Dr. Anne C. Elster

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Research Objectives and Interests

Dr. Elster's current research interests are in parallel computing. She is currently focusing her research on developing good models for heterogeneous computing and parallel software environments for testing and developing parallel scientific codes that interact visually with the users by taking advantage of the powers in modern GPUs. Her research also includes parallel algorithms for novel architectures including GPUs and Cell. Other topics of interest include performance analysis and benchmarking of HPC platforms, Auto-tunable algorithms, Computational steering, Linear Solvers, incl. parallel approaches, and PIC particle codes, as well as Algorithms for signal processing including fast linear bit-reversal algorithms and algorithms for ADSL & VDSL.

Education

Ph.D. **Cornell University** (1994) Electrical Engineering
Minor: Computer Science)
Thesis Title: "Parallelization Issues and Particle-in-Cell Codes."
Thesis Advisor: Prof. Niels F. Otani.
Committee Members: Prof. Keshav Pingali (Computer Science) and
Prof. Soo-Young Lee (Electrical Engineering)

M.S. **Cornell University** (1988) Electrical Engineering
Thesis Title: "Efficient Parallel Algorithms for Matrix Operations."
Thesis Advisor: Prof. Anthony P. Reeves.

B.S. **University of Massachusetts** (1985) Computer Systems Engineering (*cum laude*).
Also enrolled in their Honors Math program.

Business Studies, **University of Oregon** , 1981-1982

Business course on Board Competency (Styrekompetanse I),
Norwegian Business College (BI-Trondheim), 2007

Graduate level coursework:

Applied mathematics, artificial intelligence, compilers, computer architecture, computer networks, numerical analysis, operating systems, parallel algorithms, parallel FFTs, statistics, and VLSI.

Professional activities - Summary:

- **Management Committee Member, COST Action IC0805: Open European Network for High Performance Computing on Complex Environments, (2009 -)**. One of 4 Work Group leaders.

- **Expert Panel on Reach Infrastructure, Danish Research Council** EFI Link
  Budget: 600M DKr, (2007-2009)

- **HPC Committee (TRP III), Research Council of Norway (2003-2004)** -- Defined Norway's current National HPC program

- **Organized and Chaired PARA'08** May 13-16, 2008 in Trondheim, Norway – Over 230 attendees from over 20 countries -- **raised over Euro 100K from sponsors**.

- **Program Committees including:**
  - IEEE IPDPS 2009, ParCo'09, PPAM 2009, SC'09,
  - (ACM PPoPP 2010 - Elster was invited to join the Program Committee, but had to decline due to prior commitments) ,IPDPS 2010 , EuroGraphics 2010 , and CCP 2010
- **Journal paper reviewer for:**
  - *IEEE Trans. on Signal Processing* (2003-present),
  - *International Journal of HPCA*, *Comm. in Num. Methods in Engineering* (CNME),
  - *Journal of Parallel and Distributed Computing* (JPDC),
  - *SIAM Journal on Scientific and Statistical Computing* (SISSC), and *Distributed Computing* by Springer Verlag,
  - as well as reviewer of technical papers, posters and tutorials for many international conferences. (See "Program Committees under "Professional Activities"
- **Member of:**
  - ACM,
  - IEEE (Senior Member since 2000),
  - IEEE Computer Society,
  - IEEE Signal Processing Society, and
  - SIAM as well as: AAAS, AAUW, AGU (Life Member), NFA, NORSIG, SIMS, and Tekna

- **Commitee member** MPI: The Message Passing Interfaces Forum **-- international standards committee (1992-1997).**

- **Organized 6 conferences and workshops and 5 minisymposia**

- **On national evaluation committee for several academic positions**

- **Supervised over 30 graduate students**

- **Contributed to over 50 articles or programs in the Mass media**
  (see list after academic publications)

Academic Experience:

- **Section Head, Complex Systems, (2008-present)** Department of Computer and Information Science (IDI), Norwegian University of Science and Technology (NTNU) , Trondheim,
  My section includes 8 full-time professors and 5 adjunct faculty members. Both The Computer Architecture and Design Group and The Algorithms, HPC and Visualization are parts of my section.

- **Associate Professor (Førsteamanuensis) in Computational Science**, (2001-present) Department of Computer and Information Science (IDI), Norwegian University of Science and Technology (NTNU) , Trondheim, Norway . I am a member of the Algorithms, HPC and Visualization Group. I am currently supervising 2 PhD students, 5+ master students and about to hire 1 Post Doc. Have supervised over 30 MS theses, and served on several PhD committees.

- **Visiting faculty member,** (Spring 2002 (80% leave from NTNU) , Summer 2003, Fall 2005 (sabbatical), Summers 2006-present) **ECE Department at Univ. of Texas at Austin ,** USA.
  - EE 360 "Conference course" (individuelt lesepensum) on "Special Problems in Parallel Computing" (Spring 2002). The student is now in the Computer Science Ms/PhD Program at Univ. of Illinois Urbana-Champaign.
  - Supervised EE 464H -- ECE Honors Student Project,(Summer 2001).
- **Adjunct faculty member (Summer and Fall 2000),**
  ECE Department at Univ. of Texas at Austin , USA. Included teaching:
  - EE 360P -- Operating Systems (Fall 2000)
  - EE 360C -- Data Structures in C++ (CS7) (Summer 2000)
- **Research Associate/Lecturer -- University of Texas at Austin,**
  Center for Numerical Analysis/ Texas Institute for Computational and Applied Mathematics (April 1997 - Aug 1999)
  - Independent research on simulations and high-performance scientific computing. Proposal writing.
  - Organized conference: IMACS 1998
  - CS/M 393N -- Numerical Solutions to Elliptic Partial Differential Equations (Spring 1999) -- a second level grad. course on iterative PDE methods
    (lectured for Dr. David M. Young)
  - M 340L (Spring 1999) -- Linear Algebra for non-math majors.
    Assisted with exams and gave several guest lectures.

- **Lecturer, Computer Science Department, Univ. of Texas at Austin** (Summer 1997 & 1998)
  - Taught a second level data structures course in C++. Projects given included a Family Tree Webpage Generator and a project involving the manipulation of graphical objects as linked lists.
  - Taught "Advanced Data Types", an algorithms analysis course summer 1998. Included designing project that generates a k-ary structure of Webpages for a Website and performing network analysis on the links.

- **Research Assistant, Cornell University, 1992-1994**
  - Thesis related work with Prof. Niels Otani, Dr. John G. Shaw (Xerox), and Dr. Palghat S. Ramesh (Xerox) sponsored in part by Xerox Research, 1992-1994.
  - Independent research on parallel numerical linear algebra sponsored by the Mathematical Science Institute, Cornell University, 1989-90.
  - Joint work with Dr. Hungwen Li (IBM) on parallel algorithms connected with IBM Yorktown's Polymorphic Torus Project, 1988-89.
- **Cornell University - Teaching Assistant (1986-88, 1990-91)**
  - School of Electrical Engineering:
    Introductory digital systems course (1987-88).
  - Department of Computer Science:
    - Junior-level assembly lang. programming course on the MC68000 (1986, 1990),
    - Senior-level numerical analysis course (1991),
    - Introductory programming course in PASCAL (1991).

Professional Experience:

- **President of my own company, Acenor Inc.**, (1999-present) which focuses on industrial computing training and consulting, but have mostly put its activities on hold while starting up my new career in Norway.
  - Developed training course: "Fundamentals of Iterative Solvers for Linear Systems", with Dr. David Kincaid for the US Air Force's Research Center in Dayton, OH, May 2000.

- **Schlumberger Austin Product Center, Austin, Texas, 1994 - 1997.**
  - **Schlumberger APC-Research, End-to-End Simulation Department**
    Research Engineer (March 1996 - April 1997)
    - Worked on parallelizing a physics transport code porting it to SGI PowerChallenge using MPI.
    - Also involved in developing discrete event simulations for payphone systems.
    - Helped evaluate High Performance Computing resources for Schlumberger for 1997 and beyond.
  - **Austin Systems Center, Common Systems and Tools Department,**
    Project Engineer (Sep. 1994 - March 1996)
    - Worked initially on distributed client-server architectures for software configuration mgmt system. Thereafter technical lead of SWIFT (Schlumberger World-wide Issue Filing & Tracking system), a distributed defect tracking system based on Scopus/Sybase database software. Distributed servers (servers located in various countries) were merged and kept synchronized via Scopus. Maintained contacts with tech. managers at Schlumberger engineering centers world-wide.

- **Xerox Corporation - Technical Summer Intern, Summers 1991 and 1992.**
  Design Research Institute at Cornell University, Ithaca, NY.
  - Developed particle code to be parallelized as part of dissertation work. Summer 1992.
  - Developed a parallel charge transport simulation for hypercube by building on the Parallel Basic Linear Algebra Subprogram (PBLAS) library developed by author. Summer 1991. (She received a conference award for her PBLAS work – see pubs.

- **IBM T.J. Watson Research Center - Summer Research Intern,** Summer 1987. Mathematical Sciences, Yorktown Heights, NY.
    - Worked with Dr. Ramesh Agarwal and Dr. James W. Cooley on developing multi-tasking matrix routines for a group of IBM 3090s.
- **Chr. Michelsen Institute (CMI) - Computer Research Intern,** Summer 1986. (CMI is now known as CMR:) Division of Computer Science, Bergen, Norway.
    - Worked with Dr. Paul O. Frederickson and Dr. Richard M. Chamberlain on developing parallel matrix algorithms for the Intel iPSC Hypercube as a part of a Fortran library.
- **Norsk Hydro A/S - Computer Technician,** Summer 1985 Computer Division, Porsgrunn, Norway.
    - Wrote user's manual for communication program, provided PC support.

Honors and Awards

- Departmental mention and flowers for service, IDI 2008 – one of 3 receiving this commendation.
- IEEE Senior Member, December 2000.
- Student Conference Award and Student Paper Competition Award for paper entitled "Basic Matrix Subprograms for Distributed Memory Systems," The Fifth Distributed Memory Conference, April 1990.
- Honorable Mention for paper entitled "Fast Bit-Reversal Algorithms", Conf. on Vector and Parallel Computing, June 1988.
- Fellowships:
    - Cornell University, Spring 1987;
    - Royal Norwegian Council for Industrial and Scientific Research, Fall 1986.
- Stipend for Outstanding Researchers, Heftyes' Memorial Fund, 1986.
- Dean's List, University of Massachusetts at Amherst, 1983-85.
- Scholarship, University of Oregon, 1981-82.
- Outstanding International Student Award, University of Oregon, 1982.
- Member, Eta Kappa Nu and Tau Beta Pi Honor Societies.

Research - Summary:

Main Topic: Supercomputing incl. GPGPU, Cluster & Grid Technologies and Algorithms for Telecommunication

- IDI/NTNU HPC-Lab, founder and leader. 1 PostDoc to be hired Fall 2009
- Current graduate students: 2 PhD students and 5+ Master students,
- Alumni from Elster's research group , incl. links to their theses.
  Currently over 30 graduate student alumni
- **Research collaborations with:** ARM, CERN (Summer jobs and MS theses oportunities), GE Healthcare, Sclumberger, StatoilHydro, as well as with colleagues from other NTNU Departments.
- **Funding sources:** NFR, NOTUR, NTNU, NVIDIA (Elster is part of NVIDIA's Professor Affiliates Program), Schlumberger and others.

