Lasse Holmström August 12, 2024

CURRICULUM VITAE AND PUBLICATIONS

Name and current address

Lasse Holmström
University of Oulu
Research Unit of Mathematical Sciences
P.O.Box 3000
90014 University of Oulu
Finland

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Date and place of birth, marital status

June 27, 1951, Helsinki, Finland
Married, three children

Education

University of Helsinki (1971-1978):

B.S. (Mathematics), 1974
M.S. (Mathematics), 1975
Licentiate in Philosophy (Mathematics), 1977

Clarkson College of Technology, Potsdam, New York, USA (1978 - 1979):

Ph.D. (Mathematics), 1980
Doctoral Thesis: A Study on the Structure of Nuclear Köthe Spaces
Thesis advisor: Professor Ed Dubinsky

Positions held

In Finland

University of Oulu, Department of Mathematical Sciences:

Professor (2003 - 2017)
Department Chair (2006 - 2013, 2015)
Chair of the Research Unit of Applied Mathematics and Statistics (2016)

Rolf Nevanlinna Institute (University of Helsinki):

Director (1999 - 2000, 2002 - 2003)
Research Division Head (1995 - 2003)
Associate Professor (1994 - 1995)
Senior Fellow (1992 - 1993)
Acting Director (1992)
Research Fellow (1988 - 1989)

Academy of Finland (Research Council for Natural Sciences and Engineering): Senior Scientist (2008)

Academy of Finland (Research Council for Technology): Senior Fellow (1990 - 1992)

Helsinki University of Technology, Laboratory of Information Processing Science: Research Fellow (1984 - 1988)

University of Helsinki, Department of Mathematics:

Assistant (1977 - 1978, 1979 - 1981, 1983 - 1984)
Lecturer (Fall 1980)
Docent of Mathematics (1983 -)

The Institute of Marine Research, Finland: Research Assistant (summers 1974 and 1975)

Abroad

The National Center for Atmospheric Research (NCAR), Boulder, Colorado, USA, Institute for Mathematics Applied to Geosciences (IMAGe): Visiting Senior Scientist (2008)

George Mason University, Fairfax, Virginia, USA, Center for Computational Statistics: Visiting Research Professor, (1997 - 1998)

Rice University, Houston, Texas, USA, Department of Statistics: Visiting Professor (1993)

Vassar College, Poughkeepsie, New York, USA, Department of Mathematics: Visiting Assistant Professor (1982 - 1983)

Clarkson College of Technology, Potsdam, New York, USA, Department of Mathematics and Computer Science: Visiting Assistant Professor (1981 - 1982)

Leader of research projects

Learning systems and their applications (funded by the Academy of Finland, Research Council for Technology, 1990 - 1995).

Self-Organisation and Analogical Modeling using Subsymbolic Computing (funded by the Technology Development Centre, 1989 - 1990, 1991 - 1993).

New Methods in the Analysis of Multidimensional Data (funded by University of Helsinki, 1994 - 1996).

Adaptive Image Analysis, the RNI group (funded by the Technology Development Centre, 1994 - 1995).

Intelligent Processing and Analysis of Images and Speech (funded by the Academy of Finland, Research Council for Science and Technology, 1996 - 1999).

Flexible Function Estimation and Neural Networks (funded by the Academy of Finland, Research Council for Science and Technology, 1999 - 2001).

New Modeling and Data Analysis Methods for Satellite Based Forest Inventory (a research consortium with Rolf Nevanlinna Institute, Finnish Forest Research Institute, and the Laboratory of Space Technology of the Helsinki University of Technology, funded by the Academy of Finland ANTARES Research Programme, 2001 - 2004).

Measuring the Environment: Analyzing Data from Fossils to Forests (funded by the Academy of Finland, Research Council for Science and Technology, 2003 - 2006).

Climate variability in NW Europe during the last 4000 years and its ecological consequences (CLIM-ECO) - Mathematical theory and predictive models for temporal dynamics (funded by the Academy of Finland, Research Council for Biosciences and Environment, 2008 - 2011).

Scale space methods for the analysis of environmental change - past present and future (funded by the Academy of Finland, Research Council for Science and Technology, 2012 - 2015)

LST - a novel approach for analysis and visualization of complex data (funded by Tekes, Finnish Funding Agency for Technology and Innovation, 2013 - 2015)

Ecological history and long-term dynamics of the boreal forest ecosystem (EBOR): Statistical modeling and data analysis (funded by the Academy of Finland, Research Council for Biosciences and Environment, 2014 - 2018).

