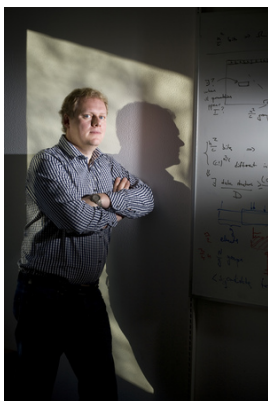


Curriculum Vitæ



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Brief Biography

Gerth Stølting Brodal is a Professor at the [Department of Computer Science, Aarhus University](#), Denmark (since January 2016). He received his PhD in computer science in 1997 from Aarhus University for the thesis “Worst Case Efficient Data Structures”. From 1997 to 1998 he was a PostDoc in the group of [Kurt Mehlhorn](#) at the [Max-Planck-Institute for Computer Science](#) in Saarbrücken, Germany. 1998–2005 he was affiliated with [BRICS](#) (Center for Basic Research in Computer Science) located at the Department of Computer Science, Aarhus University. 2004–2015 he was an Associate Professor (tenured) at the Department of Computer Science, Aarhus University. March 2007–December 2017 he was affiliated with [MADALGO](#) (Center for Massive Data Algorithmics), Aarhus University, founded by the Danish National Research Foundation.

His main research interests are the design and analysis of algorithms and data structures. He has done work on fundamental data structures, including dictionaries and priority queues, persistent data structures, computational geometry, graph algorithms, string algorithms, I/O-efficient and cache-oblivious algorithms and data structures, algorithm engineering, and computational biology.

Education

- 1993–1997 PhD in Computer Science, Aarhus University, Denmark.
 Dissertation: Worst Case Efficient Data Structures.
 Advisor: Erik Meineche Schmidt.
 Committee: Mogens Nielsen (Aarhus), Arne Andersson (Lund), and J. Ian Munro (Waterloo).
- 1989–1994 MSc (cand.scient.) in Computer Science and Mathematics, Aarhus University, Denmark.
- 1988–1989 Military service, Jyske Telegrafregiment, Fredericia, Denmark.
- 1985–1988 “Studentereksamen”, Aabenraa Gymnasium og HF, Aabenraa, Denmark.

Positions

- 2016– Professor, Department of Computer Science, Aarhus University.
- 2009–2015 Associate Professor (tenured, Lektor MSK), Department of Computer Science, Aarhus University.
- 2004–2009 Associate Professor (tenured), Department of Computer Science, Aarhus University.
- 2001–2005 Associate Professor, BRICS, Department of Computer Science, Aarhus University.
- 1999–2001 Research Associate Professor, BRICS, Department of Computer Science, Aarhus University.

- 1998–1999 Research Assistant Professor, BRICS Ph.D. School, Department of Computer Science, Aarhus University.
- 1997–1998 PostDoc at the Max-Planck-Institut for Computer Science, Saarbrücken, Germany.

Funding

- 2013–2014 Aarhus University Research Foundation, Guest Researcher Grant, Seth Pettie (University of Michigan Ann Arbor), 250.000 DKK.
- 2011–2012 Slovenian Research Agency, Project: Algorithms on Massive Geographical LiDAR Data-sets - AMAGELDA (Principal investigator: Andrej Brodnik, Ljubljana Slovenia), 3.000 Euro (22.500 DKK).
- 2008–2009 **Nordic Network on Algorithms** from the Nordic Academy for Advanced Study (NORFA). Coordinator **Fedor V. Fomin**, University of Bergen, 600.000 NOK (510.000 DKK).
- 2005–2006 The Danish Natural Science Research Council, *Graph Algorithms and Constraint Programming*, PostDoc Irit Katriel, 480.000 DKK.
- 2005–2007 The Danish Natural Science Research Council, Grant no. 21-04-0389, *Algoritmer til rekonstruktion og sammenligning af træer og netværk*. Coordinator **Christian N.S. Pedersen**, Aarhus University, 360.000 DKK.
- 2005–2007 **Nordic Network on Algorithms** from the Nordic Academy for Advanced Study (NORFA). Coordinator **Fedor V. Fomin**, University of Bergen, 900.000 NOK (825.000 DKK).
- 2002–2005 Associate Professor grant from the **Carlsberg Foundation**, 1.350.000 DKK.
- 1998 Scholarship (PostDoc) from the Max-Planck-Institut für Informatik, Saarbrücken, Germany, 10.200 DM (39.200 DKK).
- 1997–1998 Scholarship (PostDoc) from the **Carlsberg Foundation**, 300.000 DKK.
- 1997 Scholarship (PostDoc) from the Max-Planck-Institut für Informatik, Saarbrücken, Germany, 10.200 DM (39.200 DKK).
- 1995–1997 Scholarship (PhD-stipendium) from the Danish Natural Science Research Council, 717.591 DKK.
- 1993–1995 Scholarship (Scholarstipendium) from the Danish Research Academy, 156.000 DKK.