Teaching - Summary

- DT8117 Grid Techn. and Heterogeneous Computing -- new PhD-level course Spring 2009

- TDT 4200 Parallel Computing (Fall 2009)
- TDT 4200 Parallel Computing (Spring 2008)
- TDT 4200 Parallel Computing (Spring 2007)
- TDT 4200 Parallel Computing (Spring 2006)
- TDT 4200 Parallel Computing (Spring 2004)
- SIF 8044 Parallel Computing (Spring 2003)

- TDT 24 Parallel Environments & Numerical Methods (Fall 2009)
- TDT 24 Parallel Environments & Numerical Methods (Fall 2008)
- TDT 24 Parallel Environments & Numerical Methods (Fall 2007)
- TDT 24 Parallel Environments & Numerical Methods (Fall 2006)
- TDT 24 Parallel Environments & Numerical Methods (Fall 2003)
- TDT 24 Parallel Environments & Numerical Methods (Fall 2002)
- TDT 24 Parallel Environments & Numerical Methods (Fall 2001)

- TDT 4205-1 Compilers/Kompilatorteknikk (Fall 2008)
- TDT 4205-1 Compilers/Kompilatorteknikk (Fall 2007)
- TDT 4205-1 Compilers/Kompilatorteknikk (Fall 2006)

- DIF 8916 -- Topics in Computer and InformationScience (Spring 2001)
  -- PhD research techniques course
- SIF 8041 -- Operating Systems & Databases (Spring 2001)

Courses taught at Univ. of Texas at Austin, USA (ECE, CS and Math):

- EE 360 "Conference course" (individuelt lesepensum) on "Special Problems in Parallel Computing" (Spring 2002). The student is now in the Computer Science Ms/PhD Program at Univ. of Illinois Urabna-Champaign.
- Supervised EE 464H -- ECE Honors Student Project,(Summer 2001).
- EE 360P -- Operating Systems (Fall 2000)
- EE 360C -- Data Structures in C++ (CS7) (Summer 2000)
- CS/M 393N -- Numerical Solutions to Elliptic Partial Differential Equations (Spring 1999)
  -- a second level grad. course on iterative PDE methods (lectured for Dr. David M. Young)
- M 340L (Spring 1999) -- Linear Algebra for non-math majors. -- Assisted with exams and gave several guest lectures.
- CS 328 -- Abstract Data Types (CS7, incl. graph algorithms) (Summer 1998) -- taught in C++.
- CS 315 -- Data Structures (CS2)(Summer 1997) -- taught in C++.

Course taught through Acenor Inc.:

- Parallel numerical methods course for US Air Force's Research Lab at WPAFB, May 2000

Pedagogically related experience - some details

- Course development for upper division courses on parallel computing (see Teaching)

- Participant in Committee which developed "IT-emner"/ Topics in Computer Science, a PhD level course, in early spring 2001. My active participation on this committee lead me to become the official instructor for this course for Spring 2001 (see Pedagogical Experience). The committee met several time to develop the specifications for this course which was completely revamped from its previous incarnation.

- Developed and organized the first NTNU Computer Science Graduate Conference, May 2001, as a pedagogical tool to help our graduate students get started with research, broaden their perspectives of Computer Science. This kind of conference teaches them how to review papers, write papers, as well as teaches them how to present their work through peer and faculty feed-back.

- Was responsible for the course text-book for Data Structures (CS at UT Austin) being switched after I reviewed several Data Structures texts and decided the current book that was in use was not optimal. Wrote up an evaluation to the Department.
- In May 2000 I co-taught a 2-day tutorial on Numerical Methods for PDEs for the US Air Force Research Lab at WPAFB in Dayton, Ohio, USA through my US company ACENOR INC. Together with my co-organizer Dr. David Kincaid, we developed the 2-day course from scratch on request from WPAFB, including the workbook with copies of the slides presented. The course was attended by USAF researchers from throughout the USA.
- I visited EECS at MIT fall 2000 where I discussed their new direct-to-MS program, as well as other pedagogical issues with faculty members both on the CS and EE side. Their new Masters of engineering thesis project program specifically encourages their brightest seniors to pick up a Master of Engineering project. For more information, including information on their new course for this program, 6.191-Prototyping Research Results, see http://wilson.ai.mit.edu/courses/6191/index.html

Current Research Group

Post Doc:

Position on GPU Computing Environments announced.

Current PhD Students (Fall 2009):

- Jan Christian Meyer, PhD Student
  Research topic: Heterogeneous Computing. Expected graduation date: Feb. 2010
- Thorvald Natvig, PhD Student Research Topic: Automatic MPI Optimizations, expected Summer/Fall 2010

Current Master Students (Fall 2009):

- Ahmed Aqrawi – SLB related project, M.Tech expected Summer 2010
- Aleksander Gjermundsen – Terrain interactions for snow sim on GPU – M Tech Summer 2010
- Gaojie He – Parallel games on GPU – M Tech expected Summer 2010
- Oystein Krog – Particle Simulations on GPUs, M.Tech. expected Summer 2010
- Holger Ludvigsen – Raytracing application on GPU, M.Tech. student Fall 2010

Previous Master students Supervised -- Chronological Order:

Name -- employer:	**Degree/year**	**Thesis title/pdf-link**
1. Robin Holtet -- Cluster support NTNU (IDI & ITEA) 2003-2004; presently at Oslo company	M.Tech. June 2003	*"Communications-reducing Stencil-based Algorithms and Methods"*
2. Torbjørn Vik -- Schlumberger, Oslo (Visualization)	M.Tech. June 2003	"Real-Time Visual Simulation of Smoke"
3. Åsmund Østvold -- Fellowship at U Minnesota; SCALI	M.Tech. June 2003	"Tidsmåleteknikker for MPI kollektive kommunikasjons operasjoner"
4. Snorre Boasson -- NTNU HPC Center (ITEA)	M.Tech. June 2004	"Parallel I/O Issues"
5. Glenn Hisdal	M.Tech. June 2004	"Service Discovery Techniques for Distributed Systems using SmartFrog" (co-supervised at CERN)
6. Tor Arvid Lund	M.Tech. June 2004	"Porting a Monte Carlo Code fom Shared Memory to Computational Clusters" joint project with Statoil Research
7. Jan Christian Meyer -- NOTUR project; current PhD student	M.Tech. June 2004	"Load Balancing Visualisation Servers" joint project with Schlumberger Voxel Vision
8. Frode Nilsen -- Software Inovation	M.Tech. June 2004	"Portal Development for Grid Technologies" joint project w/ NOTUR
9. Morten Rodal	M.Tech. June 2004	"Scalability of Seismic Codes on Computational Clusters" joint project w/ Statoil Research
10. Einar Råberg Rosenvinge	M.Tech. June 2004	"On-line Task Scheduling on Heterogeneous Clusters: An Experimental Study" (co-supervised w/ Banino -- currently w/ Yahoo!
11. Håvard Bjerke -- CERN fellow	M.Tech. July 2005	"HPC Virtulization with Xen on Itanium" Co-supervised w/ Sverre Jarp at CERN

12. Rune Johan Andresen	M.Tech. Aug. 2005	"HPC File Server Monitoring and Tuning" Co-supervised w/ Sverre Jarp at CERN
13. Andreas Braathen	M.Tech. Aug. 2005)	"Harware and Software Surveilance" Co-supervised at CERN & with Dr. Jørn Amundsen
14. Thorvald Natvig -- curent PhD student (on leave 2007-2008 at IPT, NTNU)	M.Tech. June 2006	Automatic Optimization of MPI Applications
15. Øystein Borg -- Schlumberger, Oslo	M.Tech. June 2006	"Dynamic Selction of MPI Intra-copy Routines Based on Program Characteristics" -- joint project with SCALI
16. Ingar Saltvik -- Fast Resarch & Transfer/Microsoft	M.Tech. June 2006	"Parallel Methods for Real-Time Visualization of Snow"
17. Idar Borlaug -- Consultant at Abeo	M.Tech. June 2007	"Seismic Processing Using Parallel 3D FMM" -- joint project with Schlumberger
18. Knut Imar Hagen -- Consultant at Abeo	M.Tech. June 2007	"Fault-tolerance for MPI Codes on Computation Clusters" -- joint project with Statoil
19. Nils Magnus Larsgård -- IBM Sevices, Norway.	M.Tech. June 2007	Framework for Converting MPI Codes to Hybrid OpenMP/MPI Codes
20. Christian Larsen -- Roxar , Stavanger, then -- Schlumberger (Sep 1, 2009)	M.Tech. June 2007	• MS Thesis: "Framework for Polygonial Structures Computations on Clusters" • Master project (Fall 2006): "Utilizing GPUs on Cluster Computers" -- joint projects with Schumberger
21. Erik Axel Nielsen -- consultant in Oslo	M.Tech. May 2007	"Realt-time Wavelet Filtering on the GPU" -- joint project with GE Healthcare
22. Thibault Collet	M.Tech. July 2007	"Massively Online Games with Food Chains"
23. Atle Rudshaug -- Numerical Rock, Trondheim	M.Tech. June 2008	"Optimizing & Parallelizing a Large Commercial Code for Modeling Oil-well Networks" -- joint project with Yggdrasil
24. Andreas Bach -- Uninett Sigma, Trondheim	M.Tech. September 2008	"Profiling and Optimizing a Seismic Application on Modern Architectures" -- joint project with StatilHydro
25. Robin Eidissen -- Part-time for HPC-lab, Sp2009	M.Tech. Feb. 2009	Master thesis: "Utilizing GPUs for Real-Time Visualization of Snow"
26. Rune Erlend Jensen -- CERN (Summer 2009)	M.Sci. May 2009	Master thesis: "Techniques and Tools for Optimizing Codes on Modern Architectures: A Low-Level Approach"
27. Rune Johan Hovland	M.Tech.	Master thesis: "Throughput Computing on Future GPUs"

-- Sirius IT	June 2009	
28. Henrik Falch Hesland -- Accenture (late Aug'09)	M.Tech. June 2009	Master thesis: "GPU-Enabled Interactive Pore Detection for 3D Rock Visualization "
29. Eirik Ola Aksnes -- NTNU PhD?	M.Tech. July 2009	Master thesis: "Simulation of Fluid Flow Through Porous Rocks on Modern GPUs"
30. Daniel Haugen	M.Tech. July 2009	Master thesis: "Seismic Data Compression and GPU Memory Latency"
31. Åsmund Herikstad	M.Tech. July 2009	Master thesis: "Parallel Techniques for Estimation and Correction of Aberration in Medical Ultrasound Imaging"
32. Owe Johansen	M.Tech. July 2009	Master thesis: "Seismic Shot Processing on GPU"
33. Daniele Giuseppe Spampinato -- NTNU PhD?	M.Tech. July 2009	Master thesis: "Modeling Communication on Multi-GPU Systems"

Post Doc:

- Dr. Henrik R. Nagel (2005-2007) – Currently at NTNU HPC Group at ITEA (Computing Center) His research focus is on using grid technology to integrate visualization and computations. Dr. Nagel also helped out with the organization of the SIMS 2005 conference that was held at NTNU in October 2005 and is the co-editor of its proceedings.