Doctoral and licentiate's theses directed

Doctor:

Ari Hämäläinen, University of Jyväskylä, 1995
Petri Koistinen, Helsinki University of Technology, 1996
Jussi Klemelä, University of Helsinki, 1997
Fabian Hoti, University of Helsinki, 2004
Panu Erästö, University of Helsinki, 2006
Leena Pasanen, University of Oulu, 2012
Liisa Ilvonen, University of Oulu, 2016
Ilkka Launonen, University of Oulu, 2016
Ville Vuollo, University of Oulu, 2018

Licentiate:

Timo Laakko, Helsinki University of Technology, 1987
Ari Hämäläinen, University of Jyväskylä, 1992
Jussi Klemelä, University of Helsinki, 1992
Fabian Hoti, University of Helsinki, 2001
Panu Erästö, University of Helsinki, 2001
Heikki Kokkonen, University of Oulu, 2007
Juna-Matti Tirilä, University of Oulu 2010

Editorial Work

Comissioning Editor for WIREs Computational Statistics, 2016 -

Associate Editor of Scandinavian Journal of Statistics, 2004 - 2010

Reviewer for the NSA Mathematical Sciences Grant Program (USA), the Swedish Research Council and the Swedish Foundation for Strategic Research

Referee for several leading international journals in my field, such as Journal of the American Statistical Society, Technometrics, Computational Statistics and Data Analysis, Sankhya, IEEE Transactions on Signal Processing, Pattern Recognition Letters, IEEE Transactions on Neural Networks, Statistical Analysis and Data Mining

Other academic activities

Doctoral thesis defense opponent:

Jukka Heikkonen, Lappeenranta University of Technology, 1994
Kristian Hindberg, University of Tromsoe, 2012
Marc Geilhufe, University of Tromsoe, 2013

Doctoral thesis pre-examiner:

Jari Kangas, Helsinki University of Technology, 1994
Samuel Kaski, Helsinki University of Technology, 1996
Ilmari Juutilainen, University of Oulu, 2006
Miika Toivanen, Aalto University, 2010
Kristian Hindberg, University of Tromsoe, 2012
Marc Geilhufe, University of Tromsoe, 2013
Jukka Kohonen, University of Helsinki, 2014
Alberto Pessia, University of Helsinki, 2017

Licentiate's thesis referee:

Jukka Ranta, University of Helsinki, 1996
Tommi Vuorenmaa, University of Helsinki, 2004
Jukka Kemppainen, University of Oulu, 2004

Reviewer for a professorship:

Jouko Lampinen, Helsinki University of Technology, 2000
Jouko Lampinen, Helsinki University of Technology, 2005

Docentship referee:

Seppo Pohjolainen, University of Jyväskylä, 1996
Jari Kangas, Helsinki University of Technology, 1996
Jari Kangas, Tampere University of Technology, 1997
Aki Vehtari, University of Helsinki, 2006
Tapani Raiko, Aalto University, 2012

Graduate School Board Member

The Finnish Graduate School in Stochastics, 1998 - 2006
The Finnish Graduate School in Stochastics and Statistics, 2006 - 2015
School of Statistical Information, Inference, and Data Analysis, 2002 - 2006
Graduate School of Remote Sensing, 2002 - 2006
Graduate School in Computational Methods of Information Technology, 2001 - 2009

Other Academic Positions of Trust

Member of the management group of the Finnish International Visitor Program in Mathematics, 2001 - 2008

Trustee of the Research Foundation of Rolf Nevanlinna Institute, 1999 - 2014

Member of the Board of Rolf Nevanlinna Institute, 1993 - 2003

Member of the Council of the Faculty of Science, University of Oulu, 2005

Member of the Rolf Nevanlinna Institute Doctoral Thesis Prize Committee 2001 and 2009

Congress Committees

1989 Nordic Symposium on Neural Computing, Organizing Committee
1991 International Conference on Artificial Neural Networks, Program Committee
1996 International Conference on Artificial Neural Networks, Program Committee
2002 The 13th European Conference on Machine Learning (ECML'02), Program Committee
2008 The European Workshop on Intelligent Computational Methods and Applied Mathematics (ICMAM 2008), Program Committee

Professional societies

Member of:

American Statistical Association
Finnish Mathematical Society
Institute of Mathematical Statistics
Pattern Recognition Society of Finland

Publications

Appeared and Submitted Refereed Publications

[1] L. Holmström. On stable $D1$ and $D2$ spaces. *Archiv der Mathematik*, 36:546–553, 1981.

