S. LENNART JOHNSSON

Curriculum Vitae

October 1999

Education:

- 1970
  Tekn.lic (Ph.D) in Control Engineering (major)
  Mathematics, Applied Mathematics and
  Optimization and Systems Theory (minors),
  Chalmers Institute of Technology, Gothenburg, Sweden.

- 1967
  Civilingenjör (M.S.) in Engineering Physics,
  Chalmers Institute of Technology, Gothenburg, Sweden.

- 1963
  Ingenjör in Electrical Engineering,
  Tekniska Gymnasiet, Västerås, Sweden;

- 1963
  Special Education on Navy Electrical and Electronics Systems,
  Berga Schools of the Navy, Berga, Sweden.

Professional Experience:

- August 1999 – present:
  Executive Director, the Texas Learning and Computation Center,
  University of Houston, Houston, TX 77204-3475.

- September 1997 – present:
  Member, the University Corporation for Advanced Internet Development (UCAID)
  Internet2 Applications group.

- December 1996 – present:
  Director, Texas Center for Computational and Information Sciences
  University of Houston, Houston, TX 77204-3475.

- September 1996 – 1999:
  Chair, Department of Computer Science
  University of Houston, Houston, TX 77204-3475.

- July 1996 – present:
  Member, The W.M. Keck Center for Computational Biology,
  Houston, Texas 77005-1892.

- September 1995 – present:
  Hugh Roy and Lillie Cranz Cullen Distinguished Professor
  of Computer Science, Mathematics and Electrical and Computer Engineering
  University of Houston, Houston, TX 77204-3475.

- July 1995 – present:
  Adjunct Professor, Department of Computer Science and
  Center for Research in Parallel Computation
  Rice University, Houston, TX 77251.

- January 1995 – present:
  Visiting Professor, Department of Numerical Analysis and Computer Science
  Royal Institute of Technology, S–100 44 Stockholm, Sweden.

- July 1990 – 1996:
  Gordon McKay Professor of the Practice of Computer Science
  Harvard University, Cambridge, MA 02138.

- January 1987 – January 1995:
  Director of Computational Sciences,
  Thinking Machines Corporation, Cambridge, MA 02142.

- 1983 – 1990:
  Associate Professor of Computer Science and Electrical Engineering,
  Yale University, New Haven, CT.

- June 1987:
  Visiting Professor, Department of Computer Science,
  Uppsala University, Uppsala, Sweden.

- July – December 1986:
  Acting Head, Numerical Computing Group,
  Thinking Machines Corporation, Cambridge, MA.

- May – June 1986:
  Visiting Professor, Department of Computer Science,
  Uppsala University, Uppsala, Sweden.

- July 1985:
  Visiting Scientist, Mathematics and Computer Science Division,
  Argonne National Laboratories, Argonne, IL.

- May – June 1985:
  Visiting Professor, Departments of Mathematics and
  Computer Science, Linköping University, Linköping, Sweden.

- August – September 1983:
  Visiting Scientist, The Institute for Mathematics and its Applications,
  The Academy of Engineering Sciences, Stockholm, Sweden.

- 1979 – 1983:
  Senior Research Associate, 1981 – 1983,
  Research Associate, 1980 – 1981,
  Visiting Assistant Professor, 1979 – 1980,
  Computer Science,
  California Institute of Technology, Pasadena, CA.

- 1970 – 1980:
  Manager, Systems Engineering, Electrical Systems, 1974 – 1980,
  Systems Engineer, Electrical Systems Office, 1970 – 1974,
  Central Research and Development, ASEA AB, Västerås, Sweden.

- 1970 – 1971:
  Postdoctoral Scholar, Systems Science Department,
  School of Engineering and Applied Science, UCLA, Los Angeles, CA.

- 1967 – 1970:
  Research Scholar, Swedish Board for Technical Development at the Control Engineering Department, Chalmers Institute of Technology, Gothenburg, Sweden.

Teaching Experience:

Regular courses

- 1999:

  COSC7397 Advanced topics in Computer Networks
  Department of Computer Science, University of Houston.

- 1998:

  COSC7364 Advanced Parallel Computation
  Department of Computer Science, University of Houston.

