Curriculum Vitae – Anne C. Elster (Highlights)

See also https://www.ntnu.edu/employees/elster

*** EDUCATION**

PhD 1994	**School of Electrical Engineering (minor Computer Science), Cornell University, USA**
MSc 1988	School of Electrical Engineering, Cornell University, USA
BSc 1985	BSc Computer Systems Engineering, University of Massachusetts at Amherst, USA

*** POSITIONS** (academic, business, industry, public sector, national or international organizations)

Current Position

2001-present	Professor / Associate Professor in Computer Science, IDI, NTNU

Previous positions held

1997-present	**Senior Visiting Researcher/Research Associate/Adjunct faculty member, The Univ. of Texas at Austin, USA**
1994-1997	Research engineer/Senior Engineer, Schlumberger ASC/Austin Research Center, USA
1985-1994	Research & Teaching Assistantships, Computer Science & EE, Cornell University, USA
1991-1994	Summer jobs at Xerox Research DRI, Cornell, NY, USA;
Su 1987	IBM Research Yorktown Heights, NY, USA;
Su 1986	CMI, Bergen Norway and
Su 1985	Norsk Hydro Data, Porsgrunn, Norway
Su 1973-84	Misc. summer jobs at stores, Norcem A/S and Norsk Hydro/ Norsk Hydro Data

AWARDS, FELLOWSHIPS & PRIZES

2023	**IEEE Computer Society Distinguished Service Award, charter member**
2019-2021	IEEE Computer Society Distinguished Visitor Program Speaker for both North America and Europe, Middle East and Africa.
Since 2000	IEEE Senior Member
2016	Nominated for best paper nomination HPCS w/ PhD student Thomas L. Falch
2010	Nominated by Dept of Computer Science for Faculty Teaching Award for excellent advising of graduate students
2010	Honour Plaque from 2010 PhD student conference at NTNU CSGSC (Comp Sci Grad. Stud. Conf) at its 10th anniversary – for co-founding and supporting the successful conf. series Several of my master students have received rewards for their thesis work; Several of them have co-published their extension of their theses work with me.

MOBILITY (if applicable) -- **Research stays abroad lasting more than three months**

2023-2024	Oden Institute, Univ. of Texas at Austin, USA (12-month research leave /forskningstermin)
2018-2018	Oden Institute, Univ. of Texas at Austin, USA (6-month research leave /forskningstermin)
2015-2016	Institute of Computational Engineering & Science (now Oden Institute), UT Austin, USA
2010-2011	Dept of Electrical and Computer Engineering, Univ. of Texas at Austin, USA
2005-2005	Dept of Electrical and Computer Engineering, Univ. of Texas at Austin, USA (6 months)

PROJECT MANAGEMENT EXPERIENCE (selected)
Projects funded by Research Council of Norway, international research programmes, ++

2021-2028	***SFI Centre for Geophysical Forecasting, w/ M.Landrø. Elster is WP Leader. ´***
2022	NSF funding to participate in summer CDR summer program re. teaching parallel computing held at Univ. of Massachusetts, Amherst, USA
2018-2022	Computational Microscopy of Porous Materials w/ Prof. Dag Breiby, NTNU Physics (PI) -- Work Package Leader, RCN (NFR) FRINATEK (funding approved in 2018)
Dec 2018	Heterogeneous Tensor Computing, PI, NTNU AVIT (NOK 3.5 million for NVIDIA DGX2) -- Common resource for several IE Departments
2017-2018	EU H2020 MSCA PostDoc funding for project TICOH -Taming Irregular Comp. on Heterogeneous processors, PI. PostDoc: Wei Li.
2015-2018	CloudLightning: Self-Organizing, Self-Managed Heterogeneous Clouds, NTNU PI, Work Package Leader, and Risk Manager (2015-16), EU H2020 R&I Project with 7 Partners
2014	PhD project on Porous Flow, PI, Statoil (now Equinor)

Also received substantial donations and discounts from Nvidia (incl. PI for GPU Teaching & Research Ctr)