[2] L. Holmström. Universal classes of nuclear Köthe spaces with a continuous norm. *Journal of Functional Analysis*, 48(1):12–19, 1982.

[3] L. Holmström. A note on countably normed nuclear spaces. *Proceedings of the American Mathematical Society*, 89(3):453–456, 1983.

[4] L. Holmström. Superspaces of (s) with basis. *Studia Mathematica*, 75:139–152, 1983.

[5] E. Dubinsky and L. Holmström. Nuclear Fréchet spaces with locally round finite dimensional decompositions. *Monatshefte fur Mathematik*, 97:257–275, 1984.

[6] L. Holmström. Superspaces of (s) with strong finite dimensional decomposition. *Archiv der Mathematik*, 42:58–66, 1984.

[7] L. Holmström. Piecewise quadric blending of implicitly defined surfaces. *Computer Aided Geometric Desig*, 4:171–189, 1987.

[8] L. Holmström and T. Laakko. A rounding facility for solid modeling of mechanical parts. *Computer Aided Design*, 20(10):605–614, 1988.

[9] L. Holmström and T. Laakko. A blending facility for solid modeling of mechanical parts. In F. Kimura and A. Rolstadas, editors, *Computer Applications in Production Engineering CAPE '89*, pages 309–316. Elsevier Science Publishers B.V., 1989.

[10] L. Holmström, M. Mäntylä, P. Rekola, and T. Laakko. Ray tracing of boundary models with implicit blend surfaces. In W. Strasser and H-P Seidel, editors, *Theory and Practice of Geometric Modeling*, pages 253–271. Springer-Verlag, 1989.

[11] J. T. Alander, A. Autere, L. Holmström, P. Holmström, A. Hämäläinen, and J. Tuominen. Surface type recognition by a hair sensor using neural network methods. In E. Arikan, editor, *Proceedings of the 1990 Bilkent International Conference on New Trends in Communication, Control, and Signal Processing (BILCON)*, volume II, pages 1757–1764, Ankara, 2. - 5. July 1990.

[12] L. Holmström, P. Koistinen, and R. J. Ilmoniemi. Classification of unaveraged evoked cortical magnetic fields. In *Proc. IJCNN-90-WASH DC*, pages II: 359–362. Lawrence Erlbaum Associates, 1990.

[13] J. T. Alander, M. Frisk, L. Holmström, A. Hämäläinen, and J. Tuominen. Process error detection using self-organizing feature maps. In T. Kohonen, K. Mäkisara, O. Simula, and J. Kangas, editors, *Artificial Neural Networks*, volume 2, pages 1229–1232. Elsevier Science Publishers B.V. (North-Holland), 1991.

[14] L. Holmström and J. Klemelä. Asymptotic bounds for the expected L^1 error of a multivariate kernel density estimator. *Journal of Multivariate Analysis*, 42(2):245–266, 1992.

[15] L. Holmström and P. Koistinen. Using additive noise in back-propagation training. *IEEE Transactions on Neural Networks*, 3(1):24–38, January 1992.

[16] P. Koistinen and L. Holmström. Kernel regression and backpropagation training with noise. In J. E. Moody, S. J. Hanson, and R. P. Lippman, editors, *Advances in Neural Information Processing Systems 4*, pages 1033–1039, San Mateo, CA, 1992. Morgan Kaufmann Publishers.

[17] L. Holmström and A. Hämäläinen. The self-organizing reduced kernel density estimator. In *Proceedings of the 1993 IEEE International Conference on Neural Networks, San Francisco, California, March 28 - April 1*, volume 1, pages 417–421, 1993.

[18] L. Holmström and T. Kohonen. Neural networks. In E. Hyvönen, I. Karanta, and M. Syrjänen, editors, *Encyclopaedia of Artificial Intelligence*, pages 85–98. Gaudeamus Oy, 1993. In Finnish.