  COSC7397 Advanced topics in Computer Networks
  Department of Computer Science, University of Houston.

- 1997:

  COSC7364 Advanced Parallel Computation
  Department of Computer Science, University of Houston.

  COSC7397 Advanced topics in Computer Networks
  Department of Computer Science, University of Houston.

- 1996:

  COSC7397 Advanced topics in Computer Networks
  Department of Computer Science, University of Houston.

- 1991 – 1995:

  CS231 Scientific Computing on Large Scale Parallel Computers
  Division of Applied Sciences, Harvard University.

- 1988 – 1989:

  CS445/545a Parallel Algorithms and Architectures
  Department of Computer Science, Yale University.

- 1987 – 1988:

  CS725b. The Fluent Supercomputer
  Department of Computer Science, Yale University.

  CS445/545a Parallel Algorithms and Architectures
  Department of Computer Science, Yale University.

- 1985 – 1986:

  CS545b. Algorithms and Architecture for Parallel Computation
  CS113a. A First Course in FORTRAN
  CS624a. Implementation of Parallel Algorithms
  Department of Computer Science, Yale University.

- 1984 – 1985:

  CS/EE 434/534b. VLSI and Computer Arithmetic
  Department of Computer Science and Electrical Engineering
  CS640a. Scientific Multiprocessors (with Martin H. Schultz)
  Department of Computer Science, Yale University.

- 1983 – 1984:

  CS529/429b. Parallel Computation
  CS729a. Computer Arithmetic
  Department of Computer Science, Yale University.

- 1982 – 1983:

  AMa/CS Concurrent Numerical Algorithms (with Bengt Fornberg)
  CS/EE181a. VLSI Design Laboratory (with Charles L. Seitz)
  Computer Science, California Institute of Technology.

- 1981 – 1982:

  CS/EE181abc. Introduction to VLSI Systems
  CS/EE186abc. VLSI Design Laboratory (with Charles L. Seitz)
  Computer Science, California Institute of Technology.

- 1980 – 1981:

  CS/EE181c. Introduction to VLSI Systems
  CS/EE186c. VLSI Design Laboratory (with Charles L. Seitz)
  Computer Science, California Institute of Technology.

- 1979 – 1980:

  CS288a,b,c. Ultra Concurrent Computation (with Carver A. Mead)
  Computer Science, California Institute of Technology.

Short courses

- August 1996:

  Introduction to High–Performance Computing,
  The Royal Institute of Technology, Stockholm, Sweden.

- December 1986:

  Introduction to Scientific Computing on Vector and Parallel
  Architectures, University of Bergen, Bergen, Norway.

- May – June 1986:

  Parallel Algorithms
  Uppsala University, Uppsala, Sweden (4 week course).

- May – June 1985:

  Parallel Algorithms and Architecture
  Linköping University, Linköping, Sweden (3 week course).

- June 1984:

  Parallel Numerical Computation (with Robert Schreiber)
  Stanford University (1 week intensive course).

- 1972 – 1977:

  Courses on Control Theory and Power System Operation and Control,
  ASEA AB.

Tutorials

- Data Parallel Programming: Programming primitives and performance, given at
  Principles and Practices of Parallel Programming, PPoPP91, Williamsburg, Va.,
  April 21, 1990.

Editorial work:

- 1997 – present:
  Editorial Board, Journal of Interconnection Networks.

- 1991 – present:
  Editorial Board, International Journal of High–Performance Computing
  Applications.

- 1991 – present:
  Editorial Advisory Board, Journal of Scientific Programming.

- 1990 – present:
  Editorial Board, Journal for Numerical Linear Algebra with Applications.

- 1988 – present:
  Editorial Board, Journal on Concurrency: Practice and Experience.

- 1988 – present:
  Editor, International Journal on High Speed Computing.

- 1984 – present:
  Editor, Journal of Parallel and Distributed Computing.

