis by researchers.

In this talk I will describe MPI-DB and discuss the challenges in the design of an architecture for a data-intensive computer.

Biography: Edward Givelberg is a research scientist with the Department of Physics and Astronomy at Johns Hopkins University. He received his PhD degree in mathematics from New York University in 1997. He was a research scientist in mathematics at New York University, Courant Institute in 2004 and in computer science at UC Berkeley in 2002. Givelberg also was an assistant professor at the University of Michigan in 1999. His specialties include large-scale simulations of complex physical systems, numerical solutions of partial differential equations, fluid-structure interactions, and cochlear modeling and hearing research.

For more information contact the technical host Curt Canada, cvc@lanl.gov, 665-7453 or James Ahrens, ahrens@lanl.gov, 667-5797.