Awards

- 2019 **Lecturer of the Year**. Department of Computer Science, Aarhus University.
- 2017 **Lecturer of the Year**. Department of Computer Science, Aarhus University.
- 2012 **Lecturer of the Year**. Department of Computer Science, Aarhus University.
- 2001 Best paper award 12th Annual International Symposium on Algorithms and Computation, for the paper “Computing the Quartet Distance Between Evolutionary Trees in Time $O(n \log^2 n)$ ”, coauthored with Rolf Fagerberg and Christian N. S. Pedersen.

Publications

Editor

- 1 *Algorithms - ESA 2005: 13th Annual European Symposium, Palma de Mallorca, Spain, 3–6 October 2005*, Gerth Stølting Brodal and Stefano Leonardi (Edt.), Volume 3669 of Lecture Notes in Computer Science. Springer Verlag, Berlin, 2005, doi: [10.1007/11561071](https://doi.org/10.1007/11561071).
- 2 *Algorithm Engineering – 5th International Workshop (WAE 2001), Aarhus, Denmark, 28–31 August 2001*, Gerth Stølting Brodal, Daniele Frigioni and Alberto Marchetti-Spaccamela (Edt.), Volume 2141 of Lecture Notes in Computer Science. Springer Verlag, Berlin, 2001, doi: [10.1007/3-540-44688-5](https://doi.org/10.1007/3-540-44688-5).

Book Chapter

- 3 Gerth Stølting Brodal, *Cache-Oblivious Sorting*. In *Encyclopedia of Algorithms*, Ming-Yang Kao (Edt.), pages 126-129. Springer Verlag, Berlin, 2008, doi: [10.1007/978-0-387-30162-4_63](https://doi.org/10.1007/978-0-387-30162-4_63).
- 4 Lars Arge, Gerth Stølting Brodal and Rolf Fagerberg, *Cache-Oblivious Data Structures*. In *Handbook of Data Structures and Applications*, Dinesh Mehta and Sartaj Sahni (Edt.), Chapter 34, 27 pages. CRC Press, 2005, doi: [10.1201/9781420035179.ch34](https://doi.org/10.1201/9781420035179.ch34).
- 5 Gerth Stølting Brodal, *Finger Search Trees*. In *Handbook of Data Structures and Applications*, Dinesh Mehta and Sartaj Sahni (Edt.), Chapter 11, 11 pages. CRC Press, 2005, doi: [10.1201/9781420035179.ch11](https://doi.org/10.1201/9781420035179.ch11).