Boards and Committees:

Professional committees:

1999 –	Chair, External Advisory Board, The National Parallel Supercomputer Center, The Royal Institute of Technology, S–100 44 Stockholm, Sweden.
	Member, Executive Committee, The Los Alamos Computer Science Institute, Los Alamos, NM.
	Chair, the Swedish National Allocations Committee for High Performance Computing, Storage and Visualization, The Swedish Council for Planning and Coordination of Research, S–103 87 Stockholm, Sweden.
1998 –	Member, Executive Board, The W.M Keck Center for Computational Biology, Houston, TX 77005-1892.
1996 – 1999	Chair, Scientific Board, The National Parallel Supercomputer Center, The Royal Institute of Technology, S–100 44 Stockholm, Sweden.
1996 –	Chair, Executive Board, The Houston Area Computational Science Consortium, Houston, TX.
1994 – 1998	Member, Industrial Advisory Board, West Virginia Experimental Program to Stimulate Competitive Research, Morgantown, WV.
1993 –	Member, Steering Committee, Conference series on *Massively Parallel Processing Using Optical Interconnections*.
1992 – 1994	Board Member, Computing Research Association.
	Member, Steering Committee, DIMACS Parallel Implementation Challenge.
1991 – 1992	Member, ICASE Search committee for new Institute Director.
1990 – 1995	Member, Universities Space Research Administration Science Council for CESDIS, NASA Goddard Space Flight Center.

1990 – 1992	Member, Universities Space Research Administration Science Council for ICASE, NASA Langley Research Center.
1988	Search Committee, Swedish Natural Sciences Research Council.
1986	Advisory Board for "Computational Methods and Computer Architecture", The Academy of Engineering Sciences, The Swedish Institute of Applied Mathematics, Stockholm.
1976 – 1978	CIGRE, Group 32, Power Systems Operation and Planning, Paris.
1966 – 1967	Educational Board of the Division of Engineering Physics, Chalmers Institute of Technology, Gothenburg. Ombudsman of undergraduate students, Chalmers Institute of Technology, Gothenburg.

Conference committees:

2000	Program Committee, The 1st European Grid Forum Workshop, ISThmus 2000, Poznan, Poland, April 11 – 13, 2000.
1999	Organizing and Program Committees, The *Swedish National Parallel Supercomputing Center Annual Symposium on High–Performance Computation and Visualization*, Stockholm, Sweden, December 16 – 17, 1999.
1998 –1999	Steering Committee, Parallel and Distributed Computing and Systems '99, Boston, MA, October, 1999. Program Committee, Eleventh Annual ACM Symposium on Parallel Algorithms and Architecture (SPAA), Saint-Malo, France, June 27 – June 30, 1999.
1998	Organizing and Program Committees, The *Swedish National Parallel Supercomputing Center Annual Symposium on High–Performance Computation and Visualization*, Stockholm, Sweden, December 17 – 18, 1998. Organizing and Program Committees, The *Swedish National Parallel Supercomputing Center Cluster and Distributed Computation Workshop*, Stockholm, Sweden, September 24 – 25, 1998.
1997 – 1998	Steering Committee, Parallel and Distributed Computing 1998, Las Vegas, NV, October 1998. Program Committee, ACM International Conference on Supercomputing, Melbourne, Australia, July, 1998.

1997	Organizing and Program Committees, The *Swedish National Parallel Supercomputing Center Annual Symposium on High–Performance Computation*, Stockholm, Sweden, December 18 – 19, 1997.
	Organizing and Program Committees, The *Swedish Council for High–Performance Computing Summer School*, Stockholm, Sweden, August 1997.
	Organizing and Program Committees, *High–Performance Computing Workshop*, Swedish National Parallel Supercomputing Center, Stockholm, Sweden, June 18 – 19, 1997.
1996 – 1998	General Chair, *Fifth International Conference on Massively Parallel Processing Using Optical Interconnections*, Las Vegas, NV, June 16 – 18, 1998.
1996 – 1997	Program Committee, Mini-Conference on *Supercomputer/CFD Applications in the Automotive Industry*, Florence, Italy, June 16 - 19, 1997.
1996	Minisymposium Organizer, *Fast Parallel Orthogonal Transforms: Theory, Implementation and Applications*, 8th SIAM Conference on Parallel Processing for Scientific Computation, Minneapolis, MN, March 14 - 17, 1997.
	Minisymposium Organizer, *Generating Efficient Parallel Scientific Code from High–Level Descriptions*, 8th SIAM Conference on Parallel Processing for Scientific Computation, Minneapolis, MN, March 14 - 17, 1997.
	Organizing and Program Committees, The *Swedish National Parallel Supercomputing Center Annual Symposium on High–Performance Computation*, Stockholm, Sweden, December 16 – 17, 1996.
	Program Committee, Workshop on *Communication and Architectural Support for Network–based Parallel Computing*, February 1 – 2, 1997.
	Organizing and Program Committees, The *Swedish Council for High–Performance Computing Summer School*, Stockholm, Sweden, August 1996.
1995 – 1996	Program Committee, *Third International Conference on Massively Parallel Processing Using Optical Interconnections*, Maui, Hawaii, October 20 – 22, 1996.
	Program Committee, *The 1996 International Conference on Parallel Processing*, August 12 – 16, 1996.
1994 – 1995	Program Committee, *Second International Conference on Massively Parallel Processing Using Optimal Interconnections*,

