

S. LENNART JOHANSSON

Presentations and Publications

October 1999

Invited presentations

1999

“Two Decades of Parallel Computation”, PDC Ten Year Anniversary, Stockholm, October 18, 1999.

“Fast Spherical and Fourier Transforms on Parallel Computers”, Differential Equations and Their Applications, Symposium in Honor of Dr J.L. Lions, Houston, October 7 – 9, 1999.

“Fast Spherical and Fourier Transforms on Parallel Computers”, Los Alamos National Laboratories, Los Alamos, September 24, 1999.

“Parallel Algorithms”, PDC Summer School in High Performance Computation, Royal Institute of Technology, Stockholm, August 16 – 27, 1999.

“Fast (Parallel) Algorithms for Spherical Transforms and Many-body interactions with Applications in Electrostatics, Image processing and Chemistry”, AFOSR Program Review Symposium, St Luis, Missouri, August 9 – 12, 1999.

“Component Library Design”, The Los Alamos Computer Science Institute, Santa Fe, New Mexico, June 6 – 8, 1999.

“Technology, Networking and Infrastructure”, EUROTEx, Dallas, Texas, April 14 - 15, 1999.

“Problem Solving Environments for Large-Scale Simulations”, NPACI High-End Data Base workshop, San Diego, April 7 – 9, 1999.

“Problem Solving Environments for Large-Scale Simulations”, NPACI Annual Review, San Diego, CA, January 28 – 29, 1999.

1998

“Fast Evaluation of Electrostatic Forces in Molecular Dynamics”, Common High Performance Scientific Software Initiative (CHSSI) Program Review, Bolling Air Force Base, Washington D.C., December 13 – 15, 1998.

“The UHFFT package”, Alliance Workshop, Rice University, Houston, TX, December 10 – 11, 1998.

“Learner–Centered Multimedia Explorations for the New Millennium”, UH Eighth Annual Scholarship and Community Conference, University of Houston, Houston, TX, October 7, 1998.

“US Opportunities: The Partnerships for Advanced Computational Infrastructure and Internet2”, Cluster and Distributed Computing Workshop, Stockholm, September 24 – 25, 1998.

“Some Early Experiences with Globus and MPI Codes”, Workshop on Clusters and Computational Grids for Scientific Computing, Blackberry Farm, Tennessee, September 2 – 4, 1998.

“Parallel Algorithms”, PDC Summer School in High Performance Computation, Royal Institute of Technology, Stockholm, August 17 – 28, 1998.

“An Efficient MPI Implementation of a High–Order CEM Algorithm”, Computational and Mathematical Physics, Wright-Patterson Air Force Base, Dayton, Ohio, July 19 – 22, 1998.

“High Performance Fortran: What’s Next?”, HPF Users Group, O’Porto, Portugal, June 24 – 26, 1998.

“Using HPF for Irregular Problems”, Technical University of Vienna, Vienna, Austria, June 23, 1998.

“Adaptive $O(N)$ N–body Simulations”, PET/CHSSI Workshop on Computational Chemistry and Material Science, Aberdeen, Maryland, June 8 – 10, 1998.

“The Texas Center for Computational and Information Sciences”, Allied Geophysical Laboratories Annual Progress Review, Houston, April 9, 1998.

“Molecular Dynamics Trajectory Databases”, NSF Workshop on Interfaces to Scientific Data Archives, Caltech, March 24 - 27, 1998.

“Scientific Supercomputing: Making high-performance parallel computers deliver on their promise of high performance”, seminar, Department of Mechanical Engineering, University of Houston, March 5, 1998.

“Computational Science and Engineering and Technology Exponentials”, KDI workshop, Rice University, March 2, 1998.

1997

”Adaptive Order(N) N-body Simulations in HPF”, (with Charlie Hu and Shang-Hua Teng), SC97 Tutorial on ”High Performance Fortran – Practice and Experience”, Nov 16, 1997, San Jose, CA.

“Parallel Algorithms”, Lecture Series at the PDC Summer School *Introduction to High Performance Computing*, Stockholm, Sweden, August 18 – 29, 1997.

“Load–Balance for Irregular Computations on Scalable Architectures”, The National

High-Performance Parallel Computing Center, The Royal Institute of Technology, Stockholm, Sweden, June 19, 1997.

“Techniques for High-Performance Scientific Computation”, The National High-Performance Parallel Computing Center, The Royal Institute of Technology, Stockholm, Sweden, June 18, 1997.