PhD Committees/Supervisions:

- Cyril Banino-Rokones -- supervised 2003-2006, PhD 2007 w. Dr. Lasse Natvig as main advisor.
    - Algorithmic and Scheduling Techniques for Heterogeneous and Distributed Computing (pdf) - Now atYahoo!

- Penti Huttunen, **First Opponent,** PhD committee at Lappeenranta University of Technology, Finland, Dec. 2002 for Thesis Title: *Data-parallel computation in parallel and distributed environments* . Advisor: Dr. Jari Porras, 2nd Opponent: Dr. Kimmo Koski, Nokia (now CSC)

- Jo Skjermo, **Third Opponent,** PhD Committee for (to be held September 2009).
  The third opponent act as the administrator for the defense.

- Nicolae-Zoran Constantinescu-Fülöps ,**Third Opponent,** PhD Committee for, Thesis title: A Desktop Grid Computing Approach for Sientific Computing and Visualization (pdf), May 2008, supervised by Professor Richard Blake . Administrator for the defense.

- Roxana Diaconescu ,**Third Opponent ,** PhD Committee, serving with Reidar Conradi and Prof. Monica Lam (Stanford), 2002. Thesis title: "*Object-Based Concurrency for Data Parallel Applications: Programmability and Effectiveness"*. Administrator for the defense.

Other students supervised:

- Jostein Tveit – 5th year project 2002 – now at BBS
- Paul Sack (honors BS project 2000, UT Austin) -- Summer jobs at NTNU HPC Center, IBM Yorktown and Intel; @ MS U of Illinois at Urbana-Champaign (UIUC) 2005, current PhD student at UIUC
- Supervised 7 indivual projects for the second semester graduate course on numerical methods for Partial Differential Equations, U of Texas, spring 1999. One of these projects were later expanded into two conference presentations, other were related to students' MS and PhD theses.
- Helped co-supervise Charles DeVane's Master of Engineering Project student on Parallel Cholesky Factorization of the BBN, Dept. Computer Science, Cornell for Prof. Keshav Pingali.

Selected Professional Service

International Committees and Projects

- **Management Committee Member, COST Action IC0805: Open European Network for High Performance Computing on Complex Environments, (2009 -)**.
    - Leading Numerical Algorithms Working Group (one of 4 working groups)
- **Member** Expert Advisory Panel on Research Infrastructure reporting to the Research and Innovation leadership of the Department of Science, Technology and Development, Danish Governement. Elster is one of 3 of 8 on the panel representing engineering and science. Advise how budgeted DKR 600 millon (2007-2009) is to be spent. Some related information at: Link
- **Board Member** of SIMS (Scandinavian Simulation Society) ,
- **Committee Member** Nordic European Grid -- a consoritum working on part of the EU GRID project application for EU FP6. The Nordic countries' NORDUGRID play a major role here.

International Standards Committee

- **International Standards Committee Member (1992-1997). MPI: The Message Passing Interfaces Forum,** Represented Cornell University 1992-1994 and Schlumberger 1995-1997.

International Conference Committees

- Steering Committee Member, PARA conference series, (2005-present)
- Conference Organizer & Chair, PARA 2008 , May 13-16, 2008, Trondheim, Norway
- International Program Committee Membership – 2010:
    - IPDPS 2010 ,
    - EuroGraphics 2010 ,
    - CCP 2010, Conference on Computational Physics, to be held May 2010
    - (ACM PPoPP 2010 – Elster was invited to join program committee, but had to decline due to too many other prior commitments.

International Program Committee Memberships conintued :

- SC'09, (on Technical Paper Committee -- Applications)
- PPAM 2009, to be held in Wroclaw (Poland), September 13-16, 2009
- ParCo'09, to be held in Lyon, France , September 1-4, 2009
- IEEE IPDPS 2009, (Applications)
- SC'08 -- International Conference on High Performance Computing, Networking, Storage and Analysis (a.k.a. Supercomputing), Austin, Texas, USA, November, 2008 (Co-Chair - Poster Committee)
- SC'07 (Tutorial Committee)
- ParCo 2007 "Parallel Computing 2007" organized by Forschungszentrum Jülich and RWTH Aachen University, Sept. 4-7, Germany. Committee List ,
- CCGrid05 (International Conference on Cluster Computing at Grids 2005) Cardiff, UK in May 2005. International Progam Committee Member list
- SIMS 2006
- SIMS 2005
- SIMS 2004
- SIMS 2003
- SIMS 2002 ,

National Committees and Projects

- **Committee Member HPC Committee (TRP III), Research Council of Norway (2003-2004)** Serving with: RCN repentative Dr. Hilde Erlandsen , IT Director Roar Skålin, Norwegian Meteorological Institute (met.no) , Assoc. Prof. (Universitetslektor) Lina von Sydow, Univ. of Uppsala, Sweden; RCN representative Dr. Gundmund Høst; Professor Knut Børve, Univ of Bergen, Norway; and Professor Risto Nieminen, Helsinki Univ. of Technology, Finland (leader).
- **Project Leader -- subproject on Emerging Technologies (ET) -- Cluster Technologies** within NOTUR (Norwegian High Performance Consortium). This subproject is a coordinated effort between NTNU and Univ. of Tromsø with anticipated funding through 2003 in excess of NOK 1million. A similiar subproject withing NOTUR-ET is on Grid Technology between Univ. of Oslo and Univ. of Bergen lead by Harald S. Simonsen (USIT/UiO).
- **National Evaluation Committee** regarding tenured position at Univ. of Tromsø
- National Evaluation Committee regarding promotion at Akershus College.
- **Alternate Board Member (vara)** of NOTUR (Norwegian National High Performance Computational Program), (fall 2001 - Oct. 2002) for Assoc. Prof. Anne Kværnø, Math, NTNU. Prof. Lasse Natvig, IDI, was my replacement while I was on leave Spring 2002.

University-level service (NTNU)

- **Co-Founder and Co-Director** Computational Science and Engineering Program at NTNU (2003 – 2006). Program is part of NTNUs ICT strategic initiative. Together with Prof. Einar Rønquist from our Applied Mathematics department, I was the original co-director for this program, responsible for HPC Infrastructure and Computer Science, whereas Prof. Rønquist represented Numerical Analysis. In 2007, NTNU was awarded the new national supercomputer co-funded by the Rearch Council of Norway. It's budget was NOK 30 million for the

supercomputer system and another NOK 20 million invested by NTNU in related infrastructure (incl. a new machine room and a large back-up power system). In Jan. 2007, I handed my postion over to Dr. Jørn Amundsen to focus on other things related to HPC research.

- **INFOSAM 2020 Member**, "InfoSam 2020 The Information Society of 2020 - an exercise in planning for the future", collaboration between the Faculty (College) of Information Technology and Mathematics (IME), NTNU and Teknoligiråde the (Technologocal Council). Elster's participation included serving on a panel and being the co-author of two position papers (see Elster's list of Publications)
- **Member -- NTNUs Committee of Computational Research and Education** (BFU (Utvalg for beregningsorientert forskning og undervisning)) (Fall 2002 - 2003)
- **Member (alternate for Pauline Haddow) – Dean's executive group (ledergruppe) , Strategic Univ. Program in Medical Technology (Fall 2002 and Spring 2003).**
- **Committee Member** of Computational Science & Engin. project at NTNU , Jan 2001-present.

Department-level service (IDI/NTNU)

- **Alternate Member** -- Teaching Committee, Dept. of Computer and Information Science, NTNU (summer 2005 - present). See: http://www.idi.ntnu.no/english/organization/ for a list of current members, committees, etc.
- **Board Member** -- Dept. of Computer and Information Science, NTNU (spring 2001 - 2005). See: http://www.idi.ntnu.no/english/organization/ for a list of current members, committees, etc.
- **Member -- Committee of Physical Resources** -- Dept. of Computer and Information Science, NTNU (spring 2001 - 2005). See: http://www.idi.ntnu.no/english/organization/ for a list of current members, committees, etc.
- **Alternate member -- Committee of Infrastructure and Research Equipment** -- Dept. of Computer and Information Science, NTNU (spring 2001 - 2005). See: http://www.idi.ntnu.no/english/organization/ for a list of current members, committees, etc.

- **Floor Fire "Chief"** , 2002-2003. Duty was passed on to Karstein Karlsen as of April 1, 2003.

Conferences and Workshops Organized

- **PARA 2008** , May 13-16, 2008, Trondheim, Norway (also listed above)
- CSE Workshop in Trondheim Oct. 15, 2003 -- Info & Program
- NTNU CS Graduate Student Conference Organized the first conference held in 2001, and was a co-organizer in 2002. The conference series has been very succesful and is more popular than ever.
- DMY-98 Conference

Minisymposia Organized

- EuroGPU, co-organized with Stephane Requena (GENCI, France), Two-day Minisyposium on GPU Computing at ParCo 2009, Lyon, France, September 1-2. 2009.

- Minisymposium on Scientific Computing on GPUs,PARA 2008, Trondheim, Norway, May 2008. Co-organizers: Enrique S. Quintana-Orti, Jose R. Herrero and Anne C. Elster,

Link to the 12 talks.

- Minisymposium on HPC Environments: Visualization and Parallelization Tools at PARA'06 in Umeå, Sweden, June 18-21, 2006. The Minisymposium has 12 speakers.

- Minisymposium on Cluster Computing at PARCO 2003 http://rparco.urz.tu-dresden.de/PARCO2003/schedule.php

- Minisymposium on Parallel Iterative Methods (together with Dr. David R. Kincaid) at Tenth SIAM Conference and Parallel Processing for Scientific Computing, March 12-14, 2001, Portsmouth, VA, USA. http://www.siam.org/confpart/showmin.cfm?SESSIONCODE=231

Reviewer

- Research proposals for the Danish Research Ministry
- Journals:
    - *IEEE Trans. on Signal Processing* (2003-present),
    - *International Journal of HPCA*, *Comm. in Num. Methods in Engineering* (CNME),
    - *Journal of Parallel and Distributed Computing* (JPDC)
    - *SIAM Journal on Scientific and Statistical Computing* (SISSC), and
    - *Distributed Computing* by Springer Verlag,

Reviewer of technical papers, posters and tutorials for many international conferences. (See "Program Committees") as well as Reviewer for NIK 2001 and NIK 2002 .

Session Chair – Conferences:

Dr. Elster has served as session chair at many conferences dating back to HCAA4 (The fourth Conference on Hypercubes , Concurrent Computers and Applications) in March 1989 in Monterrey, California. Recent conferences not listed under "Program Committee" include PARA 2004 in Copenhagen and SIMS 2001
http://www2.hit.no/tf/sims2001/sims/programme_files/programme_main.htm.

Professional Memberships:

- ACM
- IEEE , Senior Member since 2000: Joined as Student Member 1983)
- IEEE Computer Society,
    - Student Section Vice President 1983-84 (Univ. of Massachusetts at Amherst)
    - Student Section President 1984-85 (University of Massachusetts at Amherst)
- IEEE Signal Processing Society , IEEE Women in Engineering , and
- SIAM as well as:
- AGU (American Geophysical Union) -- Life member
- NFA (Norwegian Automation Society) ,
- NIF (Norwegian Engineering Society)
- NORSIG (Norwegian Signal Processing Society)
- SIMS (Scandinavian Simulation Society)

Leisure interests:

- Voice (studied under Nadia Brown (Ithaca College) and Dr. Cynthia Karnstadt (Univ. of Texas at Austin)
- Swimming and Tennis
- Ham radio (US call sign N3ACE)
- Tropical fish (have in the past raised tap-water discus)

References:

Available upon request.