San Antonio, TX, October 23 – 24, 1995.

Program Committee, *Fifth Symposium on Principles and Practice of Parallel Programming*, PPoPP 95, Santa Barbara, CA, July 19 – 21, 1995.

Program Committee, *Ninth International Parallel Processing Symposium*, Santa Barbara, CA, April 1995.

1993 – 1994   Program Committee, *Eighth International Parallel Processing Symposium*, Cancun, Mexico, April 1994.

Program Committee, *First International Workshop on Parallel Processing Using Optical Interconnect*, Cancun, Mexico, April, 1994.

1991 – 1992   Organizing committee, *7th IMACS International Conference on Computer Methods for Partial Differential Equations*, Rutgers University, New Brunswick, NJ, June 22 – 24, 1992.

Program committee, *Scalable High Performance Computing Conference*, April 26 – 29, 1992.

Program committee, *Sixth International Parallel Processing Symposium*, March 23 – 26, 1992.

1990 – 1991   Program committee, *Symposium on Parallel Algorithms and Architectures*, SPAA 91.

Minisymposia Organizer, *International Conference on Industrial and Applied Mathematics,* ICIAM 91, Washington D.C., July 8 – 12, 1991.

1990   Chair, Workshop on *Communication and I/O Libraries, Symposium on Scalable Libraries,* Oak Ridge National Laboratories, Oak Ridge, TN, September 5 – 7, 1990.

Organizing committee, *Very Large Scale Computations in the 21st Century,* VLSC21, Cape Cod, MA, September 3 – 5, 1991.

Minisymposia Organizer, *Large Scale Scientific Computation and Linear Algebra on Data Parallel Architectures,* Householder Symposium XI, Tylösand, Sweden, June 1990.

Organizing committee, *The 1990 Conference on Distributed Memory Architectures*, Charleston S.C., April 1990.

1989   Session chair, *Massively Parallel Computation,* SIAM Conference on Parallel Processing for Scientific Computing. Chicago, IL., December 1989.

Program committee, *The 1989 International Conference on Supercomputing*, Crete, Greece, July 1989.

1987	Session organizer, *Massively Parallel Architectures*, The 1987 National Computer Conference, Chicago.
1986	Chairman, organizing committee, *International Symposium on Trends in High Performance Computation in Science and Engineering*, The Academy of Engineering Sciences, Stockholm, and Uppsala University.
1983	Program committee, *The Third Caltech Conference on VLSI*.

Panels:

1999	NSF Code Assessment Panel for NCAR, Boulder, CO, July 27 – 29, 1999.
	NSF PACI Post–vBNS Workshop, San Diego, CA, March 4 – 5, 1999.
	Industry Panel, NSF CAREER PI Meeting, Washington DC, January 10 – 12, 1999.
1998	NSF Panel review, Rice University, October 19, 1998.
	NSF Site review, Electronic Visualization Laboratory, University of Illinois at Chicago, March 8, 1998.

Other committees:

1998 - 1999	Search Committee for Chair, Department of Electrical and Computer Engineering, University of Houston.
	Search Committee for Dean of Graduate Studies, University of Houston.
	Search Committee for Director, Allied Geophysical Laboratories, University of Houston.
1998 –	Founding Member, College of Natural Sciences and Mathematics Multimedia Classroom Advisory Committee, University of Houston.
1996 – present	Member, Telecommunications Program Advisory Board,

College of Engineering, University of Houston.