“ROMM Routing: An Efficient Routing Technique for Scalable Computer Architectures”, Purdue University, West Lafayette, Indiana, June 9, 1997.

“On the Accuracy of Multipole-like Methods for Electrostatic Fields”, Computational Science for the 21st Century, Tours, France, May 5 - 7, 1997.

“A Data-Parallel Adaptive $O(N)$ N -body Method”, with Yu Hu and Shang-Hua Teng, Eighth SIAM Conference on Parallel Processing for Scientific Computing, Minneapolis, Minnesota, March 1997.

“Adaptive N -body Simulations in High Performance Fortran”, with Yu Hu and Shang-Hua Teng, HPF Users Group Meeting, Santa Fe, New Mexico, February 24 - 26, 1997.

1996

“DPF: A Data Parallel Fortran Benchmark Suite”, Software for Parallel Computers, Center for Parallel Computers, The Royal Institute of Technology, Stockholm, Sweden, December 16 - 17, 1996.

“Computational Electromagnetics on Scalable Architectures”, Panel on Computational Electromagnetics in the DOD Modernization Program, Supercomputing '96, Pittsburg, November 18 - 22, 1996.

“Parallel Multipole N -body Algorithms”, Department of Mathematics, University of Houston, Houston, November 13, 1996.

“ROMM Routing”, Texas Instruments, Houston, October 1, 1996.

“Data Parallel (HPF) Hierarchical N -body Algorithms”, IMA Workshop, *Algorithms for Parallel Processing*, University of Minnesota, Minneapolis, September 16 - 20, 1996.

“Computational Science”, W.M. Keck Center for Computational Biology, *Keck Annual Retreat*, Galveston, Texas, September 13, 1996.

“Parallel Hierarchical N -body Algorithms”, DOD CHSSI Workshop on *Computational Chemistry and Material Science*, September 3 - 5, 1996.

“Parallel Algorithms”, Lecture Series at the PDC Summer School *Introduction to High Performance Computing*, Stockholm, Sweden, August 19 - 30, 1996.

“Network Related Performance Issues and Techniques for MPPs”, *Optoelectronic Interconnect and Packaging, SPIE International Symposium on Lasers and Integrated Optoelectronics*, San Jose, January 27 - February 2, 1996.

1995

“Data Partitioning for Load-Balance and Communication Bandwidth Preservation”, *The Second International Conference on Massively Parallel Processing and Optical Interconnections*, San Antonio, Texas, October 23 – 24, 1995.

“Structured Linear Algebra Software on Scalable Architectures”, *International Congress on Industrial and Applied Mathematics*, Hamburg Germany, July 3 – 7, 1995.

“On the Accuracy of Fast N-body Algorithms”, AFOSR PI-meeting, Phillips Laboratory, Kirtland Air Force Base, Albuquerque, New Mexico, June 28 – 30, 1995.

“A Stencil Compiler for the Connection Machine Model CM-5”, *5th Workshop on Compilers for Parallel Computers*, Malaga, Spain, June 28 – 30, 1995.

“Implementing $O(N)$ N-body Algorithms Efficiently in Data Parallel Languages (High Performance Fortran)”, Los Alamos National Laboratories, Los Alamos, New Mexico, June 15, 1995.

“On the Error in Anderson’s Fast N-body Algorithm”, The Royal Institute of Technology, May 30, 1995, Stockholm, Sweden.

“Scientific Supercomputing: Making MPPs deliver on their promise of high performance”, Michigan State University, East Lansing, March 16 – 17, 1995.

“Scientific Supercomputing: Making MPPs deliver on their promise of high performance”, the *Mardi Gras Conference on High Performance Computing Technologies*, Baton Rouge, Louisiana, February 23 - 25, 1995.

“Scientific Supercomputing: Making MPPs deliver on their promise of high performance”, the Institute for Computer Science, Linköping University, Linköping, Sweden, January 10, 1995.

1994

“Scientific Supercomputing: Making MPPs deliver on their promise of high performance”, the *Parallel Computation Center Annual Symposium*, the Royal Institute of Technology, Stockholm, Sweden, December 15 – 16, 1994.

“Scientific Supercomputing: Making MPPs deliver on their promise of high performance”, Northwestern University, Evanston, Illinois, December 7, 1994.

“ROMM Routing: A Class of Efficient Minimal Routing Algorithms”, Applied Mathematics Seminar series, California Institute of Technology, Pasadena, California, December 1, 1994.