Journal Article

- 6 Edvin Berglin and Gerth Stølting Brodal, *A Simple Greedy Algorithm for Dynamic Graph Orientation*. To appear in *Algorithmica*, 2018, doi: [10.1007/s00453-018-0528-0](https://doi.org/10.1007/s00453-018-0528-0).
- 7 Gerth Stølting Brodal, Pooya Davoodi, Moshe Lewenstein, Rajeev Raman and S. Srinivasa Rao, *Two Dimensional Range Minimum Queries and Fibonacci Lattices*. In *Theoretical Computer Science*, Volume 638, pages 33-43, 2016, doi: [10.1016/j.tcs.2016.02.016](https://doi.org/10.1016/j.tcs.2016.02.016).
- 8 Gerth Stølting Brodal, Spyros Sioutas, Kostas Tsichlas and Christos D. Zaroliagis, *D²-Tree: A New Overlay with Deterministic Bounds*. In *Algorithmica*, Volume 72(3), pages 860-883, 2015, doi: [10.1007/s00453-014-9878-4](https://doi.org/10.1007/s00453-014-9878-4).
- 9 Gerth Stølting Brodal, Gabriel Moruz and Andrei Negoescu, *OnlineMin: A Fast Strongly Competitive Randomized Paging Algorithm*. In *Theory of Computing Systems, Special issue of the 9th Workshop on Approximation and Online Algorithms*, Volume 56(1), pages 22-40, 2015, doi: [10.1007/s00224-012-9427-y](https://doi.org/10.1007/s00224-012-9427-y).
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- 12 Gerth Stølting Brodal, Mark Greve, Vineet Pandey and S. Srinivasa Rao, *Integer Representations towards Efficient Counting in the Bit Probe Model*. In *Journal of Discrete Algorithms*, Volume 26, pages 34-44, 2014, doi: [10.1016/j.jda.2013.11.001](https://doi.org/10.1016/j.jda.2013.11.001).
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- 14 Andreas Sand, Gerth Stølting Brodal, Rolf Fagerberg, Christian Nørgaard Storm Pedersen and Thomas Mailund, *A practical $O(n \log^2 n)$ time algorithm for computing the triplet distance on binary trees*. In *BMC Bioinformatics*, Volume 14(Suppl 2), S18 pages, 2013, doi: [10.1186/1471-2105-14-S2-S18](https://doi.org/10.1186/1471-2105-14-S2-S18).
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- 18 Martin Kutz, Gerth Stølting Brodal, Kanela Kaligosi and Irit Katriel, *Faster Algorithms for Computing Longest Common Increasing Subsequences*. In *Journal of Discrete Algorithms, Special Issue*

- of *CPM 2006*, Volume 9(4), pages 314-325. Elsevier Science, 2011, doi: [10.1016/j.jda.2011.03.013](https://doi.org/10.1016/j.jda.2011.03.013).
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 - 21 Martin Stissing, Thomas Mailund, Christian Nørgaard Storm Pedersen, Gerth Stølting Brodal and Rolf Fagerberg, *Computing the All-Pairs Quartet Distance on a set of Evolutionary Trees*. In *Journal of Bioinformatics and Computational Biology*, Volume 6(1), pages 37-50, 2008, doi: [10.1142/S0219720008003266](https://doi.org/10.1142/S0219720008003266).
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 - 23 Gerth Stølting Brodal, Loukas Georgiadis and Irit Katriel, *An $O(n \log n)$ Version of the Averbakh-Berman Algorithm for the Robust Median of a Tree*. In *Operations Research Letters*, Volume 36(1), pages 14-18, 2008, doi: [10.1016/j.orl.2007.02.012](https://doi.org/10.1016/j.orl.2007.02.012).
 - 24 Gerth Stølting Brodal, Rolf Fagerberg and Kristoffer Vinther, *Engineering a Cache-Oblivious Sorting Algorithm*. In *ACM Journal of Experimental Algorithmics, Special Issue of 6th Workshop on Algorithm Engineering and Experiments*, Volume 12(Article No. 2.2), 23 pages, 2007, doi: [10.1145/1227161.1227164](https://doi.org/10.1145/1227161.1227164).
 - 25 Thomas Mailund, Gerth Stølting Brodal, Rolf Fagerberg, Christian Nørgaard Storm Pedersen and Derek Phillips, *Recrafting the Neighbor-Joining Method*. In *BMC Bioinformatics*, Volume 7(29), 2006, doi: [10.1186/1471-2105-7-29](https://doi.org/10.1186/1471-2105-7-29).
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 - 27 Lars Arge, Gerth Stølting Brodal and Laura Toma, *On External-Memory MST, SSSP and Multiway Planar Graph Separation*. In *Journal of Algorithms*, Volume 53(2), pages 186-206, 2004, doi: [10.1016/j.jalgor.2004.04.001](https://doi.org/10.1016/j.jalgor.2004.04.001).
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 - 29 Gerth Stølting Brodal, George Lagogiannis, Christos Makris, Athanasios Tsakalidis and Kostas Tsichlas, *Optimal Finger Search Trees in the Pointer Machine*. In *Journal of Computer and System Sciences, Special issue on 34th Annual ACM Symposium on Theory of Computing*, Volume 67(2), pages 381-418, 2003, doi: [10.1016/S0022-0000\(03\)00013-8](https://doi.org/10.1016/S0022-0000(03)00013-8).
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 - 31 Gerth Stølting Brodal and M. Cristina Pinotti, *Comparator Networks for Binary Heap Construction*. In *Theoretical Computer Science*, Volume 250(1-2), pages 235-245, 2001, doi: [10.1016/S0304-3975\(99\)00137-1](https://doi.org/10.1016/S0304-3975(99)00137-1).
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 - 33 Gerth Stølting Brodal, Rune Bang Lyngsø, Christian Nørgaard Storm Pedersen and Jens Stoye, *Finding Maximal Pairs with Bounded Gap*. In *Journal of Discrete Algorithms, Special Issue of Matching Patterns*, Volume 1(1), pages 77-104. Hermes Science Publishing Ltd, Oxford 2000, 2000.
 - 34 Gerth Stølting Brodal, *Priority Queues on Parallel Machines*. In *Parallel Computing*, Volume 25(8), pages 987-1011, 1999, doi: [10.1016/S0167-8191\(99\)00032-0](https://doi.org/10.1016/S0167-8191(99)00032-0).