1995 – 1998	Member, Distinguished Professorships Committee, University of Houston.
1995 – 1996	Chair, Department of Computer Science Executive Committee, University of Houston.
	Chair, Chair Search Committee, Department of Computer Science, University of Houston.
1995 – present	Computation and Communication Infrastructure Working Group, University of Houston.
1993	Serge G. Petiton, L'Habilitation a Diriger des Recherches, Contribution a une Methodologie Globale Pour Le Calcul Scientifique Parallele, University of Paris VI.

Ph.D Students:

1993 – 1997	Yu Hu: Efficient Data Parallel Implementations of Highly Irregular Problems, Harvard University. Nadia Shalaby: Parallel Orthogonal Transforms, Harvard University.
1993 – 1995	Ted Nesson: Constrained randomization for routing in computer networks Harvard University.
1984 – 1988	Ching–Tien Ho (now at IBM Almaden Research Center): Optimal Communication Primitives and Graph Embeddings on Hypercubes, Yale University.
1984 – 1987	Abhiram Ranade (now at UC Berkeley): Fluent Parallel Computation, Yale University.
1980 – 1983	Peggy Li (now at JPL): Caltech.

M.S. Students:

1999 –	Juichan Wang, University of Houston.
1998 –	Matin Abdullah, University of Houston. Mangesh Inamdar, University of Houston.

Amine Jekki, University of Houston.
Abhinya Kanekar, University of Houston.
Priti Mehta, University of Houston.
Fredrick Mwandia, University of Houston.
Taiwo Oluwatosin, University of Houston.
Anil Padala, University of Houston.
Kashif Shakil, University of Houston.

1997 –   Hrishikesh Divate, University of Houston.
                Rishad Mahasoom, University of Houston.
                Hong Zhang, University of Houston.

1997 – 1999   Manish Kumar Singh, LSR–Sim: A Large–Scale Parallel Network
                Routing Simulator, University of Houston.

1996 – 1998   Olle Larsson, Implementation and Performance Analysis of a high–order
                CEM Algorithm in Parallel and Distributed Computing Environments,
                University of Houston.

1983 – 1984   Tak-Kwong Ng, A Graph Model and the Embedding of MOS Circuits,
                Caltech.

Ph.D Thesis Committees:

1997   Canfang Zhai: Computation of Rotating Wave Solutions of
                        Reaction Diffusion Systems, University of Houston.

1996   Terry Clark: Parallel Programming Approaches for Scientific Applications,
                        University of Houston.

1992 –   Nikos K. Filippopoulos; Harvard University.

1994   Michel Jacquemin: Compiling for Distributed Memory Machines,
                        Yale University.
                Pangfeng Liu: Efficient Parallel N–body simulation,
                        Yale University.
                Chun–Hung Chen: An Efficient Approach for Discrete Event System
                        Decision Problems, Harvard University.

1992   Zdenek Johan: Data Parallel Finite Element Techniques for
                        Large–Scale Computational Fluid Dynamics,
                        Stanford University.
                Dimitris Gerogiannis: Efficient Implementation of Intermediate Level
                        Image Analysis Tasks on Parallel Machines,
                        Yale University.

Pelle Olsson: Stable Approximations for the Navier–Stokes
                Equations in Bounded Domains, Uppsala University.

1991   Markus Wloka: Parallel VLSI Synthesis, Brown University.

1989   Yiwan Wong: Algorithms for Systolic Array Synthesis,
                Yale University.

                Björn Lisper, thesis examiner: Synthesizing Synchronous Systems
                        by Static Scheduling in Space–time,
                        The Royal Institute of Technology, Stockholm, Sweden.

1983   Erik DeBenedictis: Techniques for Testing Integrated Circuits,
                        Caltech.
                Marina Chen: Space–Time Algorithms: Semantics and Methodology,
                        Caltech.

1982   Dick Lang: The Extension of Object–Oriented Languages to a
                        Homogeneous, Concurrent Architecture, Caltech.
                Mike Ullner: Parallel Ray Tracing, Caltech.
                Christopher R. Carroll: Hybrid Processing, Caltech.