SUPERVISION OF GRADUATE STUDENTS AND POST DOCS

Year	No. of	Master's students/ Ph.D./Postdocs	Name of faculty/department/centre, name of university/institution/country
2002-	100+	Master students	IE Faculty, Dept. of Computer Science
2002-	6+	PhDs	IE Faculty, Dept. of Computer Science
2002-	6+	Post Docs	IE Faculty, Dept. of Computer Science
2005	1	PhD	Co-supervisor, Dept. of ECE, UT Austin
2001	1	BSc Honors thesis	Co-supervisor, Dept. of ECE, UT Austin
1992	1	Master´s thesis	Co-supervisor, Computer Sci, Cornell Univ. New York, USA

TEACHING ACTIVITIES

2001 - present	Professor – Computer Science, at NTNU. Taught several courses yearly related to parallel computing both at master's and PhD level, including : • TDT24 – Spec. topics on Numerical Algorithms and Parallel Environments • TDT4200 Parallel Computing (3rd-4th year class; 105 students took final F´24) • TDT4105 Compilers • DT 8117 (Grid and Heterogeneous Computing) • DT8125 (co-taught with HPC-related guest lectures) Also taught IT-GK, a 1st year computer science course (co-instructor) in fall 2019 to be a strong female role model, as well as PhD course on Highly Parallel Algorithms (before 2019)
1998 - 2000	Adjunct faculty member – Data structures (ECE), Algorithms (both CS and ECE) and Operating System (ECE) Courses at Univ. of Texas at Austin, USA
2001	Instructor, ACENOR Inc. (my own company) -- Numerical Iterative Methods course co- taught with Dr. David Kincaid who I asked to join/Contract with US Air Force (WPAB), USA
1986 - 1991	Teaching Assistant -- Numerical Methods, Digital Logic Design, Assembly Language. Programming, and Intro to Computer Science, Cornell University, Ithaca, NY, USA

Have in addition given several guest lectures as part of summer schools, tutorials, seminar series,

ORGANISATION OF MEETINGS (selected)

2007-present	**SC XX – annual Supercomputing conference with now 15 000 participants. Have served in many roles, including Awards Committees, Co-chair for Workshops, Co-Chair for BoFs, Co-Chair for Posters (SC2008), and serve almost yearly on the Technical Program Committee.**
2024	**General Co-Chair, HCW, IEEE IPDPS, San Francisco, CA, USA, incl. organized a panel** 2023
2023	Program Co-Chair HCW, IEEE IPDPS, Florida, USA, incl. responsible for invited speakers
2021	*NIKT (Norwegian Informatics Conference)- General chair*
2009	Geilo Winter School, organizing committee
2009	Co-organized Minisymposium on GPUs at Parco 2009
2008	General Conference Chair, PARA 2008 (ca. 300 attendees), Trondheim, Norway

Have also organized a number of seminars, panels and minisymposia

INSTITUTIONAL RESPONSIBILITIES (selected)

2021 – 2022, 2024 - 2025	1st Alternate Board Member for faculty representatives on NTNU´s Main Board (1. vara , vitenskapelige ansatte) NTNU, Norway
2023	NTNU Board Member (representant for vitenskapelige ansatte) – appointed while one of the 3 regular faculty representatives were overseas.
2021 - 2025	Faculty (College) of Faculty of Information Technology and Electrical Engineering (IE) Board member, (representant for fast vitenskapelige)
2018 - 2021	1st Alternate on NTNU Main Board (1. vara vitenskapelige)
2009 - 2010	Dept. Section Head (one of 4), Dept. of Computer Science/ NTNU/ Norway
2008 – present	Founder and leader of HPC-Lab, Dept. of Computer Science/NTNU/Norway
2002 - 2010	Co-Founder and Co-director of NTNU Computational Science & Visualization (CSV) Program, NO, Director of Infrastructure CSV, incl. heavily involved in NTNU aquiring a new supercomputer in 2006
2005 - 2006	Board member, Computational Science Project lead by Prof. Syvert Nørsett, IMF, NTNU, Norway
2001-2005	Board member, Dept of Computer Science (IDI), NTN

COMMISSIONS OF TRUST IN ACADEMIC, PUBLIC OR PRIVATE ORGANISATIONS (if applicable)
Scientific advisory board/review board/review panel member/editorial board/scientific advisory board/reviewer/scientific evaluation/etc. *(SELECTED)*