- 35 Gerth Stølting Brodal, Jesper Larsson Träff and Christos D. Zaroliagis, *A Parallel Priority Queue with Constant Time Operations*. In *Journal of Parallel and Distributed Computing, Special Issue on Parallel Data Structures*, Volume 49(1), pages 4-21, 1998, doi: [10.1006/jpdc.1998.1425](https://doi.org/10.1006/jpdc.1998.1425).
- 36 Gerth Stølting Brodal, Shiva Chaudhuri and Jaikumar Radhakrishnan, *The Randomized Complexity of Maintaining the Minimum*. In *Nordic Journal of Computing, Selected Papers of the 5th Scandinavian Workshop on Algorithm Theory (SWAT'96)*, Volume 3(4), pages 337-351, 1996.
- 37 Gerth Stølting Brodal, *Partially Persistent Data Structures of Bounded Degree with Constant Update Time*. In *Nordic Journal of Computing*, Volume 3(3), pages 238-255, 1996.
- 38 Gerth Stølting Brodal and Chris Okasaki, *Optimal Purely Functional Priority Queues*. In *Journal of Functional Programming*, Volume 6(6), pages 839-858, November 1996, doi: [10.1017/S095679680000201X](https://doi.org/10.1017/S095679680000201X).

Conference Paper

- 39 Gerth Stølting Brodal and Konstantinos Mampentzidis, *Cache Oblivious Algorithms for Computing the Triplet Distance between Trees*. In *Proc. 25th Annual European Symposium on Algorithms*, Volume 87 of Leibniz International Proceedings in Informatics, pages 21:1-21:14. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, Dagstuhl Publishing, Germany, 2017, doi: [10.4230/LIPIcs.ESA.2017.21](https://doi.org/10.4230/LIPIcs.ESA.2017.21).
- 40 Gerth Stølting Brodal, *External Memory Three-Sided Range Reporting and Top-k Queries with Sublogarithmic Updates*. In *Proc. 33rd Annual Symposium on Theoretical Aspects of Computer Science*, Volume 47 of Leibniz International Proceedings in Informatics, pages 23:1-23:14. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, Dagstuhl Publishing, Germany, 2016, doi: [10.4230/LIPIcs.STACS.2016.23](https://doi.org/10.4230/LIPIcs.STACS.2016.23) (presentation pdf, pptx).
- 41 Gerth Stølting Brodal, Jesper Sindahl Nielsen and Jakob Truelsen, *Strictly Implicit Priority Queues: On the Number of Moves and Worst-Case Time*. In *Proc. 14th International Workshop on Algorithms and Data Structures*, Volume 9214 of Lecture Notes in Computer Science, pages 1-12. Springer Verlag, Berlin, 2015, doi: [10.1007/978-3-319-21840-3_8](https://doi.org/10.1007/978-3-319-21840-3_8).
- 42 Djamal Belazzougui, Gerth Stølting Brodal and Jesper Sindahl Nielsen, *Expected Linear Time Sorting for Word Size $\Omega(\log^2 n \log \log n)$* . In *Proc. 14th Scandinavian Workshop on Algorithm Theory*, Volume 8503 of Lecture Notes in Computer Science, pages 26-37. Springer Verlag, Berlin, 2014, doi: [10.1007/978-3-319-08404-6_3](https://doi.org/10.1007/978-3-319-08404-6_3).
- 43 Gerth Stølting Brodal and Kasper Green Larsen, *Optimal Planar Orthogonal Skyline Counting Queries*. In *Proc. 14th Scandinavian Workshop on Algorithm Theory*, Volume 8503 of Lecture Notes in Computer Science, pages 98-109. Springer Verlag, Berlin, 2014, doi: [10.1007/978-3-319-08404-6_10](https://doi.org/10.1007/978-3-319-08404-6_10) (presentation pdf, pptx).
- 44 Morten Kragelund Holt, Jens Johansen and Gerth Stølting Brodal, *On the Scalability of Computing Triplet and Quartet Distances*. In *Proc. 16th Workshop on Algorithm Engineering and Experiments*, pages 9-19, 2014, doi: [10.1137/1.9781611973198.2](https://doi.org/10.1137/1.9781611973198.2) (presentation pdf, pptx).