[19] L. Holmström. Neural networks vs. statistics: A comparison using high-energy physics data. In A. B. Bulsari and S. Kallio, editors, *Engineering Applications of Artificial Neural Networks. Proceedings of the International Conference EANN'95, Otaniemi, 21-23 August 1995, Finland*, pages 441–444, 1995.

[20] L. Holmström, A. Hottinen, and A. Hämäläinen. Using a self-organizing kernel density estimator for CDMA communications. In A. B. Bulsari and S. Kallio, editors, *Engineering Applications of Artificial Neural Networks. Proceedings of the International Conference EANN'95, Otaniemi, 21-23 August 1995, Finland*, pages 445–448, 1995.

[21] L. Holmström, S.R. Sain, and H.E. Miettinen. A new multivariate technique for top quark search. *Computer Physics Communications*, 88:195–210, 1995.

[22] H.E. Miettinen, L. Holmström, and S.R. Sain. Top quark search with probability density estimates and neural networks. In B. Denby and D. Perret-Gallix, editors, *New Computing Techniques in Physics Research IV*, pages 473–478, Singapore, 1995. World Scientific.

[23] A. Hämäläinen and L. Holmström. Complexity reduction in probabilistic neural networks. In C. von der Malsburg, W. von Seelen, J.C.Vorbrüggen, and B. Sendhoff, editors, *Artificial Neural Networks-ICANN' 96, Proceedings of the 1996 International Conference, Bochum, Germany*, pages 65–70, July 1996. Lecture Notes in Computer Science 1112, Springer.

[24] L. Holmström, P. Koistinen, J. Laaksonen, and E. Oja. Neural network and statistical perspectives of classification. In *Proceedings of the 13th International Conference on Pattern Recognition, ICPR-96, Vienna*, pages IV: 286–290, Los Alamitos, CA, 1996. IEEE Computer Society Press.

[25] A. Hottinen and L. Holmström. Projection pursuit for CDMA communications. In *Proceedings of the 30th Annual Conference on Information Sciences and Systems (CISS'96)*, pages 101–106, New Jersey, March 1996.

[26] L. Holmström. The error and the computational complexity of a multivariate binned kernel density estimator. In D.W. Scott, editor, *Computing Science and Statistics,* 29(1), pages 519–528. Interface Foundation of North America, Inc., Fairfax Station, VA 22039-7460, 1997.

[27] L. Holmström, P. Koistinen, J. Laaksonen, and E. Oja. Neural and statistical classifiers—taxonomy and two case studies. *IEEE Transactions on Neural Networks*, 8(1):5–17, 1997.

[28] L. Holmström and S.R. Sain. Multivariate discrimination methods for top quark analysis. *Technometrics*, 39(1):91–99, February 1997.

[29] L. Holmström and F. Hoti. Radial basis function classification as computationally efficient kernel regression. In *IJCNN '98, Proceedings of the 1998 IEEE International Joint Conference on Neural Networks, Anchorage, Alaska, May 4–9*, pages 1305–1310, 1998.

[30] F. Hoti and L. Holmström. Reduced Kernel Regression for Fast Classification. In L. Arkeryd, J. Berg, P. Brenner, and R. Pettersson, editors, *Progress in Industrial Mathematics at ECMI 98*, pages 405–412. B. G. Teubner Stuttgart · Leipzig, 1999.

[31] L. Holmström. The accuracy and the computational complexity of a multivariate binned kernel density estimator. *Journal of Multivariate Analysis*, 72(2):264–309, 2000.

[32] A. Korhola, J. Weckström, L. Holmström, and P. Erästö. A quantitative Holocene climatic record from diatoms in northern Fennoscandia. *Quaternary Research*, 54:284–294, 2000.

[33] L. Holmström and P. Erästö. Making inferences about past environmental change using smoothing in multiple time scales. *Computational Statistics & Data Analysis*, 41(2):289–309, 2002.

[34] F.J. Hoti, M.J. Sillanpää, and L. Holmström. A note on estimating the posterior density of a qualitative trait locus from a Markov chain Monte Carlo sample. *Genetic Epidemiology*, 22:369–376, 2002.

[35] B. Knuteson, H.E. Miettinen, and L. Holmström. αPDE: A new multivariate technique for parameter estimation. *Computer Physics Communications*, 145(3):351–356, 2002.