2025, 2015, 2012	International Expert for SSF in Sweden (grantor of large research grants)
2007 - present	SC (a.k.a. Supercomputing) Conference --, Co-Chair BoFs (2020) , Deputy chair of Panels (2013), Co-chair of Posters(2008), and Tech program member YEARLY since 2005 incl. Tutorials (2007), BoFs (2018-19), and Tech Papers (most yrs) Includes serving on the IEEE Sid Fernbach Memorial Awards Committee, on of the top awards in HPC, as well as IEEE Scholarship Committee.
2019 - present	Associate Editor, IEEE Computational Science and Engineering journal
2019 - 2020	Associate Editor, IXXXX – I resigned due to Elsiever´s and Editor´s policies
2017 - 2021	NIKT (Norwegian Informatics Conference) Board member for NTNU
2015	NOKUT, Norwegian college accreditation board, Evaluator of two program applications frow two different colleges.
2014-2018	COST Action IC1305 - Network for Sustainable Ultrascale Computing (NESUS)
2018	ASC, Cluster competition Judge and invited speaker, Nanchang, China
2009-2014	COST Action IC0805 Open European Network for High Performance Computing on Complex Environments. Elster was one of 4 Working Group Leaders. Her working on this committee lead to her being one of the co-authors of the above NESUS COST Action proposal.
2007 - 2009	Expert Panel on Research Infrastructure, Danish Research Council (600 millionDKK)

	External/ International PhD Committee Work
Benjamin Chetioui	2nd Opponent with 1st Opponent Bjarne Stroustrup, **Dept. of Computer Science, Univ. of Bergen, Norway.** Defense Nov 27, 2024. Candidate @ Google Research
David Strelak	PhD eval committee for **(cotutelle of Masaryk University, Czech Republic and UAM, Spain; Defense:** Oct. 2022, Barcelona, Spain**.**
Carl-Johannes Johnsen	PhD committee /Opponent **at DIKU, Univ of Copenhagen**, **Denmark.** Profs. James Avery and Brian Vinter were advisors. Defense date: March 2022
Ali Charara	PhD Thesis Committee Member, **KAUST, Saudi Arabia**, May 9, 2018. Prof. David Keys was the main advisor. Defense date: May 9, 2018 @ KAUST.
Ivy Bo Peng	External evaluation committee member of **KTH , Sweden.** Her advisors were Profs Erwin Laure and Stefano Markidis, and the opponent was LLNL CTO Dr. Bronis R. de Supinski. Profs. Siegfried Benkner (Vienna) & Christoph Kessner (Linköping) served with Dr. Elster on the external committee. Defense date: Dec 29, 2019.
M. D. Naim	PhD Opponent **at Univ of Bergen**, Norway, June 27, 2017. Main Advisor: Prof. Fredrik Manne. http://www.uib.no/ii/108716/disputas-md-naim
Lane Holloway	**Elster was Co-supervisor, ECE, Univ. of Texa**s at Austin, USA (see PhD students). Defense was held in Austin, Texas, May 2016.
Kenneth Shovhede	Opponent, **Niels Bohr Institute, Copenhagen University**, Denmark. Main advisor for Brian Vinter. Defense held June 2013.
Michele Martone	EU evaluator of PhD thesis, **Tor Verghata, Univ, of Rome,** Italy, May 2011.
Young Liu	Second Opponent, Computer Science, **U of Tromsø, Norway,** Feb 2011
Penti Huttunen	Second Opponent at **Lappeenranta Univ. of Technology** , Finland. Dr. Kimmo Koski, now head of CSC in Finland was 1st Opppinet. Defence held Dec 2002.
2018	PhD Committee member -- Prof. David Keyes main advisor, KAUST, Saudi Arabia

On several faculty hiring review committees in Spain, Sweden and Norway, and served on several additional PhD committees in Norway (UiB, UiTø and NTNU) + MSc thesis grading & course re-grades for U of Oslo and U of Bergen, Norway.