- 45 Lars Arge, Gerth Stølting Brodal, Jakob Truelsen and Constantinos Tsirogiannis, *An Optimal and Practical Cache-Oblivious Algorithm for Computing Multiresolution Rasters*. In *Proc. 21st Annual European Symposium on Algorithms*, Volume 8125 of Lecture Notes in Computer Science, pages 61-72. Springer Verlag, Berlin, 2013, doi: [10.1007/978-3-642-40450-4_6](https://doi.org/10.1007/978-3-642-40450-4_6).
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- 47 Gerth Stølting Brodal, *A Survey on Priority Queues*. In *Proc. Conference on Space Efficient Data Structures, Streams and Algorithms – Papers in Honor of J. Ian Munro on the Occasion of His 66th Birthday*, Volume 8066 of Lecture Notes in Computer Science, pages 150-163. Springer Verlag, Berlin, 2013, doi: [10.1007/978-3-642-40273-9_11](https://doi.org/10.1007/978-3-642-40273-9_11) (presentation pdf, pptx).
- 48 Gerth Stølting Brodal, Rolf Fagerberg, Christian Nørgaard Storm Pedersen, Thomas Mailund and Andreas Sand, *Efficient Algorithms for Computing the Triplet and Quartet Distance Between Trees of Arbitrary Degree*. In *Proc. 24th Annual ACM-SIAM Symposium on Discrete Algorithms*, pages 1814-1832, 2013, doi: [knowledgecenter.siam.org/0236-000098](https://doi.org/10.1007/978-1-4939-2362-1_111) (presentation pdf, pptx).

- 49 Gerth Stølting Brodal, Jesper Sindahl Nielsen and Jakob Truelsen, *Finger Search in the Implicit Model*. In *Proc. 23th Annual International Symposium on Algorithms and Computation*, Volume 7676 of Lecture Notes in Computer Science, pages 527-536. Springer Verlag, Berlin, 2012, doi: [10.1007/978-3-642-35261-4_55](https://doi.org/10.1007/978-3-642-35261-4_55).
- 50 Gerth Stølting Brodal, George Lagogiannis and Robert E. Tarjan, *Strict Fibonacci Heaps*. In *Proc. 44th Annual ACM Symposium on Theory of Computing*, pages 1177-1184, 2012, doi: [10.1145/2213977.2214082](https://doi.org/10.1145/2213977.2214082) (presentation pdf, pptx).
- 51 Gerth Stølting Brodal and Casper Kejlberg-Rasmussen, *Cache-Oblivious Implicit Predecessor Dictionaries with the Working Set Property*. In *Proc. 29th Annual Symposium on Theoretical Aspects of Computer Science*, Volume 14 of Leibniz International Proceedings in Informatics, pages 112-123. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, Dagstuhl Publishing, Germany, 2012, doi: [10.4230/LIPIcs.STACS.2012.112](https://doi.org/10.4230/LIPIcs.STACS.2012.112).
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- 53 Gerth Stølting Brodal, Pooya Davoodi and S. Srinivasa Rao, *Path Minima Queries in Dynamic Weighted Trees*. In *Proc. 12th International Workshop on Algorithms and Data Structures*, Volume 6844 of Lecture Notes in Computer Science, pages 290-301. Springer Verlag, Berlin, 2011, doi: [10.1007/978-3-642-22300-6_25](https://doi.org/10.1007/978-3-642-22300-6_25).
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- 55 Peyman Afshani, Gerth Stølting Brodal and Norbert Zeh, *Ordered and Unordered Top-K Range Reporting in Large Data Sets*. In *Proc. 22nd Annual ACM-SIAM Symposium on Discrete Algorithms*, pages 390-400, 2011, doi: [10.1137/1.9781611973082.31](https://doi.org/10.1137/1.9781611973082.31).
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Program Committees