“Scientific Supercomputing: Making MPPs deliver on their promise of high performance”, Center for Research in Parallel Computation, California Institute of Technology, Pasadena, California, November 30, 1994.

“Scientific Supercomputing: Making MPP’s deliver on their performance”, *Computacion Cientifica en Paralelo*, Mexico City, Mexico, October 27 – 28, 1994.

“Implementing $O(N)$ N-body algorithms efficiently in data parallel languages (High Performance Fortran)”, *DIMACS Third Annual Implementation Challenge Workshop*, DIMACS, Rutgers University, New Brunswick, New Jersey, October 17 – 18, 1994.

“Scientific Supercomputing: Making MPP’s deliver on their promise of high performance”, *ICASE NASA Langley Industry Roundtable*, Williamsburgh, Virginia, October 3 – 4, 1994.

“Parallel Hierarchical N-Body Algorithms for Long Range Forces”, AFOSR Workshop on *Large Scale Simulations in Chemistry/Material Science*, September 12 – 13, Dayton, Ohio, 1994.

“ROMM Routing: A Class of Efficient Minimal Routing Algorithms”, NEC Research Institute, August 5, Princeton, New Jersey, 1994.

“Load-Balanced LU and QR Factor and Solve Routines for Scalable Processors with Scalable I/O”, 14th IMACS World Congress, *Parallel Linear Algebra*, July 11 – 15, Atlanta, Georgia, 1994.

“High Performance Computing: Scalable Libraries, Scalable Applications”, 14th IMACS World Congress, *Parallel Linear Algebra*, July 11 – 15, Atlanta, Georgia, 1994.

“Scalable Scientific Software Libraries”, Workshop on *Parallel Scientific Computing*, UNIC, Lyngby, Denmark, June 20 – 23, 1994.

“Scientific Supercomputing: Making MPPs deliver on their promise of high performance”, the University of Houston, Houston, Texas, May 26, 1994.

“ROMM Routing: A Class of Efficient Minimal Routing Algorithms”, *Parallel Computer Routing and Communication Workshop*, University of Washington, Seattle, Washington, May 16 – 18, 1994.

“Data Motion in High Performance Computing”, First International Workshop on *Massively Parallel Processing Using Optical Interconnections*, Cancun, Mexico, April 26 – 27, 1994.

“Scientific Computation on Scalable Architectures”, *TIMS ORSA Joint National Meeting*, Boston, Massachusetts, April 24 – 27, 1994.

“Data Parallel Finite Element Techniques for Compressible Flow Problems”, (with Zdenek Johan, Kapil K. Mathur, and Thomas J.R. Hughes), *Proceedings of the Parallel Computational Fluid Dynamics 1994 Workshop*, Tokyo, March 1994.

“Performance of the Connection Machine System CM-5”, *ARPA High Performance Computing and Communications Symposium*, Alexandria, Virginia, March 15 – 18 1994.

“Scientific Libraries on Scalable Architectures”, Conference on *Teraflop Computing*, Baton Rouge, Louisiana, February 10 – 12, 1994.

“Locality in High Performance Parallel Computing”, DIMACS Workshop on *Organizing and Moving Data in Parallel Computers*, Princeton, New Jersey, January 26 – 28, 1994.

“The Connection Machine System CM-5”, the University of Tennessee, Tennessee, January 19, 1994.

1993

“Scientific Libraries on Scalable Architectures”, Workshop on *Parallel Scientific Computation*, Stockholm, Sweden, December 15 – 17, 1993.

“A Stencil Compiler for the Connection Machine Models CM-2/200”, Fourth International Workshop on *Compilers for Parallel Computers*, Delft, The Netherlands, December 13–16, 1993.

“Scientific Libraries on Scalable Architectures”, Cornell University, Ithaca, New York, November 29, 1993.

“Scientific Libraries on Scalable Architectures”, University of Maryland, College Park, Maryland, November 18, 1993.

“Scientific Libraries on Scalable Architectures”, Bellcore, Morristown, New Jersey, November 9, 1993.

“Scientific Libraries on Scalable Architectures”, Los Alamos National Laboratories, Los Alamos, New Mexico, October 29, 1993.

“Scalability of Finite Element Applications on Distributed–Memory Parallel Computers”, (with Zdenek Johan and Kapil K. Mathur and S. Lennart Johnsson and Thomas J.R. Hughes), Presented at the *Symposium on Parallel Finite Element Computations*, Minneapolis, Minnesota, October, 1993.