MEMBERSHIPS OF ACADEMIES / SCIENTIFIC SOCIETIES / NETWORKS (if applicable) *Name of academies, scientific societies, network*

1983 - present	**IEEE and IEEE Computer Society.** Student VP & President @ UMass Amherst, **IEEE Senior Member since 2000**
1985 - present	Tekna – Norwegian Engineering Society, incl student rep. @ Cornell
1991 - present	SIAM – Society of Industrial and Applied Mathematics
Life Member	American Geophysical Union
2015 - 2019	EU H2020/ COST Action on Ultrascale Computing – was one of its proposal writers. With 30+ Member countries it was the largest EU Cost action network)
2010 - 2014	EU COST Action on Complex HPC -- was one of the Working Group Leaders

MAJOR COLLABORATIONS (selected)

	The University of Texas at Austin/Oden ICES/ISS (Prof. Pingali)
	Statoil/Equinor, Research Centre, Rotvoll, Trondheim
	Oracle (Research grant)
	Nvidia (sponsor of equipment, teaching; NVIDIA Teaching Center & NVIDIA Research Center
	Intel Ireland inkl. as partner-EU H2020 Project CloudLightning
	Maxell Ltd, UK – incl. partner in Cloudlightning

Academic Track Record

1. **Publications. The total number of publications during the career: 100+, includes best paper awards and "most download paper" acknowledgements.** Following is a list of selected publications published during the last 15 years / No. of citations. *See Google Scholar for updated information.*

Mary Hall, C Oancea, Anne C Elster, Ari Rasch, et al, "Scheduling languages: A past, present, and future taxonomy», arXiv preprint arXiv:2410.19927. Accepted with revisions for journal.

Michael Alexander,Sanjukta Bhowmick, Befikir Bogale, Gilberto Diaz, Anne C Elster, Danielle A Ellsworth, et al.: "EduHPC Lightning Talk Summary», Proceedings of the SC'23 Workshops of The International Conference on High Performance Computing, Network, Storage, and Analysis. Pages 374-378

Jacob O Tørring, Ben van Werkhoven, Filip Petrovč, Floris-Jan Willemsen, Jiří Filipovič, Anne C Elster: "Towards a Benchmarking Suite for Kernel Tuners", 2023 IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW). Cited by 4

A Rasch, R Schulze, D Shabalin, A Elster, S Gorlatch, M Hall: "(De/Re)-Compositions Expressed Systematically via MDH-Based Schedules», Proceedings of the 32nd ACM SIGPLAN International Conference on Compiler Construction, Pages 61-72, 2023.

Tobias Dyngeland and Anne C. Elster "Accelerating PFLOTRAN-OGS on GPUs using PETSc, NIKT 2023, Bibsys Open Journal Systems.

Sonia Alarcon and Anne C. Elster, Quantum computing and high-performance computing: compilation stack similarities, *IEEE Computing in Science & Engineering* 24 (6), 66-71. Cited by 4.

Anne C. Elster, Tor A. Haugdahl, Nvidia Hopper GPU and Grace CPU Highlights, IEEE CiSE 24 (DOI 10.1109/MCSE.2022.3163817), 95-100, **Cited by 75+**

JR Jørgensen, K Scheel, I Assent, A Ram, AC Elster, GPU-FAST-PROCLUS: a fast GPU-parallelized approach to projected clustering , Cited by 14

Z Xiao, PC Wei, AT Chronopoulos, AC Elster A distributed integrated feature selection scheme for column subset selection IEEE Transactions on Knowledge and Data Engineering 35 (3), 2193-2205. 8 citations

JO Tørring, JC Meyer, AC Elster, Autotuning Benchmarking Techniques: A Roofline Model Case Study, 2021 IEEE International Parallel and Distributed Processing Symposium

T.F. Falch, A.C. Elster, ImageCL: Language and source-to-source compiler for performance portability, load balancing, and scalability prediction on heterogeneous systems, in *Concurrency and Computation: Practice and Experience* 30 (9), e4384, Wiley (2018). **Cited by 20**.

T.F. Falch, A.C. Elster, Machine learning-based auto-tuning for enhanced performance portability of OpenCL applications in *Concurrency and Computation: Practice and Experience 29* (8), e4029 ,Wiley, 2017. **40+ citations, another 50+ citing the original conferences version**.