IWOCA19, ICALP19, STACS19, SOFSEM17, SODA17, ALENEX16, IWOCA15, EuroCG15, ISAAC14, IWOCA14, MASSIVE14, MFCS14, ICALP14, SODA14, MASSIVE13, FCT13, IWOCA13, LATA13, MASSIVE12, IWOCA12, ALENEX12, IWOCA11, MASSIVE11, ESA10, IWOCA10, MASSIVE10, SWAT10, LATIN10, WADS09, SPAA09, ICALP09, MASSIVE09 (co-chair of program committee), SEA09, WEA08, ISPA07, WADS07, ATCP07, STACS07, SODA07, ALENEX07 (co-chair of program committee), SPIRE06, SWAT06, STOC05, WEA05, FSTTCS04, ESA04 (co-chair of program committee), ICALP04, CPM04, FUN04, LATIN04, SODA04, WADS03, ICALP03 (co-chair of program committee), PDP03, ALENEX03, ESA01, WAAAPL99.

Invited Speaker

- 2008 Lectures on lower bounds and string algorithms. *MADALGO Summer School on Cache Oblivious Algorithms*. MADALGO, Aarhus University, Denmark, 17–21 Aug 2008.
- 2008 Word RAM algorithms. *International PhD School in Algorithms for Advanced Processor Architectures (AFAPA)*. IT University of Copenhagen, Denmark, 9–12 Jun 2008 (presentation [pdf](#), [pptx](#)).
- 2004 *Cache-Oblivious Algorithms and Data Structures*. *9th Scandinavian Workshop on Algorithm Theory (SWAT)*. Louisiana Museum of Modern Art, Humlebæk, Denmark, 8–10 Jul 2004 (presentation [pdf](#)).
- 1999 Regularities in Sequences. *Workshop on Advances in Data Structures, preworkshop of the 19th Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS)*. Chennai, India, 11–12 Dec 1999 (presentation [pdf](#)).

Services

- 2019 Co-organizer Dagstuhl Seminar on “Data Structures for the Cloud and External Memory Data”. Dagstuhl, Germany.
- 2014–2018 Co-Editor-in-Chief Journal of Discrete Algorithms.
- 2014–2022 Member of the Danish Censor list for Engineering (Mathematics, Physics, and Social Sciences).
- 2010–2016 Member of the Computer Science Group (Group 38) of the Danish Bibliometric Research Indicator, chair January 2014–December 2016.
- 2010 Member of the Scientific Panel for e-Science, the Danish National Roadmap for Research Infrastructures.
- 2010–2013 Member of the Scientific Advising Group for the ESS Data Management Centre.
- 2007–2016 Member of the Steering Committee, Meeting on Algorithm Engineering and Experiments (ALENEX).
- 2006–2022 Member of the Danish Censor list for Computer Science.
- 2006 Responsible for the electronic submission server and the electronic server for the program committee of the 10th Scandinavian Workshop on Algorithm Theory, Riga, Latvia.
- 2004–2007 Member of the Steering Committee, European Symposium on Algorithms (ESA).
- 2000–2004 Responsible for the electronic server handling **ALCOM-FT** technical reports.
- 1999 Co-responsible for the electronic submission server and the electronic server for the program committee of the 3rd Workshop on Algorithm Engineering, London, UK.
- 1997 Editor of the Oberwolfach report “Tagungsbericht 29/1997 – Effiziente Algorithmen”.