[36] F. Hoti and L. Holmström. On the estimation error in binned local linear regression. *Journal of Nonparametric Statistics*, 15(4-5):625–642, 2003.

[37] F. Hoti and L. Holmström. Application of semiparametric density estimation to classification. In *Proceedings of the 17th International Conference on Pattern Recognition, ICPR2004, Volume 3, Session 2P.We-i (Classification)*, Cambridge, United Kingdom, 2004. IEEE Computer Society Press, Los Alamitos, CA.

[38] F. Hoti and L. Holmström. A semiparametric density estimation approach to pattern classification. *Pattern Recognition*, 37(3):409–419, 2004.

[39] F. Hoti, A. Tuulio-Henriksson, J. Haukka, T. Partonen, L. Holmström, and J. Lönnqvist. Family-based clusters of cognitive test performance in familial schizophrenia. *BMC Psychiatry, http://www.biomedcentral.com/1471-244X/4/20*, 4:20, 2004.

[40] P. Erästö and L. Holmström. Bayesian multiscale smoothing for making inferences about features in scatter plots. *Journal of Computational and Graphical Statistics*, 14(3):569–589, 2005.

[41] P. Erästö and L. Holmström. Prior selection and multiscale analysis in Bayesian temperature reconstruction based on species assemblages. *Journal of Paleolimnology*, 36(1):69–80, 2006.

[42] J. Weckström, A. Korhola, P. Erästö, and L. Holmström. Temperature Patterns over the Past Eight Centuries in Northern Fennoscandia Inferred from Sedimentary Diatoms. *Quaternary Research*, 66:78–86, 2006.

[43] P. Erästö and L. Holmström. Bayesian analysis of features in a scatter plot with dependent observations and errors in predictors. *Journal of Statistical Computation and Simulation*, 77(5):421–431, 2007.

[44] L. Holmström and L. Pasanen. Bayesian analysis of image differences in multiple scales. In M. Niskanen and J. Heikkilä, editors, *Proceedings, Finnish Signal Processing Symposium 2007, August 30, Oulu, Finland*. University of Oulu, Department of Electrical and Information Engineering, 2007. CD-ROM, ISBN 978-951-42-8546-2.

[45] P. Koistinen, L. Holmström, and E. Tomppo. Smoothing methodology for predicting regional averages in multi-source forest inventory. *Remote Sensing of Environment*, 112(3):862–871, 2008.

[46] L. Holmström. BSiZer. *Wiley Interdisciplinary Reviews: Computational Statistics*, 2(5):526–534, 2010. Available on-line at `http://dx.doi.org/10.1002/wics.115`.

[47] L. Holmström. Scale space methods. *Wiley Interdisciplinary Reviews: Computational Statistics*, 2(2):150–159, 2010. Available on-line at `http://dx.doi.org/10.1002/wics.79`.

[48] L. Holmström and P. Koistinen. Pattern recognition. *Wiley Interdisciplinary Reviews: Computational Statistics*, 2(4):404–413, 2010. Available on-line at `http://dx.doi.org/10.1002/wics.99`.

[49] L. Holmström. Discussion of: A statistical analysis of multiple temperature proxies: are reconstructions of surface temperatures over the last 1000 years reliable? by B. B. McShane and A. J. Wyner. *The Annals of Applied Statistics*, 5(1):71 – 75, 2011. Available on-line at `http://dx.doi.org/10.1214/10-AOAS398H`.

[50] L. Holmström, L. Pasanen, R. Furrer, and S. R. Sain. Scale space multiresolution analysis of random signals. *Computational Statistics & Data Analysis*, 55(10):2840 – 2855, 2011. Available on-line at `http://dx.doi.org/10.1016/j.csda.2011.04.011`.

[51] P. Erästö, L. Holmström, A. Korhola, and J. Weckström. Finding a consensus on credible features among several paleoclimate reconstructions. *Annals of Applied Statistics*, 6(4):1377–1405, 2012. Available on-line at `http://dx.doi.org/10.1214/12-AOAS540`, and also at `http://cc.oulu.fi/~llh/preprints/Consensus.zip`.