List of Dr. Elster's Academic Publications and Presentations

INVITED LECTURES, TUTORIALS AND CONFRERENCE PANELS:

1. Invited Speaker -- 8th International Conference on Parallel Processing and Applied Mathematics (PPAM 2009), Sept 15, 2009, Wroclaw, Poland: "Real-Time Parallel Computing Using GPUs"
   http://www.ppam.pl/docs/program.pdf
2. Invited Speaker -- The Eighth Annual Meeting on High Performance Computing and Infrastructure in Norway (NOTUR 2009), May 18-20, 2008, "High Peformance Computing on GPUs"
   http://www.notur.no/notur2009/programme.html
3. Invited Speaker -- NVIDIA Tesla Supercomputer - European Launch, Dec 4, 2008, London, UK: "GPU Supercomputing at The IDI/NTNU HPC-Lab"
4. Tutorial -- PARA 2008, May 13, 2008, "Tutorial on Optimization Techniques for Scientific Codes" with her graduate student Mr. Rune Jensen
5. Invited Speaker -- IBM High Performance Computing Competence Center Opening in Vienna, Austria, March 31, 2008 "Parallel Scientific Computing Trends at NTNU"
6. Minisympoisum talk, PPAM 2007, Tuesday September 11, "Scientific Computing on GPUs" part of Minisymposium on Novel Data Formats organized by Fred Gustavson (IBM, USA) and Jerzy Wasniewski (DTU, Denmark)
7. Invited Speaker, DEM Workshop: PETRUSCA -- Petrophysics Under Stress -- Core Applications, SINTEF Petrolleum Research, March 6, 2007. Title: "High Performance Computing: Current and Future Opportunities"
8. Invited Speaker -- Seminar connected with Computational Physics Group Board meeting, European Physical Society (EPS), NTNU, Sep. 29, 2006. Title: "Computational Science & Visualization at NTNU". Contact/Organizer: Perof. Alex Hansen, Dept. of Physics, NTNU
9. Invited Speaker -- Computing the Future Series: Lectures in Computational Science, Engineering, and Mathematics sponsored by the LSU Center for Computation & Technology, Lousiana State University, Baton Rouge, LA, Dec. 12, 2005, Title: "Current and Future Trends in HPC: An International Perspective". http://www.cct.lsu.edu/events/talks/Current%20and%20Future%20Trends%20in%20HPC
10. Worskhop Panel "Towards simulation-based science and engineering", INFORSAM 2020, April 19, 2004, NTNU Panel Chair: Prof. Helge Holden. Also part of Enabling Technologies/Computation.

http://www.ime.ntnu.no/infosam2020/oldpage/Conference/program1.html

11. Minisymposium Talk -- SIAM Conf. on Parallel Processing, San Francisco, Feb. 25, 2004, "PIC codes: Scalability, Shared Memory versus Message Passing and Other Software Issues" as part of MS30: "Parallel Algorithms for Particle-Based Simulation Methods", organized by Dr. Paul E. Plassman, Pennsylvania State University, US http://www.siam.org/meetings/pp04/index.htm

12. Conference Talk -- NOTUR 2003, University of Oslo, May 14-15, 2003, "Technology for the Future: Clusters" http://www.notur.org/notur2003/

13. Conference Panel -- Panel discussion: "High Performance Computing in Nordic Countries", Moderator: Jack Dongarra, Participating as a representative from Norway with: Jari Järvinen (Finland) , Jerzy Wasniewski (Denmark) and Anders Ynnermann (Sweden), PARA 2002, June 17, 2002, Espoo, Finland. Program at: http://www.csc.fi/para2002/program.phtml

14. Colloquium -- Dept. of Computer & Info Science, NTNU, Trondheim, Norway, Oct. 26, 2001: "Supercomputing Issues". Abstract at: http://www.idi.ntnu.no/~ekaterip/dif8916/info-emnerarkiv.html#Elser Presentation slides available at: http://www.ece.utexas.edu/~elster/talks/para-it-emner-okt01/index.htm

15. DSP Seminar -- Dept. of Electrical & Comp. Engineering, University of Texas at Austin, Sept. 28, 2001:
"Chebyshev Polynomials -- Not Just for Filters". Abstract at:
http://signal.ece.utexas.edu/seminars/dsp_seminars/01fall/elster.html

16. Guest Lecture -- Dept. of Electrical & Comp. Engineering, University of Texas at Austin, Sept. 26, 2001:
"Number Systems and Bit-reversal Algorithms" given to EE 306: Introduction to Computing, a freshman class with over 450 students attending.

17. DSP Seminar -- Dept. of Electrical & Comp. Engineering, University of Texas at Austin, April 12, 2001:
"FFT Applications". Abstract at:
http://signal.ece.utexas.edu/seminars/dsp_seminars/01spring/elster.html

18. Minisymposium -- SIAM Annual Meeting 2000 in Puerto Rico, July 10-14, 2000:
"Complex Chebyshev Acceleration Using PETSc",
Part of Mini Symposium organized by Dr. David Kincaid on "Iterative Methods: Honoring Professor David M. Young". Work is joint with Chun Liang and David M. Young.
Schedule at: http://www.siam.org/meetings/an00/MS49.htm

19. Graduate Lecture -- Department of Computer & Info. Science, Norwegian Institute of Technology (NTNU), February 11, 2000:
"Optimization of Numerical Algorithms (Focus: FFT and Bit-Reversal Algorithms)"
(Translation of Norwegian title.)

20. Undergraduate Lecture -- Department of Computer & Info. Science, Norwegian Institute of Technology (NTNU), February 11, 2000:
"Examples Which Illustrate the Practical Benefits of Improved Algorithmic Time-Complexity"
(Translation of Norwegian title.)

21. Telecommunications and Signal Processing Seminar -- Dept of ECE, University of Texas at Austin, Texas, November 10, 1999:
"Fast Fourier Transform and Fast Bit Reversal Algorithms"

http://anchovy.ece.utexas.edu/seminars/dsp_seminars/99fall/elster.html

22. Colloquium -- Dept. of Computer and Information Science, Norwegian Institute of Technology (NTNU), Trondheim, October 8, 1999:
"Developments in Parallel Computing the past 15 years -- A Personal Perspective".
(Translation of Norwegian title.)

23. Seminar -- Dept. of Computer Science, Univ. of Bordeaux, Bordeaux, France, Jan. 12 and 14, 1999:
"Algorithms for Bit Reversal and the The Fast Fourier Transform"
http://dept-info.labri.u-bordeaux.fr/~betrema/seminaire.html

24. Colloquium -- Dept of Comp. Science, Univ. of Southern California, Oct. 31, 1997:
"Building a Software Environment for Analyzing and Testing Large Parallel Scientific Codes".

25. Seminar -- Center for Numerical Analysis, Univ. of Texas at Austin, May 12, 1994:
"Parallelization Issues and Particle Simulation Codes".

26. Seminar -- Dept. of Computer Science, University of Houston, Texas, May 11, 1994:
(same as May 12, 1994 presentation).

27. Seminar -- Dept. of Computer Science, Syracuse University, New York, April 20, 1994:
(same as May 12, 1994 presentation).

28. Seminar -- Dept. of Electrical and Computer Engineering, University of California, Irvine, March 9, 1989:
"Developing Efficient Algorithms for Highly Parallel Systems".

29. Technical Seminar -- IBM Almaden Research Center, San Jose, California, March 2, 1989:
(same as March 9, 1989 presentation).

30. Colloquium -- Dept. of Electrical and Computer Engineering, Rice University, Houston, Texas, Oct. 25, 1988:
"Parallel Operations: A Polymorphic View"

31. SIAM Conf. on Iterative Methods for Large Linear Systems, Austin, Texas, Oct. 21, 1988:
"Parallel Operations for Iterative Methods: A Polymorphic View".

32. Colloquium -- Dept. of Computer Science, University of Umeå, Sweden, Aug. 5, 1988:
"Fault-Tolerant Matrix-Vector Multiplication on Hypercubes"

33. Supercomputer Seminar Series -- Center for Numerical Analysis, Univ. of Texas at Austin, March 13, 1987:
"Matrix Operations on Hypercube Systems".

34. Technical Seminar - Chr. Michelsen Institute, Division of Computer Science, Bergen, Norway, July 16, 1986:
"SIMD Systems and Parallel Pascal".

BOOK & BOOK CHAPTERS:

1. Anne C. Elster and Jerzy Wasniewski (co-editors) *Springer LNCS* Volume on selected papers from PARA 2008 (to be published 2009)

2. David R. Kincaid and Anne C. Elster (co-editors)
   Iterative Methods in Scientific Computation II, Book published August 1999 through IMACS based on the papers presented at the Fourth IMACS International Symposium on Iterative Methods in Scientific Computation, Austin, Texas, Oct. 1998.
3. Elster, A.C. "Software Test-bed for Large Parallel Solvers ", in book *Iterative Methods in Scientific Computation II*, IMACS, 1999. Paper was orginally presented at Fourth IMACS International Symposium, Oct. 18-20, 1998,The Univ. of Texas at Austin. Abstract at: http://king.ticam.utexas.edu/dmy98/abstracts.html
4. Cavallaro, Joseph R. (Rice University), and Elster, A.C., "A CORDIC Processor Array for the SVD of a Complex Matrix", BOOK ARTICLE in *SVD and Signal Processing, II: Algorithms, Analysis and Applications*, Ed. R. J. Vaccaro, Elsevier, 1991, pp 227-239. [Revision of same title in Proc. of the 2nd Intern'l Workshop on SVD and Signal Processing, pp 66-73, Kingston, RI, June 25-27, 1990.]

REVIEWED ARTICLES:

1. Anne C. Elster, Thorvald Natvig, and Danielle G. Spampinato , "Using the SOR as a Benchmarking Tool", invited paper in preparation for. David M. Young Special Memorial Issue of journal *Numerical Linear Algebra with Applications. Http://*www3.interscience.wiley.com/
2. Anne C. Elster, "Real-Time Parallel Computing Using GPUs", to be submitted to LNCS Proceedings for PPAM 2009 (see Invited Talks).
3. Anne C. Elster, "GPU Computing and Future Programming Environments"", Presented at ParCo 2009 in MS EuroGPU, Sep 1-2, Lyon, France. In preparation for review for associated proceedings.
4. Anne C. Elster and Daniele Giuseppe Spampinato, "Modeling Communication on Modern GPU Systems", to be presented at ParCo 2009 in MS EuroGPU, Sep 1-2, Lyon, France. In preparation for review for associated proceedings.
5. Eirik Aksnes and Anne C. Elster (both NTNU), "Lattice Boltzman and Porous Rocks on Modern GPUs" in MS EuroGPU, Sep 1-2, Lyon, France. In preparation for review for associated proceedings.
6. Jan C. Meyer and Anne C. Elster, "Latency-Aware Barrier Synchronization", submitted poster. In process of being expanded into paper.
7. Anne C. Elster and Owe Johansen (both NTNU) "Experiences with Fault Tolerance for Large Parallel Seismic Applications", in review.
8. Anne C. Elster and Jan Christian Meyer (both NTNU), "A Super-Efficient Adaptable Bit-Reversal Algorithm for Multithreaded Architectures". in Proceedings of 23rd IEEE International Parallel and Distributed Processing Symposium (IPDPS 2009), presented at Workshop on Multi-Threaded Architectures and Applications (MTAAP'09) (
   Abstracts at: http://www.ipdps.org/ipdps2009/Abstracts_2009.pdf to be published at MTAAP'09 as part of IEEE IPDPS 2009.
9. Daniele Spampinato and Anne C. Elster (both NTNU): "Linear Optimization on Modern GPUs" in Proceedings of 23rd IEEE International Parallel and Distributed Processing Symposium (IPDPS 2009), presented at Workshop on Multi-Threaded Architectures and Applications (MTAAP'09) .

