Grants

1. External Research Grants Awarded

[15]   E. Michaelides (P.I.) et al. (College of Engineering, UTSA), A. T. Chronopoulos (Co.-P.I.), *Integrating High Performance Computing in Research and Education for Simulation, Visualization and Real Time Prediction*, National Science Foundation (CREST) 2009-2014.

[14]   A. T. Chronopoulos (P.I.) and D. Popescu (Co-P.I.) (Department of Electrical Engineering, UTSA), *Computationally Efficient Methods for Power Control in Wireless Systems*, National Science Foundation (ITR), 2003 - 2008.

[13]   A. T. Chronopoulos (P.I.), *New Cryptographic Protocols with Applications to Wireless Communications* , AFOSRL, 2001 - 2004.

[12]   A. T. Chronopoulos (P.I.),*Parallel Aerodynamics Simulation in Distributed Environments*, NASA, 1999 - 2002.

[11]   J. Kallinderis (P.I.) (UT-Austin) and A. T. Chronopoulos (Co-P.I.), *Prediction of Flow-structure Interactions for Designing Deepwater Platforms in the Gulf of Mexico* Texas Higher Education Coord. Board, 1999 - 2001.

[10]   W. Groski (P.I.), A. T. Chronopoulos (Co-P.I.), F. Fatoohi (Co-P.I.), and I. Sethi (Co-P.I.), (Department of Computer Science , Wayne State University), *Distributed Model Simulation Computations*, National Science Foundation Research Instrumentation CISE EIA-9729818, 1997 - 1998.

 [9]   S. Ziavras (P.I.) and H. Grebel (Co-P.I.) (Department of Electrical and Computer Engineering, New Jersey Institute of Technology) and A. T. Chronopoulos (Co-P.I.), *A Scalable-Feasible Parallel Computer Implementing Electronic and Optical Interconnections for 156 TeraOps Minimum Performance*, National Science Foundation, CISE-New Technologies, New Millennium Computing Point Design Research Grant ASC-9634775, 9/1/96 - 8/31/97.

[8] A. T. Chronopoulos (P.I.), *Efficient Iterative Methods for (Non)linear Systems and Application to 3-D CFD Problems* , CRAY Research, Inc., 1996 - 97.

[7] A. Lyrintzis (P.I.) (Department of Aerospace Engineering, University of Minnesota, Now at Purdue University) and A. T. Chronopoulos (Co-P.I.), *The Use of Parallel Iterative Methods for Full Potential Rotor Codes* , NASA Ames High Performance Computing, 1994 - 96.

[6] A. T. Chronopoulos (P.I.), *Variable Step Numerical Schemes on Approximate Inertial Manifolds*, National Science Foundation, Research Grant CCR-9496327, 1994 - 1996.

[5] A. T. Chronopoulos (P.I.), *Parallel Traffic Flow Simulation of Freeway Networks*, State of Minnesota Department of Transportation, 1992 - 1994.

[4] A. Lyrintzis (P.I.) (Department of Aerospace Engineering, University of Minnesota) and P. Michalopoulos (Department of Civil Engineering, University of Minnesota), and A. T. Chronopoulos (Co-P.I.), *Development of Advanced Traffic Flow Models and Implementation in Parallel* , State of Minnesota Department of Transportation, 1991 - 1992.

[3] P. Michalopoulos (P.I.) (Department of Civil Engineering Department, University of Minnesota) and A. T. Chronopoulos (Co-P.I.), *Traffic Flow Simulation through Parallel Processing*, State of Minnesota Department of Transportation, 1990 - 1991.

[2] A. T. Chronopoulos (Co-P.I.) et al. (35 Principal Investigators) *University of Minnesota Army High Performance Computing Research Grant*, U.S. Army Research Office, 1989 - 1994.

[1] A. T. Chronopoulos (P.I.), *Parallel Numerical Algorithms and Software*, National Science Foundation, Research Grant CCR-8722260, 1988 - 1990.

