

THURSDAY
APRIL 8, 2004

Scaife Hall Auditorium
Room 125

4:00 PM
Refreshments—3:30 PM



Jack Dongarra

*UNIVERSITY OF TENNESSEE AND
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Jack Dongarra received a Bachelor of Science in Mathematics from Chicago State University in 1972 and a Master of Science in Computer Science from the Illinois Institute of Technology in 1973. He received his Ph.D. in Applied Mathematics from the University of New Mexico in 1980. He worked at the Argonne National Laboratory until 1989, becoming a senior scientist. He now holds an appointment as University Distinguished Professor of Computer Science in the Computer Science Department at the University of Tennessee, has the position of a Distinguished Research Staff member in the Computer Science and Mathematics Division at Oak Ridge National Laboratory (ORNL), and an Adjunct Professor in the Computer Science Department at Rice University.

He specializes in numerical algorithms in linear algebra, parallel computing, the use of advanced-computer architectures, programming methodology, and tools for parallel computers. His research includes the development, testing and documentation of high quality mathematical software. He has contributed to the design and implementation of the following open source software packages and systems: EISPACK, LINPACK, the BLAS, LAPACK, ScaLAPACK, Netlib, PVM, MPI, NetSolve, Top500, ATLAS, and PAPI. He has published approximately 200 articles, papers, reports and technical memoranda and he is coauthor of several books. He is a Fellow of the AAAS, ACM, and the IEEE and a member of the National Academy of Engineering.

For more information:

<http://www.ece.cmu.edu/seminar/>

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SELF ADAPTING NUMERICAL SOFTWARE (SANS) - EFFORT

A new generation of software libraries and algorithms are needed for the effective and reliable use of (wide area) dynamic, distributed and parallel environments. Some of the software and algorithm challenges have already been encountered, such as management of communication and memory hierarchies through a combination of compile-time and run-time techniques, but the increased scale of computation, depth of memory hierarchies, range of latencies, and increased run-time environment variability will make these problems much harder.

Along these lines we will discuss work on the development of parameterizable and annotatable software libraries in the linear algebra area that will permit performance tuning for a broad range of architectures including grid computing. Self Adapting Numerical Software (SANS) is a software effort that will automatically generate highly optimized numerical kernels for our high performance computers.