1980   Sally Anne Browning: The Tree Machine: A Highly Concurrent
                        Computing Environment, Caltech.
                Bart Locanthi: The Homogeneous Machine, Caltech.
                Anthony F. Barton: A Fault Tolerant Integrated Circuit Memory,
                        Caltech.
                Jim A. Rowson: Understanding Hierarchical Design, Caltech.

M.S. Thesis Committees:

1998   Zhongheng Hu: A Numerical Solution to Macroscopic Cylindrical
                        Governing Equations for Transport Processes in Unsaturated Porous
                        Media with a Line Heat Source

                Collin McCurdy: Compilation of n-boody/tree–codes,
                        for parallel computers, Rice University.

1996   Biao Xu: An Exploration of Virtual Molecular Docking,
                        University of Houston.

                Li Yuan: XAlbert-2: A Graphics User Interface for
                        Finite Element Computation, University of Houston.

Honors and Awards:

1997	"Contract most in the spirit of the Alliance", NCSA All–hands meeting, Urbana/Champaign, May 15 – 16, 1997.
1995	"Impressive Entry" recognition in the 1994 Gordon Bell Prize contest (with Yu Hu).
1986	Outstanding Paper Award for "Distributed Routing Algorithms for Broadcasting and Personalized Communication in Hypercubes", the 1986 International Conference for Parallel Processing.
1984	Nomination for Best Paper Award for "Generation of Layouts from Circuit Schematics: A Graph Theoretic Approach" at the 1984 Design Automation Conference. (2nd in the final rating)
1967	The John Ericson Medal (1 out of 2 awarded in 10 years for outstanding undergraduate/graduate student achievements).

Consulting:

1997	Bayholdings, Cambridge, MA.
1997	Innocal, San Diego, CA.
1986 – 1987	Thinking Machines Corporation, Cambridge, MA.
1986	Scientific Computing Associates, New Haven, CT.
1985 – 1986	Argonne National Laboratories, Mathematics and Computer Science Division, Argonne, IL.
1982	TRW, Defense and Space Systems Group, Redondo Beach, CA.
1980 – 1983	USC/Information Sciences Institute, Marina Del Ray, CA.
1980 – 1981	Systems Control Inc.,Palo Alto, CA.
1967 – 1969	MoDo Kemi AB (Petrochemical Industry), Stenungsund, Sweden.
1963 – 1964	Reijlers Ingenjorsbyrå (Consulting Eng. Corp.), Kalmar, Sweden.

Current funding:

Support for Innovative Applications of High–Performance Computing in Houston, $245,000, 9/1/96 - 12/31/99.

Fast Evaluation of Electrostatic Potentials, Technical Management Concepts, $270,000, 6/1/96 – 12/31/99.

Fast Algorithms for Spherical Transforms and Many–Body Interactions, AFOSR, $384,344, 6/1/96 – 12/31/99.

Scalable Scientific Software Libraries, NCSA PACI (NSF), $433,000, 9/1/97 - 12/31/00.

Scientific Software and Data Cache deployment, NPACI (NSF), $610,000, 9/1/97 - 12/31/00.

High–Performance Computing Partnership, IBM, $70,000, 1/1/98 - 12/31/99.

Grid Application Development Software (GrADS), NSF, $500,000, 10/1/99 – 1/31/03.

Los Alamos Computer Science Institute (LACSI), DOE, $376,000, 5/1/99 - 9/30/00 (expected to continue at a level of about $300k/yr for up to 10 years).

Scalable Parallel Computational Methods for Partial Differential Equations with Moving and Varying Boundaries, NSF, $352,347, 8/1/99 - 7/31/02.

UH Internal grants:

PC lab: $120,000 (1996).

Multimedia Teaching Theatre: $250,000 (1997).

Networking Lab: $130,000 (1999).

Digital Lab: $35,000 (1999).

PC Lab: $120,000 (1999).

Gigabit backbone, fiber and category 5 wiring: $150,000 (1999).

Wireless LAN: $100,000 (1999).

Donations:

IBM: Equipment, $4.564,794.

HP: Equipment, $360,000.

SGI: Equipment $70,000.

Alcatel: Equipment, $200,000.

Worldcom: Equipment, $50,000.