E. Smistad, T. L. Falch, M. Bozorgi, A. C. Elster, and F. Lindseth, "Medical image segmentation on GPUs – a comprehensive review," *Medical Image Analysis*, vol. 20, no. 1, pp. 1–18, 2015.**350+ citations.**

Erik Smistad, AC Elster, F Lindseth, GPU accelerated segmentation and centerline extraction of tubular structures from medical images, *Int. Jour. Comp. assisted radiology and surgery* 9 (4), 561-575, 2014. **75+ citations.**

D. S. Katz et al. Summary of the First Workshop on Sustainable Software for Science: Practice and Experiences (WSSSPE1), *Journal of Open Research Software* 2 (1), 2014. **60+ citations**

T. L. Falch, J. B. Floystad, D. W. Breiby, and A. C. Elster, "GPU-accelerated visualization of scattered point data," *IEEE Access*, vol. 1, pp. 564–576, 2013. **10 citations**.

Ø. E. Krog and A. C. Elster, "Fast GPU-based fluid simulations using SPH," in *Applied Parallel and Scientific Computing: 10th Int. Conference, PARA 2010, Reykjavík, Iceland, June 6-9, 2010, Revised Selected Papers, Part II*, K. Jónasson, Ed. Springer Berlin Heidelberg, 2012, pp. 98–109. **50+ citations**

A. A. Aqrawi and A. C. Elster, "Bandwidth reduction through multithreaded compression of seismic images," in *Parallel and Distributed Processing Workshops and Phd Forum (IPDPSW), 2011 IEEE International Symposium on*, IEEE, 2011, pp. 1730–1739. **Cited by 20+.**

D. G. Spampinato, A. C. Elster, and T. Natvig, "Modelling Multi-GPU systems.," in *Parallel Computing: From Multicores and GPU's to Petascale*, vol. 19, IO Press, 2010, pp. 562–569. **20+ citations.**

D. G. Spampinato and A. C. Elster, "Linear optimization on modern GPUs," in *2009 IEEE International Symposium on Parallel Distributed Processing*, 2009, pp. 1–8. **79 citations.**

3. Research monographs and any translations thereof (if applicable).

Parallelization Techniques and Particle-in-Cell Code, PhD Thesis, Cornell University (1994)

4. Examples of leadership/participation in industrial or public innovation or design and/or highlights from research or innovation with societal impact (if applicable).

• Pushed for the first CUDA Tutorial at SC07. Collaborate(d) with several industrial partners through master students, including Equinor, Numerical Rocks, Schlumberger and several more. Several of my students have been driving the adaption of GPU technologies in Norwegian companies.

5. Invited presentations to peer-reviewed national or international conferences and/or international advanced schools (selected).

2025 – Keynote at IEEE CCGrid, March 2025

2021 - Plenary Talk 2: Parallel Computing and AI: Impact and Opportunities, 2021 International Mobile, Intelligent, and Ubiquitous Computing Conference (MIUCC)

2019 – Invited speaker at Supercomputing Frontiers 2019, Warsaw, Poland.
See: https://supercomputingfrontiers.eu/2019/

6. Experiences from major research communication, dissemination or outreach activities and/or invited presentations in public conferences (selected).

2024, 2019 – Invited presentation at ScalPerf 2019 Workshop, Bertinoro, Italy
2020 – Invited presentations at Maui HPC Center (AFL), Maui, Hawaii, USA
2020 – Invited presentation and Multicore Worlds, New Zealand

2019-2021 IEEE Computer Society Distinguished speaker. (Europe/Middle East/Africa + North America. See https://www.computer.org/profiles/anne-c-elster
2019 - Invited IEEE CS DVP talks at Univ. of Connecticut and Central Connecticut State Univ.
2018 - Informal presentation at MIT CSAIL, Boston, USA and SUNY Stonybrook, NY, USA

2018 - Workshop presentation and ASC Judge, Nanchang, China, May 2018

2016 - Invitert paneldebatt medlem, NOKUT Frokostmøte/Pressekonferanse, Oslo

2007- 2019 – Hosted NTNU´s Booth yearly @SC. Also hosted booth at ISC a couple of times

Participated for several years at NTNU´s Researcher´s Night with HPC-Lab stand.

Interview in Digi.no January, 2025 + several others.