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Special Guest Lectures

A Parallel Numerical Library for Co-Array Fortran

Robert W. Numrich, Minnesota Supercomputing Institute

University of Minnesota, Minneapolis

Johnston Hall 338
January 17, 2007 - 10:30 am

Abstract:
This talk describes a parallel numerical library based on Co-Array Fortran syntax in combination with the object-oriented features of Fortran 95. The library defines distributed data structures based on an abstract object called an object map. It uses co-array syntax, embedded in methods associated with distributed objects, for communication between objects based on information in the object map. Examples from linear algebra illustrate how to use the library. We also apply it to a finite difference operator for the shallow water equations to illustrate how to use the library to calculate solutions for partial differential equations.

Speaker's Bio:
Bob Numrich is a Senior Research Associate at the Minnesota Supercomputing Institute, University of Minnesota, Minneapolis. His research interests include parallel architectures, parallel programming languages, and parallel numerical algorithms. He also studies computer performance analysis and the development of theoretical models that yield self-similarity relationships between systems. Previous to his position at the University of Minnesota, he was Principal Scientist at Cray Research where he worked on the Cray-2 and Cray-3 architectures and was a member of the core development teams for the Cray-T3D and Cray-T3E. He invented the one-sided parallel programming model that became the SHMEM Library, and he is the principal author of the Co-Array Fortran programming model.

Refreshments will be served.
This lecture has a reception.

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