Abstracts at: http://www.ipdps.org/ipdps2009/Abstracts_2009.pdf

10. Jan Christian Meyer and Anne C. Elster: "The BSP Model and Heterogeneous Systems", PARA'08, Trondheim, Norway, May 13-16, 2008. To be published in Springer LNCS 2009.
11. Thorvald Natvig and Anne C. Elster: "Using Context-Sensitive Transmission Statistics to Predict Transmission Time" PARA'08, Trondheim, Norway, May 13-16, 2008. To bepublished in Springer LNCS 2009.
12. Jan C.Meyer and Anne C. Elster (both NTNU), "Latency Impact on Spin-Lock Algorithms for Modern Shared Memory Multiprocessors" in journal *Scalable Computing Practice and Experience* 2008; Vol. 9, No. 3, pp 197-206.
(Enhanced version of MuCoCos'08 paper.)
13. Jan C.Meyer and Anne C. Elster (both NTNU), "Latency Impact on Spin-Lock Algorithms" 2008 Interntational Workshop on Multi-Core Computing Systems (MuCoCos'08) in conjunction with CISIS'08. link to abstract , at
14. Anne C. Elster and Otto Anshus: "HPC Environments -- Visualization and Parallelization Tools: Minisymposium Abstract", PARA'06 and Lecture Notes in Computer Science 2007; Volum 4699. p 177
15. Jan C.Meyer and Anne C. Elster (both NTNU), "A Load Balancing Strategy for Computations on Large, Read-only Data Sets", PARA'06, Umeå, Sweden, June 2006, and Lecture Notes in Computer Science 2007; Volum 4699, pp 198-207.
16. Thorvald Natvig & Anne C. Elster (both NTNU) "Automatic and Transparent Optimization of an Application's MPI Communication", PARA'06, Umeå, Sweden, June 2006, and published in LNCS 4699, pp 208-217, Springer-Verlag, 2007.
17. Ingar Saltvik, Anne C. Elster and Henrik R. Nagel (all NTNU) "Parallel Visualization of Snow", PARA'06, Umeå, Sweden, June 2006. Published in LNCS 4699, pp 218-217, Springer-Verlag, 2007.
18. **NOTE: Elster was on maternity leave in 2005.**
19. Einar R. Rosenvinge, Anne C. Elster and Cyril Banino, (all NTNU) "Experiments with Scheduling Strategies for Data-Parallel MPI Applications on Clusters", PARA 2004, Lyngby, Denmark, June 20-23, 2004. Published in LNCS 3732, pp 1141-1150, Springer-Verlag, 2006. Abstract at: http://www2.imm.dtu.dk/~jw/para04/Abstracts/anne_c_elster/anne_c_elster.html
20. Otto Anshus, Anne C. Elster and Brian Vinter, "Cluster Computing as a Teaching Tool", in Mini Symposium "Cluster Computing", ParCo 2003, Dresden , Germany, September 2-5, 2003. Published in G.R. Joubert et al. (Eds.), *Parallel Computing: Software Technology, Algorithms, Architectures and Applications*, pp 887-894, Elsevier, 2004.
21. Torbjørn Vik, Anne C. Elster and Torbjørn Hallgren, "Real-time Simulation of Smoke through Parallelizations", ParCo 2003, Dresden , Germany, September 2-5, 2003. Published in G.R. Joubert et al. (Eds.), *Parallel Computing: Software Technology, Algorithms, Architectures and Applications*, pp 371-378, Elsevier, 2004.
22. Anne C. Elster, "The Next Level of Simulations: Extreme Computing", SIMS 2002 (43rd Conference on Simulation and Modelling), Oulu, Finland, September 26-27, 2002. http://ntsat.oulu.fi/Tapahtumat/SIMS_CallForPapers/Session2.htm Paper also avaiable at: link.
23. Anne C. Elster, "High-Performance Computing: Past, Present and Future",
PARA 2002, Espoo, Finland, June 15-18, 2002. Published in J. Fagerholm et al. (Eds.): PARA

2002, LNCS 2367, pp 433-444, 2002, Springer Verlag.
http://www.csc.fi/para2002/program.phtml Paper available at: link (Springer Verlag has promised to fix the current problem with their link to the PDF file. In the meantime, you may access the paper for personal use at: PDF-file

24. Paul Sack and Anne C. Elster, "Fast MPI Broadcasts Through Reliable Multicasting", PARA 2002, Espoo, Finland, June 15-18, 2002. http://www.csc.fi/para2002/program.phtml Publish in J. Fagerholm et al. (Eds.), PARA 2002, LNCS 2367, pp 445-453, Springer-Verlag. Paper available at: link.
25. Anne C. Elster and Lloyd D. Clark, "Optimized FFTs for ADSL", Proceedings of the NORSIG 2001 Symposium, Oct. 18-19, 2001, Trondheim, Norway. Available in PostScript off the Program webpage at http://www.norsig.no/norsig2001
26. Robert Strandh (Univ. of Bordeaux) and Anne C. Elster, "Fast Recursive Bit Reversal: Shuffling N Elements in Less Than 5N Cycles with No Special Hardware", in revision
27. David R. Kincaid and Anne C. Elster, "Iterative Methods Symposium Honors Dr. David M. Young, Jr.", *IEEE Computational Science & Engineering*, pp 12-15, Dec. 1998.
28. Anne C. Elster and David L. Presberg, "Setting Standards For Parallel Computing: The High Performance Fortran and Message Passing Interface Efforts", Theory Center *SMART NODE Newsletter*, May, 1993, Vol.5, No. 3, Cornell University. Accessible on WWW at: http://www.tc.cornell.edu/Parallel.Tools/articles/HPF.and.MPI.html
29. Joseph R. Cavallaro (Rice University) and Anne C. Elster, "A CORDIC Processor Array for the SVD of a Complex Matrix", Proc. of the 2nd Intern'l Workshop on SVD and Signal Processing, pp 66-73, Kingston, RI, June 25-27, 1990. [Later revised into BOOK CHAPTER in *SVD and Signal Processing, II: Algorithms, Analysis and Applications*, Ed. R. J. Vaccaro, Elsevier, 1991, pp 227-239.]
30. Anne C. Elster, "Basic Matrix Subprograms for Distributed Memory Systems", Proc. of the Fifth Distributed Memory Computing Conf. (DMCC5), in Charleston, SC, April 9-12, 1990, Ed. D. W. Walker and Q. Stout, IEEE Computer Society Press, pp 311-316. Received STUDENT PAPER COMPETION AWARD. Citation: link.
31. Anne C. Elster, M Ümit Uyar (Bell Labs), and Anthony P. Reeves, "Fault Tolerant Matrix Operations on Hypercube Computers", Proc. of the 1989 International Conf. on Parallel Processing, St. Charles, IL, August 8-12, 1989, Ed. F. Ris and P. M. Kogge, Penn State, Vol. III, pp 169-176.
32. Anne C. Elster and Hungwen Li (IBM Research), "Hypercube Algorithms on the Polymorphic Torus", Proc. of the Fourth Conference on Hypercube, Concurrent Computers, and Applications, March 6-8, 1989 in Monterey, CA, Vol. I, Golden Gate Enterprises, pp 309-316. This paper was based on Cornell Computer Science TR 89-1003 and IBM Research Report, RJ 6775, 1989 (same title and authors).
33. Anne C. Elster, "Fast Bit-Reversal Algorithms", Proc. of the IEEE 1989 International Conference on Acoustics, Speech, and Signal Processing, Glasgow, Scotland, May 23-26, 1989, Vol. 2, pp 1099-1102. Paper originally sent to Conf. on Vector and Parallel Computing, Tromsø, Norway, June 6-10, 1988 where it received HONORABLE MENTION, but was later withdrawn due to timing and funding.
34. Anne C. Elster and A.P. Reeves, "Block-Matrix Operations Using Orthogonal Trees", Proc. of the Third Conf. on Hypercube Systems and Applications, January 19-20, 1988 in Pasadena, CA,

Ed. G. Fox, ACM, pp 1554-1561.

REVIEWED CONFERENCE ABSTRACTS AND POSTERS

1. Anne C. Elster(NTNU) and Stephane Requena (GENCI, France), "EuroGPU", Two-day Minisyposium on GPU Computing at ParCo 2009, Lyon, France, September 1-2. 2009.
2. Eirik Ola Aksnes and Anne C. Elster (both NTNU), "Fluid Dynamics of Porous Rocks on Modern GPUs", The Eighth Annual Meeting on High Performance Computing and Infrastructure in Norway (NOTUR 2009), May 18-20, 2009, Trondheim, Norway. http://www.notur.no/notur2009/programme.html
3. Daniel Haugen and Anne C. Elster (both NTNU), "Strategies for Handling Large Amounts of Data from Storage to GPUs", The Eighth Annual Meeting on High Performance Computing and Infrastructure in Norway (NOTUR 2009), May 18-20, 2009, Trondheim, Norway. http://www.notur.no/notur2009/programme.html
4. Rune Johan Hovland, Anne C. Elster and Magnus Lie Hetland (all NTNU), "High Data Volumes and Streaming on Future GPU Systems", The Eighth Annual Meeting on High Performance Computing and Infrastructure in Norway (NOTUR 2009), May 18-20, 2009, Trondheim, Norway. http://www.notur.no/notur2009/programme.html
5. Åsmund Herikstad and Anne Elster (both NTNU), "Parallel Techniques for Estimation and Correction of Aberration on Medical Ultrasound Imaging" The Eighth Annual Meeting on High Performance Computing and Infrastructure in Norway (NOTUR 2009), May 18-20, 2009, Trondheim, Norway. http://www.notur.no/notur2009/programme.html
6. Jan C. Meyer and Anne C. Elster (both NTNU), "Modelling Overlapping Communication and Computation", The Eighth Annual Meeting on High Performance Computing and Infrastructure in Norway (NOTUR 2009), May 18-20, 2009, Trondheim, Norway. http://www.notur.no/notur2009/programme.html
7. Daniele G. Spampinato and Anne Elster (both NTNU), "Communication Challenges on Multi-GPU Systems", The Eighth Annual Meeting on High Performance Computing and Infrastructure in Norway (NOTUR 2009), May 18-20, 2009, Trondheim, Norway. http://www.notur.no/notur2009/programme.html
8. Enrique S. Quintana-Orti, Jose R. Herrero and Anne C. Elster, "Scientific Computing on GPUs", Minisymposium, PARA 2008, Trondheim, Norway, May 2008. Link to the 12 talks.
9. Robin Eidissen and Anne C. Elster: "Comparing Cg and CUDA Implementations of Selected Transform Algorithms". SC'08, Austin, Texas, USA, Nov 15-21 (less than 30% acceptance rate!)
10. Atle Rudshaug and Anne C. Elster: "Analysing and Optimizing an Oil Well Network Code for Today's Parallel Architectures", poster, NOTUR 2008, Tromsø, Norway, June 4-5, 2008.
11. Rune Erlend Jensen and Anne C. Elster: "GCC 4.x Issues", poster, NOTUR 2008, Tromsø, Norway, June 4-5, 2008.