[52] F. Godtliebsen, L. Holmström, A. Miettinen, P. Erästö, D. V. Divine, and N. Koc. Pairwise Scale-Space Comparison of Time Series with Application to Climate Research. *Journal of Geophysical Research*, 117, C03046, 2012. Available on-line at `http://dx.doi.org/10.1029/2011JC007546`.

[53] L. Holmström and L. Pasanen. Bayesian scale space analysis of differences in images. *Technometrics*, 54(1):16–29, 2012. Available on-line at `http://dx.doi.org/10.1080/00401706.2012.648862`.

[54] S. Salonen, L. Ilvonen, H. Seppä, L. Holmström, R. J. Telford, A. Gaidamavičius, M. Stančikaite, and D. Subetto. Comparing different calibration methods (WA/WA-PLS regression and Bayesian modelling) and different-sized calibration sets in pollen-based quantitative climate reconstruction. *The Holocene*, 22(4):413 – 424, 2012.

[55] L. Holmström and I. Launonen. Posterior singular spectrum analysis. *Statistical Analysis and Data Mining*, 6(5):387–402, 2013. Available on-line at `http://dx.doi.org/10.1002/sam.11195`.

[56] L. Holmström and I. Launonen. Posterior Singular Spectrum Analysis (PSSA). In Vito M.R. Muggeo, Vincenza Capursi, Giovanni Boscaino, and Gianfranco Lovison, editors, *Proceedings of the 28th International Workshop on Statistical Modelling, Palermo, Italy, July 8 – 12*, pages 635–638, 2013.

[57] L. Pasanen and L. Holmstrom. Bayesian scale space analysis of images. In *Image and Signal Processing and Analysis (ISPA), 2013 8th International Symposium on*, pages 96–100, 2013.

[58] L. Pasanen, I. Launonen, and L. Holmström. A scale space multiresolution method for extraction of time series features. *Stat*, 2(1):273–291, 2013. Available on-line at `http://dx.doi.org/10.1002/sta4.35`.

[59] L. Ilvonen and L. Holmström. Paleotemperature reconstructions using a spatio-temporal multicore Bayesian model. In N. Jeannee and T. Romary, editors, *Geostatistics for Environmental Applications: geoEnv 2014*, Collection Sciences de la terre, page 90. Presses des MINES, 2014.

[60] K. Karttunen, L. Holmström, and J. Klemelä. Level set trees with enhanced marginal density visualization. In *Proceedings of the 5th International Conference on Information Visualization Theory and Applications, (IVAPP 2014), Lisbon, Portugal, January 5 – 8*, pages 210–217, 2014. Available on-line at `http://dx.doi.org/10.5220/0004844302100217`.

[61] L. Holmström, L. Ilvonen, H. Seppä, and S. Veski. A Bayesian spatiotemporal model for reconstructing climate from multiple pollen records. *The Annals of Applied Statistics*, 9(3):1194–1225, 2015. Available on-line at `http://dx.doi.org/10.1214/15-AOAS832`, and also at `http://cc.oulu.fi/~llh/preprints/Spattemp.zip`.

[62] A.E.K. Ojala, I. Launonen, L. Holmström, and M. Tiljander. Effects of solar forcing and North Atlantic oscillation on the climate of continental Scandinavia during the Holocene. *Quaternary Science Reviews*, 112(0):153 – 171, 2015.

[63] L. Pasanen and L. Holmström. Bayesian scale space analysis of temporal changes in satellite images. *Journal of Applied Statistics*, 42(1):50–70, 2015. Available on-line at `http://dx.doi.org/10.1080/02664763.2014.932761`.

[64] L. Pasanen, L. Holmström, and M. J. Sillanpää. Bayesian LASSO, Scale Space and Decision Making in Association Genetics. *PLoS ONE*, 10(4):e0120017, 04 2015. Available on-line at `http://dx.doi.org/10.1371/journal.pone.0120017`.

[65] V. Vuollo, M. Sidlauskas, A. Sidlauskas, V. Harila, L. Salomskiene, A. Zhurov, L. Holmström, P. Pirttiniemi, and T. Heikkinen. Comparing Facial 3D Analysis to DNA Testing in Recognition of Twin Zygosity. *Twin Research and Human Genetics*, 18:306–313, 6 2015. Available on-line at `http://dx.doi.org/10.1017/thg.2015.16`.