“Scientific Libraries on Scalable Architectures”, CERN, Geneva, Switzerland, October 14, 1993.

“The CMSSL”, *Second European Connection Machine Users Group Conference*, Paris, France, October 13, 1993.

“Scientific Libraries on Scalable Architectures”, *Scalable Parallel Libraries Conference*, Mississippi State University, Starkville, Mississippi, October 6 – 8, 1993.

“Scientific Libraries on Scalable Architectures”, ARPA HPCC Semiannual meeting, San Diego, California, September 28 – 29, 1993.

“Finite Element Techniques for Computational Fluid Dynamics on the Connection Machine CM-5 System”, with Z. Johan, K.K. Mathur, S.L. Johnsson and T.J.R. Hughes, the *Second US Congress on Computational Mechanics*, Washington D.C., August 1993.

“Scientific Libraries on Scalable Architectures”, Workshop on *Portability and Performance for Parallel Processing*, Southampton, Hampshire, England, July 13 – 15, 1993.

“The Connection Machine System CM-5”, *SPAA-93*, Sport Schloss Velen, Germany, June 30 – July 2, 1993.

“Scalable Scientific Libraries”, Workshop on *Production of High Quality Parallel Libraries*, University of Vienna, Vienna, Austria, June 21 – 24, 1993.

“Massively Parallel Computing: Unstructured Finite Element Simulations”, *NAFEMS 4th International Conference on Quality Assurance and Standards in Finite Element and*

Associated Technologies, Brighton, England, May 26 – 28, 1993.

“Experiences with Scalable High Performance Computing”, Workshop on the *Prospects for Parallel Computation for Dislocation Dynamics*, Washington D.C, May 24 – 25, 1993.

“Massively Parallel Computing”, *AFOSR Workshop on Computational Mathematics*, St. Louis, Missouri, May 20 – 21, 1993.

“Software Technologies for Massively Parallel Processing”, *Keynote Address*, Sigmetrics-93, Santa Clara, California, May 10 – 14, 1993.

“Massively Parallel Computing”, Workshop on *Grand Challenge Applications and Software Technologies*, May 4 – 7, Pittsburgh, Pennsylvania, 1993.

“Massively Parallel Computing”, Workshop on *Future Directions for Parallel Optimization*, April 30 – May 1, New Brunswick, New Jersey, 1993.

“Mathematical Software Libraries for HPF”, *ARPA/CSTO High Performance Software Meeting*, Norfolk, Virginia, March 16 – 18, 1993.

“Scalable Scientific Software Libraries: Algorithms and Software Technologies”, *Distinguished Lecturer*, Ohio State University, Columbus, Ohio, March 10 1993.

“Scalable Scientific Software Libraries: Algorithms and Software Technologies”, *MIT Supercomputing Seminar Series*, Cambridge, Massachusetts, January 20, 1993.

“Scalable Parallel Libraries for the Solution of Partial Differential Equations”, *First PanAmerican Workshop for Applied and Computational Mathematics*, Caracas, Venezuela, January 10 – 15, 1993.

1992

“Massively Parallel Computing”, *AFOSR Workshop on Computational Electromagnetics*, Hanscom Air Force Base, Massachusetts, December 3 – 4, 1992.

“Efficient Massively Parallel Supercomputing”, The Fifth ECMWF Workshop on the *Use of Parallel Computers in Meteorology*, Reading, England, November 23 – 27, 1992.

“Scalable Scientific Libraries”, First International Heinz Nixdorf Symposium on *Parallel Architectures and their Efficient Use*, Paderborn, Germany, November 11 – 13, 1992.

“Techniques for High Performance Scientific Computing”, Second Symposium on the *Frontiers of Massively Parallel Computation*, Fairfax, Virginia, October 10 – 12, 1992.

“Scalable Parallel Libraries and the Connection Machine system CM-5”, Rensselaer Polytechnic Institute, Troy, New York, September 10, 1992.

“Techniques for High Performance Scientific Computing”, *Parallel Aspects of Numerical Linear Algebra*, Lyngby, Denmark August 24 – 25, 1992.

“Scientific Libraries for Scalable Architectures”, IBM Workshop on *Scientific Libraries for Parallel Architectures*, Oberlech, Austria, July 12 – 18, 1992.

“Run-Time system support for distributed memory machine compilers”, Third Workshop on *Compilers for Parallel Computers*, Vienna, Austria, July 6 – 8, 1992.