12. Leif Christian Larsen, Anne C. Elster, and Tor Fevang (Schlumberger) "Speeding Up Transform Algorithms for Image Compression Using GPUs", Student poster, Stanford 50: State of the Art and Future Directions of Computational Mathematics and Numerical Computing, March 29-31,2007 Abstract
13. Anne C. Elster, "HPC Environments: Visualization and Parallelization Tools", Minisymposium, PARA 2006, Umeå, Sweden, June 2006. Part 2 (MS 16)
14. Anne C. Elster, "HPC Environments: A Quick Overview", PARA 2006, Umeå, Sweden, June 2006
15. Anne C. Elster, Glenn Hisdal, Andreas Braathen,Håvard Bjerke, Rune Andresen (NTNU) & Sverre Jarp (CERN), "NTNU at CERN: Grid-Enabeling Tools Using SmartFrog, Lemon and Virtualization", PARA 2006, Umeå, Sweden, June 2006
16. Jan.C. Meyer and Anne C. Elster (both NTNU), "A Load Balancing Strategy for Computations on Large, Read-only Data Sets", PARA'06, Umeå, Sweden, June 2006. Extended abstract Extended version to be published in Springer Verlag's LNCS-Series (see reviewed articles).
17. Thorvald Natvig & Anne C. Elster (both NTNU) "Automatic and Transparent Optimization of an Application's MPI Communication", PARA'06, Umeå, Sweden, June 2006. Extended abstract Extended version to be published in Springer Verlag's LNCS-Series (see reviewed articles).
18. Ingar Saltvik, Anne C. Elster and Henrik R. Nagel (all NTNU) "Parallel Visualization of Snow", PARA'06, Umeå, Sweden, June 2006. Extended abstract Extended version to be published in Springer Verlag's LNCS-Series (see reviewed articles).
19. Åsmund Østvold (SCALI), Anne C. Elster and Håkon Bugge (SCALI), "How Measurement Methods Affect Timing of MPI Collective Late Change Operations", PARA'06, Umeå, Sweden, June 18-21, 2006. (extended abstract)
20. Øystein Borg, Anne C. Elster and Håkon Bugge, "Dynamic Selection of MPI Intra-copy Routines Based on Program Characteristics",
Poster received honorable mention at the NOTUR 2006 Conference, Bergen, Norway, May 11-12, 2006.
21. Rune Johan Andresen, Sverre Jarp and Anne C. Elster, "HPC File Server Monitoring and Tuning Using a Database" , in collaborations with CERN, NOTUR 2005 poster, NTNU, Trondheim, Norway, May 30-31, 2005.
http://www.notur.no/notur2005/andresen.pdf
22. Håvard Bjerke, Sverre Jarp and Anne C. Elster, "HPC Virtual Machine Monitor: Xen for the IA-64 Architecture" in colaboration with CERN, NOTUR 2005 poster, NTNU, Trondheim, Norway, May 30-31, 2005.
http://www.notur.no/notur2005/Bjerke.pdf
23. Andreas Braathen, Glenn Hisdal and Anne C. Elster, "Two Cluster Projects at CERN: Automatic Software Installation Using SmartFrog and Surveilance of Cluster Nodes Using Lemon", in colaborations with CERN, NOTUR 2005 poster, NTNU, Trondheim, Norway, May 30-31, 2005.
http://www.notur.no/notur2005/braathen.pdf
24. Jan Christian Meyer and Anne C. Elster, "Load Balancing Visualisation Server Clusters" , in collaboration with Schlumberger Voxel Vision, NOTUR 2005 poster, NTNU, Trondheim, Norway, May 30-31, 2005.

http://www.notur.no/notur2005/Meyer.pdf

25. Thorvald Natvig and Anne C. Elster, "Simplified Mesh Genration Through Rendering" , NOTUR 2005 poster, NTNU, Trondheim, Norway, May 30-31, 2005. http://www.notur.no/notur2005/Natvig.pdf

26. Snorre Boasson and Anne C. Elster, "Parallel I/O Strategies", NOTUR 2004 poster, Tromsø, Norway, June 10-11, 2004

27. Trond Kandal, Frode Nilsen and Anne C. Elster, "Experiences with Architectures for Grid Portals", NOTUR 2004 poster, Tromsø, Norway, June 10-11, 2004 http://www.notur.org/notur2004/poster_fn.pdf">

    Tor Arvid Lund, Morten Rodal and Anne C. Elster, "Porting Shared memory Applications to a Distributed Memory Architecture" NOTUR 2004 poster, Tromsø, Norway, June 10-11, 2004 http://www.notur.org/notur2004/poster_lund_rodal.pdf

28. Anne C. Elster and Robin Holtet, "Benchmarking Clusters vs. SMP Systems by Analyzing the Trade-Off Between Extra Calculations vs. Communication", SC 2003, Phoenix, Arizona, November 18, 2003. Abstract link: http://www.sc-conference.org/sc2003/inter_cal/inter_cal_detail.php?eventid=10790#19 (Only 30% acceptance rate!)

29. Anne C. Elster, Otto J. Anshus, Cyril Banino and Amund Tveit, "Recent Trends in Cluster Computing", in Mini Symposium "Cluster Computing", ParCo 2003, Dresden , Germany, September 2-5, 2003.

30. Anne C. Elster et. al., NOTUR 2003 stand on "Cluster Technologies", Oslo, Norway, May 14-15, 2003

31. Anne C. Elster and Kristin S. Karlsen., "Recruting, Mentoring and Networking Women in Computing", Grace Hopper Conference (GHC 2002) in Vancouver, Canada, Oct 9-11, 2002. Program description (no longer on-ine :-():

32. Anne C. Elster and Lloyd D. Clark, "Optimizing ADSL/VDSL Algorithms" 2001 SIAM Annual Meeting in San Diego, July 9-13, 2001 http://www.siam.org/confpart/showmin.cfm?SESSIONCODE=897

33. Anne C. Elster, "Developing and Testing New Parallel Iterative Methods Using PETSc", Tenth SIAM Conference and Parallel Processing for Scientific Computing, March 12-14, 2001, Portsmouth, Va. http://www.siam.org/confpart/showmin.cfm?SESSIONCODE=231

34. Robert Strandh and Anne C. Elster, "A Very Fast Recursive Bit-Reversal Algorithm", SIAM CSE'00: First SIAM Conference on Computational Science and Engineering, Washington, D.C., Sep 21-24, 2000. http://www.siam.org/meetings/cse00/cp12.htm>

35. Anne C. Elster and C. Liang, "Developing and Testing Linear Solvers Using PETSc", SIAM CSE'00: First SIAM Conference on Computational Science and Engineering, Washington, D.C., Sep 21-24, 2000. http://www.siam.org/meetings/cse00/cp25.htm

36. Anne C. Elster, "Software Environment for Analyzing and Testing Large Parallel Scientific Codes", SciTools'98, Oslo, Norway, Sept 14-16, 1998. REVIEWED abstract at: http://www.oslo.sintef.no/SciTools98/WebAbstracts/elster-abs.html

37. Anne C. Elster, "Parallel Infrastructures for Particle-in-Cell Codes". Parallel Infrastructures for Applications, workshop at the Univ. of Texas at Austin, Austin, TX, April 24, 1996. Schedule at: http://www.cs.utexas.edu/users/rvdg/workshop.sched2.html

38. Anne C. Elster, Niels Otani, Niels (Cornell, now Case Western) and John G. Shaw (XEROX Research Center), "Parallelization Issues for Particle-in-Cell Codes", Supercomputing'94, Nov. 14-18, 1994. REVIEWED abstract of poster presentation at: http://www.computer.org/conferen/sc94/posters/elster_a.html
39. Joe R.Cavallaro (Rice Univ.), Anne C. Elster, and Ian Walker (Rice Univ.) "A Parallel VLSI Architecture for Robot Motion Computations", SIAM Annual Meeting, July 16-20, 1990, Chicago, IL.
40. Anne C. Elster, "Developing Level-3 BLAS for Distributed Memory Systems", The Eighth Army Conf. on Applied Math. and Computing, Ithaca, NY, June 19-22, 1990.

POSITION PAPERS, TECHNICAL REPORTS AND SELECTED OTHER WRITTEN PUBLICATIONS:

1. Anne C. Elster, "HPC: Simulating Oil Fields, the Weather and Other Complex Systems" part of presentation of The Norwegian University of Science and Technology (NTNU) - research & development & education, *Information & Communication Technology: Technology through Life* , Norway Exports, p 47, Annual 49, 2006/2007
2. Nils Magnus Larsgård and Anne C. Elster, "Performance of Njord vs. Embla", Research diplay poster, Opening Seminar of the new supercomputer, Njord, at NTNU, Nov. 30, 2006.
3. Leif Christian Larsen and Anne C. Elster, "Compression of Image Data on Clusters Using GPUs and Quad-Core CPUs", Research diplay poster, Opening Seminar of the new supercomputer, Njord, at NTNU, Nov. 30, 2006.
4. Kjetil Nørvåg, Kjell Bratbergsengen, Haakon Dybdahl, Anne C. Elster, Torbjørn Hallgren, Morten Hartmann, Jon Olav Hauglid, and Lasse Natvig: Posititon Paper on Computer Systems, in *InfoSam2020: The Information Society of 2020 -an exercise in planning for the future* , Arne Sølvberg (Editor), pp 41-47. Originally presented at INFOSAM 2020, April 19-20, 2004, NTNU, Trondheim (co-hosted by NTNU and The Norwegian Board of Technology (Teknoligrådet).
5. Helge I. Andersson, Finn Drabløs, Helge Drange, Anne C. Elster, Henning Omre, Bjørnar Pettersen and Einar Rønquist (Listed in index as Anne C. Elster, Einar Rønquist et. al): Position Paper on Computational Science, in *InfoSam2020: The Information Society of 2020 -an exercise in planning for the future* , Arne Sølvberg (Editor), pp 91-96. Originally presented at INFOSAM 2020, April 19-20, 2004, NTNU, Trondheim (co-hosted by NTNU and The Norwegian Board of Technology (Teknoligrådet).
6. Knut Børve, Anne C. Elster, Risto Nieminen, Roar Skålin and Lina von Sydow: "The Future of High-Performance Computing in Norway" ,by *Komité for tugnregneprogrammet III (HPC Program III Committee)* Research Council of Norway (RCN/NFR), January 26, 2004.
7. Anne C. Elster, "Academic Women in EECS Web Page/Database", ongoing document listing tenured and tenure-track women in Computing. The document gets updated regularly and can currently be found at: http://www.idi.ntnu.no/~elster/doc/women-eecs.html
8. Anne C. Elster, "Using ITPACK 2C on the UT Austin Math Sun Machines", Nov. 1998, CNA, Univ. of Texas at Austin. Included as course notes for Dr. David M. Young's graduate class on Diff. Eqn. and to be included on the ITPACK web pages at