2. Internal Research Grants Awarded

[4] A. T. Chronopoulos, *Research Grant for Computer Equipment*, University Texas San Antonio, 1998 - 99.

[3] A. T. Chronopoulos, *Research Grant for Computer Equipment and Graduate Research Assistants*, Wayne State University, 1994 - 97.

[2] A. T. Chronopoulos, *Travel Grant for Research Visit at Catholic University of Nijimegen, Nijimegen, Holland*, University of Minnesota Travel Grant, June 1991.

[1]   A. T. Chronopoulos, *Research Grant for Computer Equipment and Graduate Research Assistants*, University of Minnesota Office of Research, 1987 - 88.

3. Supercomputer Facilities Access-Time Grants

We write proposals for access-time to some of the most advanced state-of-the-art parallel computer facilities to perform our research and train students taking courses in parallel computing.

[11] A. T. Chronopoulos, *Implementation of Distributed Dynamic Multi-Dimensional Loop Schemes* , TACC, 10/1/10 - 9/31/10 (10,000 CPU hours on Supercomputer Clusters at U. of Texas Austin).

[10] A. T. Chronopoulos, *Implementation of Game Theoretic Job Allocation Schemes for Computational Grids* , Teragrid ASC, 3/15/06 - 3/31/08 (8,000 CPU hours on Teragrid Clusters).

[9]   A. T. Chronopoulos, *Efficient Newton-Krylov-type Iterative Methods for Nonlinear Systems and Applications to Engineering Problems* , San Diego Supercomputing Center, 1/1/01 - 5/31/04 (8,000 processor hours of IBM-Blue-Horizon).

[8]   A. T. Chronopoulos, *Efficient Numerical Computations on Distributed Memory Parallel Computers* , San Diego Supercomputing Center, 8/1/98 - 12/31/00 (2,000 processor hours of CRAY T3E and IBM-SP2).

[7]   A. T. Chronopoulos, *Efficient Numerical Computations on Distributed Memory Parallel Computers* , Pittsburgh Supercomputing Center, 9/1/97 - 9/30/98 (10,000 processor hours of 512-processor CRAY T3E with a total system peak rate in excess of 150 Gigaflops).

[6]   A. T. Chronopoulos, *Parallel Traffic Flow Simulation* , Sandia National Laboratory, Albuquerque, New Mexico, 9/1/94 - 12/30/97 (unlimited processor hours of 1024-processor NCUBE2).

[5]   A. T. Chronopoulos, *Project for Course: Parallel Computing II* , Pittsburgh Supercomputing Center, 1/1/96 - 5/31/97 (500 CRAY T3D processor hours).

[4]   A. T. Chronopoulos, *Parallel Iterative Methods for Linear Systems and Applications*, Pittsburgh Supercomputing Center, Pittsburgh, Pensylvania, 9/1/95 - 9/30/97 (9,000 processor hours of 512-processor CRAY T3D with a total system peak rate in excess of 50 Gigaflops i.e. 50 Billion floating point operations per sec).

[3]   A. T. Chronopoulos, *Efficient Iterative Methods for (Non)Linear Systems and Applications to 3-D CFD Problems*, Computing Center of Wayne State University, 9/1/96 - 9/30/97 (100 processor hours of 12-processor CRAY J90).

[2]   A. T. Chronopoulos, *Parallel Numerical Algorithms and Software*, Minnesota Supercomputing Institute, University of Minnesota, Twin-Cities, Minnesota, 1/1/89 - 5/30/94 (500 processor hours of 16-vector-processor CRAY X-MP and CRAY-2).

[1]   A. T. Chronopoulos, *Parallel Algorithms for Large Sparse Nonlinear Problems*, Army High Performance Center, University of Minnesota, Twin-Cities, Minnesota, 1/1/90 - 5/30/94 (500 processor hours of 16-vector- processor CRAY C90 with peak rate at 16 Gigaflops).