“Computational Fluid Dynamics on Massively Parallel Architectures“, 2nd International Conference on *Spectral and High Order Methods*, Montpellier, France, June 22 – 26, 1992.

“Scientific Libraries for Scalable Architectures“, 7th IMACS Conference on *Computer Methods for PDEs*, New Brunswick, New Jersey, June 22 – 24, 1992.

“A Data Parallel Finite Element Method for CFD on the Connection Machine Systems“, *Parallel CFD '92, Implementation and Results Using Parallel Computers*, Rutgers University, New Brunswick, New Jersey, May 18 – 20, 1992.

“Massively Parallel Computing: Numerical and Computer Science issues“, The ONR Workshop on *Domain-Specific Parallelism; CS, NA, Physics*, Los Angeles, California, May 14 – 15, 1992.

“Communication primitives and their implementation for distributed memory architectures“, *Standards for Message Passing in a Distributed Memory Environment*, Williamsburg, Virginia, April 29 – 30, 1992.

“Mathematical Software“, NASA Workshop on *Systems Software and Tools for High Performance Computing Environments*, Pasadena, California, April 14 – 16, 1992.

“Electronic Parallel Architectures“, AFOSR and NSF Workshop on *Reconfigurable Free-Space Optical Interconnect*, Boulder, Colorado, March 11 – 13, 1992.

“Massively Parallel Computing: MIMD vs. Data Parallel“, *Comcon 92*, San Francisco, California, February 24 – 28, 1992.

“Algorithms and Software Techniques for Scientific Applications on Scalable Architectures“, Workshop on *Parallel Computing for 3D Plasma Simulation*, Albuquerque, New Mexico, January 15 – 17, 1992.

1991

“Scientific Libraries for Scalable Architectures“, The Danish Institute of Technology, Lyngby, Denmark, December 19th, 1991.

“How can Models Promote Main Stream Parallelism“, Panel, The Third *IEEE Symposium on Parallel and Distributed Processing*, Dallas, Texas, December 5, 1991.

“Scientific Libraries for Scalable Architectures“, *2nd BLACS Workshop*, Cornell University, Ithaca, New York, October 14 – 15, 1991.

“Scientific Libraries for Scalable Architectures“, Distinguished Lecturer, *the Minnesota Supercomputer Institute*, University of Minnesota, Minneapolis, Minnesota, October 2, 1991.

“Techniques for Efficient Data Motion in Large Scale Distributed Memory Systems“, Workshop on *Interconnection Networks*, Marseille, France, July 15 – 19, 1991.

“Performance Modeling of Distributed Memory Architectures”, Workshop on *Conceptual Models of Parallel Scientific Computation*, Seattle, Washington, June 27 – 29, 1991.

“Language and Compiler Issues in Building Scalable High Performance Scientific Libraries”, NSF–NCRD Workshop on *Advanced Compilation Techniques for Novel Architectures*, Kiryat–Anavim, Israel, May 27 – 30, 1991.

“Data Parallel Programming: Programming Primitives and Performance”, Tutorial at the Symposium on *Principles and Practices of Parallel Programming*, PPOPP91, Williamsburg, Virginia, April 21 1991.

“Communication in Distributed Memory Architectures”, workshop on *Basic Linear Algebra Communication Subroutines*, Houston, Texas, March 28, 1991.

“Making Fortran 90 work fast”, Workshop on *DARPA/ISTO Software PI Meeting*, Warwick, Rhode Island, February 26 – 29, 1991.

“Communication Primitives for Distributed Data Structures”, Workshop on *Global Climate Modeling*, the National Center for Atmospheric Research, Boulder, Colorado, January 9 – 10, 1991.

1990

“Software Libraries for Scalable Supercomputers”, workshop on *Reliable Large Scale Scientific Computation*, Rensselaer Polytechnic Institute, Troy, New York, December 11 – 12, 1990.

“Software Libraries for Data Parallel Languages”, Workshop on *Parallel Processors in Meteorology*, Reading, England, November 26 – 30, 1990.

“The Connection Machine Scientific Software Library”, Los Alamos National Laboratories, Los Alamos, New Mexico, November 16, 1990.

“Scientific Supercomputing and Computer Science in the 1990’ies”, Harvard University, Cambridge, Massachusetts, November 8, 1990.

“Scientific Applications on Data Parallel Architectures: Techniques for High Performance”, Princeton University, Princeton, New Jersey, November 5, 1990.