http://rene.ma.utexas.edu/CNA/ITPACK/

9. Robert Strandh and Anne C. Elster, "A Very Efficient Linear-time, Logarithmic-space Bit Reversal Algorithm", Center for Numerical Analysis, TR no. CNA-288, The University of Texas at Austin, October 1998. (A shorter version of this report is being submitted as a reviewed journal publication.) A PDF file of this report is available at: http://rene.ma.utexas.edu/CNA/cna-reports.html Note thtat the report starts on page 2.
10. David R. Kincaid and Anne C. Elster, Symposium on Iterative Methods in Scientific Computation . Report CNA-287, Center for Numerical Analysis, University of Texas at Austin, October 1998. http://rene.ma.utexas.edu/CNA/cna-reports.html
11. Anne C. Elster, On-line course notes for CS 328, a level CS7 class on Advanced Data Types in C++ taught at the Univ. of Texas at Austin, Summer 1998: http://www.cs.utexas.edu/user/elster/cs328-su98
12. Anne C. Elster, On-line course notes for CS 315, a level CS2 class on Data Structures and C++ taught at the Univ. of Texas at Austin, Summer 1997: http://www.cs.utexas.edu/user/elster/cs315.html
13. MPI Forum Members (incl. Anne C Elster): "MPI-2: Extensions to the Message-Passing Interface", (MPI 2 Standards document) July 18, 1997 (HTML Sept 2001).
14. Anne C. Elster, "User's Guide -- FMM Code", documentation on how to use the Fast Multipole Method code used at TICAM, The Univ. of Texas at Austin, May 16, 1997.
15. Anne C. Elster, Design notes and and User's guide for the payphone-network interactions simulator we developed using DES (Discrete Event Simiulation). Internal documents, Schlumberger Austin Research Center, 1996.
16. Anne C. Elster, SWIFT documentation describing design, configuration and use of the Schlumberger World-wide Issue Tracking system, a distributed database based on SYBASE/SCOPUS. Internal documents, Schlumberger APC, 1995 and 1996.
17. Anne C. Elster, SMS documentation describing the structure of SMS, the Schlumberger Software configuration Management System. Internal documents, Schlumberger APC, Fall 1994.
18. Anne C. Elster, "Parallelization Issues and Particle-in-Cell Codes", Ph.D. dissertation, Cornell University, August 1994. Abstract at: http://www.englib.cornell.edu/thesesabstracts/August94/elster.html
19. Anne C. Elster, "MPI_LOAD_INFO ", Proposal presented to the MPI Committee in Dallas, Texas, May 12, 1993.

    This proposal encouraged adding dynamic process features to MPI. Although this proposal did not make it into the MPI-1 standard, it was one of the motivators for process control in MPI-2.
20. Anne C. Elster and Palghat S. Ramesh (XEROX, DRI) "Simulation of Charge Transport Using Parallel BLAS on the Intel Hypercube", Xerox Internal Report X9200084, Webster Research Center, NY, April 1992.
21. Anne C. Elster, "Efficient Parallel Algorithms for Matrix Operations", Master of Science Thesis, Cornell University, Aug. 1988.
22. Joseph R. Cavallaro (Rice University) and Anne C.Elster, "Complex Matrix Factorizations with CORDIC Arithmetic", Cornell Computer Science TR 89-1071.

Key ideas presented at The Conference on Approximation Theory and Numerical Linear Algebra, Kent State Univ., Kent, OH, March 30-31, 1989.

23. Joseph R. Cavallaro (Rice University) and Anne C.Elster, "A CORDIC Processor Array for the SVD of a Complex Matrix", Proc. of the 2nd Intern'l Workshop on SVD and Signal Processing, pp 66-73, Kingston, RI, June 25-27, 1990. Later revision appeared as BOOK ARTICLE (see reviewed pubs).

    Revision of same title in Proc. of the 2nd Intern'l Workshop on SVD and Signal Processing, pp 66-73, Kingston, RI, June 25-27, 1990.

24. Anne C. Elster and Hungwen Li (IBM Research), "Hypercube Algorithms on the Polymorphic Torus", Cornell Computer Science TR 89-1003 and IBM Research Report, RJ 6775, 1989.

    This paper was later published in Proc. of the Fourth Conference on Hypercube, Concurrent Computers, and Applications (see reviewed publications).

25. Anne C. Elster, M. Ümit Uyar (Bell Labs), and Anthony P. Reeves, "Fault Tolerant Matrix Multiplication on Hypercube Computers", Cornell University Technical Report EE-CEG 89-2, January 1989.

26. Anne C. Elster, "Porting of the Parallel Pascal Translator from VAX 11/780 to IBM-PC/AT". Master of Engineering Project Report, School of Electrical Engineering, Cornell University, Fall 1986.

SELECTED OTHER PRESENTATIONS AND ABSTRACTS:

1. Anne C. Elster: "Oversikt over bruk, tildeling av regnetid, brukerstøtte" (mostly an overviewe of NTNU's new Supercomputer Njord) -- Seminar/Press meeting at NTNU, Nov. 30, 2006. Info about Njord at NTNU.
2. Anne C. Elster: "Supercomputing ved NTNU", Introduction talk for Supercomputing Day, Nov. 21, 2006.
3. Anne C. Elster: "NOTUR Emerging Technologies: Cluster Technologies" presented to the Research Council of Norway's international committee reviewing the NOTUR project, May 10, 2004, RCN, Oslo, Norway.
4. Anne C. Elster: "NOTUR Cluster Project Status Presentation: Future Technologies -- Clusters", presented to the NOTUR Board, November 27, 2003, Oslo, Norway.
5. Anne C. Elster: "Cluster Technologies -- Status Report", Research Council of Norway HPC Commitee meeting, June 30, 2003, Oslo, Norway.
6. Anne C. Elster: "Research Techniques -- a Personal Perspective", Doctoral seminar, Dept. of Computer & Info Science, NTNU, Trondheim, Norway, March 1, 2001. Listing of colloquia Spring 2001 + links to abstracts etc.
7. Anne C. Elster: Informal talk on my research with R&D group members, Fast Search and Transfer ASA, Porsgrunn, Norway, Feb 9, 2001.
8. Anne C. Elster: "Parallelization Issues and Particle Simulation Codes", and "SWIFT Schlumberger World-wide Issue Filing & Tracking System". In-house seminar, Schlumberger Cambridge Research Center, Cambridge, England, Feb. 1, 1995.
9. Anne C. Elster: "Parallelization Issues and Particle Simulation Codes", Schlumberger Austin Systems Center, in-house seminar, Autin, Texas, May 16, 1994.

10. Anne C. Elster, "Parallelizing C Particle Simulation Codes Using Pthreads", Parallel Computing on the Kendall Square Research KSR1, Workshop, Engineering & Theory Center, Cornell Univ., Ithaca, New York, May 6, 1993.
11. Anne C. Elster: "The Message Passing Interface (MPI) Forum", Cornell Engineering & Theory Center Staff-to-Staff Seminar, Cornell University, Ithaca, New York, Apr. 23, 1993.
12. Anne C. Elster: Part I: "Testing Particle Simulation Codes"; Part II: "KSR1 Overview", Xerox Design Research Institute Seminar, Cornell University, Ithaca, NY, Dec. 8, 1992.
13. Anne C. Elster and Palghat S. Ramesh (XEROX Research), "Simulation of Charge Transport Using Parallel BLAS on the Intel hypercube", Xerox Workshop on Scientific Computation and Modeling, Ithaca, NY, April 22, 1992.
14. Anne C. Elster, "C vs. Fortran in Parallel Scientific Computing", The Eighth Parallel CIRCUS, University of Toronto, Canada, Oct. 26-27, 1990.
15. Joseph R. Cavallaro, Ian D. Walker, I.D.(Rice Univ.), and Anne C. Elster: "Parallel VLSI Architectures to Increase the Efficiency of Robot Control", The Seventh Parallel CIRCUS, Stanford Univ., CA, March 30-31, 1990.
16. Anne C. Elster, "Orthogonal Matrix Algorithms (``Virtual Transpose")", The Sixth Parallel CIRCUS, Courrant Institute, New York University, New York, NY, Oct. 27-28, 1989.
17. Anne C. Elster, "Some Algorithmic Fault Tolerance Issues", The Fifth Parallel CIRCUS, Rensselaer Polytech. Institute, Troy, NY, Apr. 28-29, 1989.
18. Anne C. Elster, "Some Basic Parallel Numerical Algorithms for the Polymorphic Torus", The Fourth Parallel CIRCUS, Rutgers University, New Brunswick, NJ, Dec. 2-3, 1988.
19. Anne C. Elster, "Fast [O(N)] Bit-Reversal Algorithms", The Second Parallel CIRCUS, (Bi-annual informal conference on parallel algorithms and architectures.) Cornell University, Ithaca, NY, Nov. 20-21, 1987.

Dr. Elster's Dissemination/Media Contributions:

I personally much prefer to work with my students on research projects rather than expose myself to the media. However, as an educator in science and technology, I realize how important it is to reach out to the press to let the rest of the world know about how exciting and interesting our fields are, and how important our work is for everyone.

The following is a collection of recent mass media interviews I have given, and articles I have written, mostly in Norwegian.

Most recent:

- Adressa (Trondheim's main newspaper), June 23, 2009 article and phone describing the IBM reward received by two of Dr. Elster's Master students, Eirik Ola Aksnes and Daniele Spampinato. See also NTNU's local news links from June 11 and 22, 2009: http://www.idi.ntnu.no/news/index.php#n215
- NTNU paper "Universitetsavisa"'s article "Med kurs for webbens vugge" on May 28, 2009, featuring interview with Elster and two of her Master students who will spend their summer at CERN this year.
- "Spillkort gir superkraft til folket" , published on April 29, 2009 on http://www.forskning.no , the on-line research publications by The Norwegian Research Council. The article describes Elster and her HPC-lab's research on using gaming technology (GPUs) as computational devices. The title can be translated into something like: "Gaming (Graphics) Cards Give People Super(computing) Power".
- "CERN: Nordmenn vil ikke reise ut", Universitetsavisa , Feb 6, 2009. Elster is interviewed in the article where CERN hopes for more Norwegians wanting to go to CERN since she has advised several students in collaboration with CERN.
- "GPU Computing is about massive data parallelism", InfoWorld, Jan 22, 2009. The article contains longer quotes from Dr. Elster.
- "Imponerten NVIDIA med snøsimulering" on digi.no, Thursday Dec 4, 2008.
- HPC-Lab Members Robin Eidissen and I were interviewed by the NVIDIA video crew at their SC'08 booth, Nov. 2008. Link
- "Vant topplassering på programmering" on digi.no, Tuesday Oct. 7, 2008. Article describes the NCPC and NEWRC programming contest for wish I am the national faculty sponsor this year.
- "NTNU vil lage de kuleste pc-ene" -- HPC-lab opening article on digi.no, Oct. 29, 2008. This article was also renference on NTNU's main page under *Aktuelt* and can still be seen reference at http://www.ntnu.no/aktuelt/
- "NTNU vant topplassering blandt 149 nordiske lag i helgens mesterskap" , digi.no article, Tuesday Oct. 7, 2008.
- Our HPC-Lab was used as a back-drop for a TV story on NTNU, Fast and Microsoft: Midtnytt, Sept 30, 2008 Only our keyboards are from Microsoft (we paid for them), but our custom-built PCs with high-end NVIDIA cards are really cool. ;-) My graduate student, Daniele Spampinato, is also in the clip, working aw ay on CUDA (for using graphics cards as extra compute devices), as is Ola Natvig , IDI student and son of colleague Lasse Natvig.