[66] H. Aarnivala, V. Vuollo, V. Harila, T. Heikkinen, P. Pirttiniemi, L. Holmström, and A. M. Valkama. The course of positional cranial deformation from 3 to 12months of age and associated risk factors: a follow-up with 3D imaging. *European Journal of Pediatrics*, 175(12):1893–1903, 2016. Available on-line at `http://dx.doi.org/10.1007/s00431-016-2773-z`.

[67] L. Holmström, L. Ilvonen, H. Seppä, and S. Veski. Bayesian models for climate reconstruction from pollen records. In A. Banerjee, W. Ding, J. Dy, V. Lyubchich, and A. Rhines, editors, *Proceedings of the 6th International Workshop on Climate Informatics: CI 2016. NCAR Technical Note NCAR/TN-529+PROC*, pages 1–4, 2016. `http://dx.doi.org/10.5065/D6K072N6`.

[68] L. Ilvonen, L. Holmström, H. Seppä, and S. Veski. A Bayesian multinomial regression model for paleoclimate reconstruction with time uncertainty. *Environmetrics*, 27(7):409–422, 2016. Available on-line at `http://dx.doi.org/10.1002/env.2393`.

[69] L. Ilvonen, L. Holmström, H. Seppä, and S. Veski. Rejoinder. *Environmetrics*, 27(7):434–438, 2016. Available on-line at `http://dx.doi.org/10.1002/env.2409`.

[70] J. Li, L. Ilvonen, Q. Xu, J. Ni, L. Jin, L. Holmström, X. Cao, Z. Zheng, H. Lu, Y. Luo, Y. Li, C. Li, X. Zhang, and H. Seppä. East Asian summer monsoon precipitation variations in monsoonal China over the last 9500 years: a comparison of pollen-based reconstructions and model simulations. *The Holocene*, 26(4):592 – 602, 2016.

[71] V. Vuollo, L. Holmström, H. Aarnivala, V. Harila, T. Heikkinen, P. Pirttiniemi, and A. M. Valkama. Analyzing infant head flatness and asymmetry using kernel density estimation of directional surface data from a craniofacial 3D model. *Statistics in Medicine*, 35(26):4891–4904, 2016. Available on-line at `http://dx.doi.org/10.1002/sim.7032`.

[72] H. Aarnivala, V. Vuollo, T. Heikkinen, V. Harila, L. Holmström, P. Pirttiniemi, and A. M. Valkama. Accuracy of measurements used to quantify cranial asymmetry in deformational plagiocephaly. *Journal of Cranial-Maxillo-Facial Surgery*, 45(8):1349–1356, 2017. Available on-line at `http://dx.doi.org/10.1016/j.jcms.2017.05.014`.

[73] L. Holmström, K. Karttunen, and J. Klemelä. Estimation of level set trees using adaptive partitions. *Computational Statistics*, 32:1139–1163, 2017. Available on-line at `http://dx.doi.org/10.1007/s00180-016-0702-2`.

[74] L. Holmström and L. Pasanen. Rejoinder. *International Statistical Review*, 85(1):43–45, 2017. Rejoinder to discussion of "Statistical Scale Space Methods". Available on-line at `http://dx.doi.org/10.1111/insr.12179`.

[75] L. Holmström and L. Pasanen. Statistical scale space methods. *International Statistical Review*, 85(1):1–30, 2017. Available on-line at `http://dx.doi.org/10.1111/insr.12155`.

[76] I. Launonen and L. Holmström. Multivariate posterior singular spectrum analysis. *Statistical Methods & Applications*, 26(3):361 – 382, 2017. Available on-line at `http://dx.doi.org/10.1007/s10260-016-0372-9`.

[77] T. Mäkinen and L. Holmström. Modeling probability density through ultraspherical polynomial transformations. *Communications in Statistics - Simulation and Computation*, 46(8):5879–5900, 2017. Available on-line at `http://dx.doi.org/10.1080/03610918.2016.1186181`.

[78] L. Pasanen and L. Holmström. Scale space multiresolution correlation analysis for time series data. *Computational Statistics*, 32(1):197–218, 2017. Available on-line at `http://dx.doi.org/10.1007/s00180-016-0670-6`.

[79] L. Pasanen, P. Laukkanen-Nevala, I. Launonen, Sergey Prusov, L. Holmström, E. Niemelä, and J. Erkinaro. The extraction of sea temperature in

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