“Communication Libraries”, Workshop on *Scalable Parallel Libraries*, Oak Ridge National Laboratories, Oak Ridge, Tennessee, September 6 – 7, 1990.

“Obstacles to the Development of Parallel Libraries”, Workshop on *Scalable Parallel Libraries*, Oak Ridge National Libraries, Oak Ridge, Tennessee, September 6 – 7, 1990.

“Linear Algebra on Data Parallel Architectures” *The Northeast Parallel Architectures Center Summer Institute*, Syracuse University, Syracuse, New York, July 25, 1990.

“The Connection Machine Scientific Software Library”, *The Northeast Parallel Architectures Center Summer Institute*, Syracuse University, Syracuse, New York, July 25, 1990.

“Issues in the design of a Scientific Library”, *Householder Symposium XI*, Tylösand, Sweden, June 18-22, 1990.

“Basic Array Operations” *Householder Symposium XI*, Tylösand, Sweden, June 18-22, 1990.

“The Symmetric Eigenproblem” *Householder Symposium XI*, Tylösand, Sweden, June 18-22, 1990.

“Implementation on the Connection Machine – Experiences” *Householder Symposium XI*, Tylösand, Sweden, June 18-22, 1990.

“Teraflop computation: Distributed and Shared Memory”, Workshop on Acceleration Algorithms, Boston University, Boston, Massachusetts, April 13, 1990.

“Connection Machine Applications”, The Royal Institute of Technology, Stockholm, Sweden, January, 1990.

1989

“Data Parallel Supercomputing”, Cornell University, Ithaca, New York, October 26, 1989.

“Data Parallel Supercomputing”, Argonne National Laboratories, Mathematical and Computational Sciences Division, October 3, 1989.

“Graph Embeddings on Hypercubes”, University of Chicago, Department of Computer Science, October 2, 1989.

“Graph Embeddings on Hypercubes, NEC Research Institute, Princeton, September 25, 1989.

“Data Parallel Supercomputing”, Amoco Research, Tulsa, September 21, 1989.

“Graph Embeddings on Hypercubes”, University of Tulsa, Tulsa, September 21, 1989.

“Fluent Supercomputing”, Second Swedish Workshop on *Computer Systems Architecture*, Bålsta, Sweden, August 21-23, 1989.

“Graph Embeddings on Hypercubes”, Brown University, Providence, RI, August 10, 1989.

“A Linear Algebra Library for the Connection Machine”, *SIAM Annual Meeting*, San Diego, CA, July 17-21, 1989

“Data Parallel Supercomputing”, Conference on *Preconditioned Conjugate Gradient Methods*, University of Nijmegen, Holland, June 19-21, 1989.

“High Performance Computing”, The Seventh ARMY Conference on *Applied Mathematics and Computing*, West Point, New York, June 7, 1989.

“Scientific Applications on the Connection Machine”, *RIACS*, Moffet Field, CA, May 10, 1989.

“Data Parallel Supercomputing”, *CERFACS*, Toulouse, France, April 26, 1989.

“Scientific Applications on the Connection Machine”, *The Royal Institute of Technology*, Stockholm, Sweden, February 9, 1989.

“Solving the Wide-Angle Wave Equation on a Data Parallel Computer”, Second IMACS *Symposium on Computational Acoustics*, Princeton University, Princeton, New Jersey, March 1989.

1988

“Data Parallel Supercomputing”, Workshop on *The Use of Parallel Computers in Meteorology*, the European Center for Medium Range Weather Forecasting, Reading, England, December 1988.

“Future High-Performance Computing”, The *International Conference on Parallel Processing*, St Charles, Illinois, August 1988.

“Data Parallel Supercomputing”, the *John von Neumann Center*, Princeton, New Jersey, August 1988.

“Data Parallel Supercomputing”, the Second International Conference on *Computational and Applied Mathematics*, Leuven, Belgium, July 1988.

“Data Parallel Supercomputing”, *SIAM Annual Meeting*, Minneapolis, July 14, 1988.

“Data Parallel Supercomputing”, the *SDIO Innovative Science and Technology Office’s Annual Information Processing Symposium*, June, Washington D.C.

“Data Parallel Supercomputing”, *Trends in High Performance Computing in Science and Engineering*, June, Linkoping, Sweden

“Data Parallel Supercomputing”, the *Third International Conference on Supercomputing*, May 1988, Boston

“Fluent Architectures”, the *Third International Conference on Supercomputing*, May 1988, Boston

“Fluent Communications”, the *Third International Conference on Supercomputing*, May 1988, Boston

“Data Parallel Supercomputing”, Workshop on the *Design and Application of Parallel Digital Processors*, Lisbon, Portugal, April 1988.