TV interviews w/ Elster

- Streamed from TV Trøndelag , regional TV station about our new supercomputer, Njord.
- A shorter version of above was on **TV Norges (National channel)** "Bymagasinet", Thursday Nov. 30 around 6:20pm.

A link to the above streamed video is currently (Dec. 4, 2006) available from NTNU's main home page.

Radio interviews w/ Elster

- NRK Trøndelag -- "live" 11:16- 11:21 Monday Nov 27, 2006 aboiut Njord.
- Kanal 24 (national channel) -- "live" 08:15, Thursday, Nov 30, 2006, about Njord
- NRK P3 (national channel)-- "teaser" interview Dec 1, 2006. May come back to make a longer segment of our "cool" superomputer monster. ;-)
- NTNU student radio, (FM 104.2), May 2006: Telephone interview and in-line article: **"NTNU kjøper ny datamaskin"** incl. quote by Elster.

National media -- print

- Digi.no, June 8, 2004: "Fire NTNU-studenter til IT-sommerjobb hos CERN: Det er CERNs arbeid med samkjørt datakraft («grid computing») som tiltrekker NTNU-studentene. (Bassed on similar article in Universitetsavisa (see below)

Articles based on Elster's interview about the Njord Supercomputer with Avisenes nyhetsbyrå (ANB)

(ANB is a Norwegian news agency feeding local newspapers throughout Norway)

- ANB, Nov. 30, 2006: http://www.siste.no/Innenriks/itmagasin/article2443080.ece
- Dagsavisen, Nov. 30. 2006: http://www.dagsavisen.no/innenriks/article2443080.ece
- Se og Hør (National bi-weekly), Dec. 2006: http://www.seher.no/cm/SeHer/1.319890.1164896702

Adresseavisen -- Trondheim's regional paper sold nationally

- Large article on page 13, Monday Nov.27, 2006, entitled "Nordens Sprekeste Maskin" by Svein Inge Meland (951 98 688, svein.inge.meland@adresseavisen.no) incl. photo of Elster in front of Njord with caption "Kry: Anne Cathrine Elster, daglig leder ved Program for beregningsvitenskap og visualisering, er stolt over den nye superdatamskinene som kommer i drift 30. November."
- "Dagens Navn" ("Today's Name"), Økonomiseksjonen, Thursday Nov. 30, 2006

Local papers

Articles based on Elster's interview about the Njord Supercomputer with Avisenes nyhetsbyrå (ANB) on Nov. 30, 2006, all published within the following week:

(ANB is a Norwegian news agenecy feeding local newspapers throughout Norway)

1. Akershus Amtstidene http://www.amta.no/Innenriks/article2443080.ece
2. Arbeidets Rett (Røros) http://www.retten.no/Innenriks/data_og_teknologi/article2443080.ece

3. Aura Avis http://www.auraavis.no/Innenriks/data_og_teknologi/article2443080.ece
4. Aust Agder Blad http://www.austagderblad.no/Innenriks/data_og_teknologi/article2443080.ece
5. Avisa Nordhordland (Isdalstø) http://www.nordhordland.no/Innenriks/article2443080.ece
6. Avisa Nordland (Bodø) http://www.an.no/Innenriks/article2443080.ece
7. Bergensavisen http://www.ba.no/nyheter/irix/article2443080.ece
8. Bygdeposten (midt i Buskerud) http://www.bygdeposten.no/Innenriks/article2443080.ece
9. Demokraten (Fredrikstad) http://www.demokraten.no/data_og_teknologi/article2443080.ece
10. Finnmark Dagblad http://www.finnmarkdagblad.no/Innenriks/data_og_teknologi/article2443080.ece
11. Finnmarken http://www.finnmarken.no/Innenriks/article2443080.ece
12. Firda (Førde) http://www.firda.no/article2443080.ece
13. Firdaposten (Flora og Bremanger) http://www.firdaposten.no/Innenriks/article2443080.ece
14. Fremover (Narvik) http://www.fremover.no/Innenriks/data_og_teknologi/article2443080.ece
15. Glåmdalen http://www.glomdalen.no/innenriks/article2443080.ece
16. Hadeland http://www.hadeland.net/Innenriks/article2443080.ece
17. Halden Dagblad http://www.haldendagblad.no/innenriks/article2443080.ece
18. Hardanger Folkeblad http://www.hardanger-folkeblad.no/Innenriks/article2443080.ece
19. Helgeland Arbeiderblad http://www.helgeland-arbeiderblad.no/riksnyheter/article2443080.ece
20. Indre Akershus Blad http://www.indre.no/Innenriks/article2443080.ece
21. Jarlsberg (Holmestrand) http://www.jarlsbergavis.no/Innenriks/article2443080.ece
22. Lofotposten http://www.lofotposten.no/Innenriks/article2443080.ece
23. Moss Dagblad http://www.moss-dagblad.no/Innenriks/data_og_teknologi/article2443080.ece
24. Namdalsavisa http://www.namdalsavisa.no/Innenriks/data_og_teknologi/article2443080.ece
25. Nordlys (Tromsø) http://www.nordlys.no/nyheter/Innenriks/article2443080.ece
26. Opdalingen http://www.opdalingen.no/Innenriks/article2443080.ece?service=print
27. Oppland Arbeiderbald http://www.oa.no/article2443080.ece
28. Porsgrunns Dagbad (PD) http://www.pd.no/Innenriks/article2443080.ece
29. Rana Blad (Mo i Rana) http://www.ranablad.no/Innenriks/data_og_teknologi/article2443080.ece
30. Ringerikets Blad http://www.ringblad.no/aktuelt/article2443080.ece
31. Rogalands Avis http://www.rogalandsavis.no/nyheter/innenriks/data_og_teknologi/article2443080.ece
32. Romerikes Blad http://www.rb.no/Innenriks/article2443080.ece
33. Sarpsborg Arbeiderblad http://www.sa.no/Innenriks/data_og_teknologi/article2443080.ece
34. Smaalenenes Avis http://www.smaalenene.no/Innenriks/data_og_teknologi/article2443080.ece
35. Sogn Avis http://www.sognavis.no/Innenriks/article2443080.ece
36. Stjørdalens Blad http://www.bladet.no/Innenriks/data_og_teknologi/article2443080.ece
37. TA (tidl. Telemark Arbeiderblad) http://www.ta.no/it___data/article2443080.ece
38. Tidens Krav (Kristiansund paper) http://www.tk.no/Innenriks/data_og_teknologi/article2443080.ece
39. Tvedestrandposten http://www.tvedestrandsposten.no/Innenriks/article2443080.ece
40. Østlandsposten (Larvik) http://www.op.no/Innenriks/data_og_teknologi/article2443080.ece
41. Øyene (Oslofjorden) http://www.oyene.no/innenriks/article2443080.ece

New Supercomputer at NTNU, November 2006:

Our celebration on campus on Nov. 30, 2006, included several short talks on interesting uses of supercomputing.

- General info:
  - Link to some info. about Njord we put out in connection with the opening celebration program (mostly in Norwegian)
  - Opening Celebration Program (PDF) .

Articles in Universitetsavisa (NTNU paper)

About/interviews with Elster:

- Umettelig behov for datakraft (1.12.2006, 13:25) ("Insatiable need for compute power") About Njord,NTNU's new supercomputer, and HPC in general. Includes photo of Elster.
- NTNU danket ut av HiST (05.09.2006) mentiones Elster's students at CERN.
- Lars Johan Materstvedt: Om faglig nærhet (09.05.2006) Author quotes one of my previous articles on campus location.
- Fornyet samarbeid mellom NTNU og CERN (4.6.2004, 09:28) Re. Elster's collaboration with CERN, includen photo of her and some of her students.

Articles written by Elster:

- Anne Cathrine Elster: Kvinnefiendtlig samlokalisering (09.05.2006) (Universitetsavisa -- in Norwegian):
  The above article was abstracted in: "Anne Cathrine Elster: Kvinnefiendtlig samlokalisering" on **Byggaktuelt online** ,
  (http://www.byggaktuelt.no/content.asp?ContentId=11175) on-line site for the building industry in Norway
- LESERBREV: Mange farer med ny styringsmodell! (16.1.2003, 21:39)

Dr. Anne C. Elster – Short Biography:

Dr. Anne C. Elster is the current Section Head of the Complex Systems, and an Associate Professor of Computer Science (IDI) at the Norwegian Univ. of Science and Technology (NTNU) in Trondheim, Norway where she helped found their Computational Science and Engineering Program and served as Co-Director until Jan. 2007. She established the IDI/NTNU HPC-Lab and has published and/or given over 150 technical contributions. She is currently serving on an Expert Panel on research infrastructure for the Danish Research Ministry for 2007-2009 and is one of 4 WG Leaders of EU COST Action IC0805: Open European Network for High Performance Computing on Complex Environments. Dr. Elster organized and hosted PARA 2008 in May 2008, serves yearly on several Program Committees, and will be giving an invited talk at PPAM 2009.

Her current research interests are in parallel computing where she is currently focusing her research on developing good models for heterogeneous computing and parallel software environments for testing and developing parallel scientific codes that interact visually with the users by taking advantage of the powers in modern GPUs. Her research also includes parallel algorithms for novel architectures including GPUs and Cell. Her novel fast linear bit-reversal algorithm is still noteworthy. Several of her Master's students have had internships at CERN, Switzerland related to GRID computing.

Dr. Elster was born in 1962 in Mo i Rana, a town just beneath the Arctic Circle circle in Northern Norway. After completing her secondary education in Porsgrunn, Norway, she received a scholarship to the Univ. of Oregon. She then transferred to the Univ. of Massachusetts at Amherst where she received a B.S. in Computer Systems Engineering with *cum laude* as well as took several courses in computer science and honors mathematics. Anne also holds M.S. and Ph.D. degrees in Electrical Engineering from Cornell University where she had a lot of fun at their supercomputer center (a.k.a. Theory Center) exploring various HPC systems in the late 1980s and early 1990s. After graduating from Cornell, Dr. Elster worked for Schlumberger in Austin before returning to academia via the Univ. of Texas at Austin in 1997. She served on the MPI standards committees (MPI and MPI-2) for Cornell and Schlumberger, respectively, and became a Senior Member of the IEEE in 2000. After joining NTNU in 2001, she served on the Research Council of Norway's HPC committee lead by Prof. Risto Nieminen (TRP III, 2003-2004).

Dr. Elster has been a visiting faculty member at the Department of Electrical and Computer Engineering (ECE) at the Univ. of Texas at Austin in summer and fall 2005 as well as has visited there most summers since Summer 2006 and will likely go there for her next sabbatical.

She has a 4.5-yr-old daughter with husband, Lloyd D. Clark, who is an "MIT -cubed" graduate and telecommunication/wireless expert.

Leisure interests include Ham Radio, Swimming, Tennis and Voice.

References available upon request.

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