“Implementing Distributed and Shared Memory Models of Computation on Network Architectures”, three lectures presented at a workshop on *Massively Parallel Models of Computation* in the *VLSI Frontiers* series, Banff, March 1988. To be published by Morgan Kaufmann Publishers.

“The Fluent Supercomputer”, *Yale University, Computer Science*, March 11, 1988.

“Parallel Algorithms for Sparse Matrices, and their Engineering Applications”, *MIT, Civil Engineering*, March 10, 1988.

“The Fluent Machine”, *New York University, Courant Institute of Mathematical Sciences*, February 8, 1988.

1987

“The Connection Machine”, *Swedish Institute of Computer Science*, December 22, 1987, Stockholm, Sweden

“The Connection Machine”, *Uppsala University, Dept of Computer Science*, December 21, 1987, Uppsala Sweden.

“Highly Parallel Banded Systems Solvers”, *Parallel Computations and Their Impact on Mechanics*, Boston, 1987.

“Scientific Computing on the Connection Machine”, *Yale University, Annual Liaison Meeting*, November 12, 1987.

“Basic Linear Algebra on Massively Parallel Architectures”, *SPIE*, August 16 – 21, 1989, San Diego, CA.

“Optimizing Basic Linear Algebra routines and Fast PDE Solvers for Parallel Architectures”, *IMACS*, June 23 – 26, 1987, Bethlehem, PA

“Scientific Computing on Massively Parallel Architectures”, *National Computer Conference*, June 15-18, 1987, Chicago, IL.

“Highly Parallel Languages and Algorithms”, *Second International Conference on Supercomputing*, May 6, 1987, Santa Clara, CA.

“The Connection Machine. Architecture, Software, and Applications”, *NBS*, April 13, 1987, Washington D.C

“Scientific Computing on the Connection Machine”, Workshop on *Scientific Computing Using Parallel Architectures*, the Institute for Advanced Computer Studies, University of Maryland, April 6-8, 1987.

“Devising Algorithms for High Performance on Parallel and Vector Architectures”, *Institute for Mathematics and its Applications*, March 23 – 27, 1987, Minneapolis, MN.

“The FFT and Fast Poisson Solvers on Parallel Architectures”, Proceedings of the Mathematical Sciences Institute Workshop on *Fast Fourier Transforms for Vector and Parallel Computers*, Cornell University, March 22-25, 1987.

“Communication primitives in network architectures”, *VLSI Frontiers*, March 20-22, 1987, Banff.

“High-Speed Computing in Science and Engineering”, *High Speed Computing Conference; Parallel Processing: Matching Execution Models with Problem Classes*, March 17 – 19, 1987, Glendon Beach, Oregon.

“The Connection Machine”, *IBM-Yale workshop on Parallel Computing*, March 13, 1987, Yale University, New Haven, CT.

“Scientific Computing on the Connection Machine”, *Computer Science and Statistics*, American Statistical Association, March 8-11, 1987, Philadelphia.

“The Connection Machine”, *The Royal Institute of Technology*, February 27, 1987, Stockholm.

“Basic Linear Algebra on the Connection Machine”, *Workshop on the BLAS*, Jan 26-27, 1987, Argonne National Laboratories, Argonne, IL.

“Scientific Computing on the Connection Machine”, *the Navy Research Laboratories*, January 23, 1987, Washington D.C.

1986

“Introduction to Scientific Computing on Vector and Parallel Architectures”, a short course *University of Bergen*, December 15 – 19, 1986, Bergen.

“Systolic Algorithms, Fine Grain Computations, and the Connection Machine”, *ONR Workshop on Systolic Computation*, December 8-10, 1986, Hilton Head Island, S. Carolina.

“Scientific Computing on a Massively Parallel Architecture”, *MIT, Applied Mathematics*, November 17, 1986, Cambridge, MA.

“Scientific Computing on a Massively Parallel Architecture”, *Institute for Mathematics and its Applications*, November 4, 1986, Minneapolis, MN.

“Scientific Computing on the Connection Machine”, *Bellcore*, October 30, 1986, Holmdale, NJ.

“Graph Embeddings, Hypercubes, and Linear Algebra”, *MIT VLSI Seminar series*, October 21, 1986, Cambridge, MA.

“Scientific Computing on a Massively Parallel Architecture”, *Stanford University*, October 10, 1986, Stanford, CA.

“Massively Parallel Computation: Experience with the Connection Machine”, *Yale University*, September 18, 1986, New Haven, CT.

“Modern Computer Architectures”, Lecture series at *The Institute for Mathematics and its Applications*, University of Minnesota, August 27-18, 1986, Minneapolis, MN..

“Solving Banded Systems on Parallel Architectures”, (with Jack Dongarra, Argonne National Laboratory), presented at the *International Conference on Vector and Parallel Computing*, Loen, Norway, June 1986.

“Matrix Multiplication on Boolean Cubes using Generic Communication Primitives”, in *Parallel Processing and Medium Scale Multiprocessors*, SIAM, 1989, pp. 108-156 (presented at *ARO Workshop on Parallel Processing and Medium Scale Multiprocessors*, Stanford University, January 1986). (Report YALEU/DCS/RR-530, March 1987.)

1980 – 1985

“Band Matrix Systems Solvers on Ensemble Architectures”, presented at Algorithms, Architectures, and the Future of Scientific Computing, Austin, Texas, March 17 – 20, 1985. In *Supercomputers: Algorithms, Architectures and Scientific Computation*, The University of Texas Press, 1986.

“Alternating Direction Methods on Multiprocessors”, (with Y. Saad and M. H. Schultz), presented at *PDE’s and Algorithms for Advanced Processors*, Austin, Texas, March 1985.

“Concurrent Algorithms – Multiprocessor Systems: Some Reflections”, *Santa Fe workshop on Taxonomy for Parallel Algorithms*, November 30 – December 2, 1983.

“Experiments in Concurrent Machine Architectures”, *1983 Parallel Architecture Workshop*, Boulder, Colorado, January 23 – 26, 1983.

“The Impact of VLSI on Signal Processing”, (with Danny Cohen), USC Conference on *VLSI and Modern Signal Processing*, Los Angeles, November 1 – 3, 1982, pp. 153 – 156.

“A Mathematical Approach to the Design of VLSI Networks for Real-Time Computation Problems”, (with Danny Cohen), *Real-Time Systems Symposium*, Miami, December 8 – 10, 1981, pp. 32 – 40, IEEE Catalog No. 81CH1700-4.

“A VLSI Approach to Real-Time Computation Problems”, (with Danny Cohen), *25th Annual International Technical Symposium and Exhibit of the Society for Photo-Optical Instrumentation Engineers*, San Diego, August 24 – 28, 1981, Vol. 298, pp. 48 – 59, SPIE – The Society for Optical Engineering.

Journal publications

“HPFBench: A High Performance Fortran Benchmark Suite”, with Y. Charlie Hu, Guohua Jin, Dimitris Kehagias and Nadia Shalaby, to appear in *ACM Transactions on Mathematical Software*.

“Large Scale Data Repository: Design of a Molecular Dynamics Trajectory Database”, with Michael Feig, Matin Abdullah, and Montgomery Pettitt, to appear in *Future Generation Computer Systems*, Elsevier, North-Holland.

“Local Basic Linear Algebra Subroutines (LBLAS) for the CM-5/5E”, (with David Kramer and Yu Hu), in the *International Journal of Supercomputer Applications*, vol. 10, no. 4, pp. 300 – 335, 1996.

“A Data Parallel Implementation of Hierarchical N -body Methods”, (with Yu Hu), in the *International Journal of Supercomputer Applications*, vol. 10, no. 1, pp. 3 – 40, 1996.

“Implementing $O(N)$ N -body algorithms efficiently in data parallel languages”, (with Yu Hu), in the *Journal of Scientific Programming*, vol. 5, no. 4, pp. 337 – 364, 1996.

”All-to-All Communication on the Connection Machine system CM-200”, (with Kapil K. Mathur), the *Journal of Scientific Programming*, vol. 4, no. 4, pp. 251 – 273, 1995.

“On the Conversion between Binary Code and Binary Reflected Gray Code”, (with Ching-Tien Ho), in *IEEE Transactions on Computers*, vol. 44, no. 1, pp. 47 – 53, January 1995.

“Index Transformation Algorithms in a Linear Algebra Framework”, (with Alan Edelman and Steve Heller), in *Transactions on Parallel and Distributed Systems*, vol. 5, no. 12, pp. 1302 – 1309, 1994.

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