

Curriculum Vitae — Lars Kai Hansen

Personalia

Born September 16, 1957 (Samsø, Danmark).

Married, two children (1982,1987).

Education

- 1976-83. Studies in physics and mathematics University of Copenhagen.
- 1983. MSc. Physics Laboratory, University of Copenhagen.
- 1984-1986. Research assistant (Kandidatstipendiat), Physics Laboratory, University of Copenhagen.
- 1986. Gold Medal of the University of Copenhagen.
- 1986. Ph.D. in physics, University of Copenhagen.
- 1992. Course in Pedagogical Methods, Technical University of Denmark.

Employments

- 1986-87. Research Assistant, Physics Laboratory, University of Copenhagen.
- 1987-90. Researcher, Andrex Radiation Products A/S.
- 1988-89. Visiting Professor San Diego State University (7 months).
- 1990-94. Assistant Professor, Electronics Institute, Technical University of Denmark.
- 1994-95. Associate Professor, Electronics Institute.
- 1996-2000. Associate Professor, Department of Mathematical Modelling, Technical University of Denmark.
- 1997-98. Visiting Professor Brain Image Analysis Lab., University of California San Diego (6 months).
- 2000-. Professor, Informatics and Mathematical Modelling, Technical University of Denmark.

Professional activities

Organization and major research grants

- Head of *THOR Center for Neuroinformatics*, Informatics and Mathematical Modelling, Technical University of Denmark. The center was initially founded on a grant from the Danish Research councils 'Thor' plan in 1998. Currently comprises three permanent staff members, three postdocs, two programmers, and nineteen phd-students.
- Head of *Intelligent Sound*. Framework project funded by the Danish Technical Research Council (14 mill. DKK \approx 1.9 mill Euro, 2005-2009). Participants from Aalborg University (Communication Technology and Computer Science). www.intelligentsound.org.
- Cofounder and principal investigator in *Center for Integrated Molecular Brain Imaging (CIMBI)*. Center funded by the Lundbeck Foundation (40 mill DKK \approx 5.3 mill Euro, project headed by Prof. G.M. Knudsen, Rigshospitalet, Denmark.) www.cimbi.dk.
- Principal investigator in *PERCEPT* EU FP6 project on cognitive systems (Funding 1.8 mill Euro, project headed by Boris Velichowsky, TU Dresden, 2007-2009).

- *CONNECT*. Cofounder of National Research center for neural networks research in collaboration with the Niels Bohr Inst., and other institutions in Denmark (1991-2001) The center attracted contiguous funding from the Danish Research Councils in a ten year period (accumulated ca. 20 mill DKK). From 1999-2001 head of *CONNECT*.
- Head of *CISP Copenhagen Signal and Image Processing Graduate School*, funded by the Danish Research Training Council (2001-2004), with participants from the IT University and DIKU, University of Copenhagen.
- Co-Principal Investigator in *Spatial and Temporal Patterns in Functional Neuroimaging* funded by National Institutes of Health, through the US Human Brain Project (1993-2006). This project funded postdoc salary and travel costs for members of the THOR Center on the US Government grant for about ten years. Project headed by prof. David Rottenberg, University of Minnesota.
- Member of editorial board of *The Open Medical Imaging Journal* and *Open Medical Informatics Journal*(2007, withdrawn 2008 based on the Journal's economical policies). Associate editor of the journal 'Computational Intelligence and Neuroscience' (2006-2008). Editor-in-Charge of the *International Journal of Neural Systems*. (with Alan Murray) (1998-2000). Member of Editorial Board of *IEEE Transactions of Neural Networks* (1998-2000).
- Additional grants: Prof. Ingemar Cox, University College London (3 months). Co-principal investigator in *MA-PAWAMO Mapping visual cortical regions in awake, behaving monkey using functional MRI*. funded by the EU Commission (Project headed by Guy Orban KU Leuven, Belgium). Principal Investigator in *DIADEME*: project on bio-mass quantification by image analysis, funded by the European Union MAST II program (project headed by prof. Peter Kofod Bjørnsen, University of Copenhagen). Principal Investigator in the *Interdisciplinary Neuroscience Project* funded by the Danish Research Councils (project headed by prof. Olaf Paulson, Rigshospitalet). Principal Investigator in BIOMED 2 project *Visual Object Recognition*, (project headed by prof. Anders Gade, University of Copenhagen). EU Training and Mobility Postdoc Grants: Mattias Ohlsson (Lund, Sweden) 24 months. Rod Murray-Smith (Berlin, Germany) 24 months. Danish partner in EU network MAC: *Multi-Agent Control: Probabilistic reasoning, optimal coordination, stability analysis and controller design for intelligent hybrid systems* (Project headed by Rod Murray Smith, Glasgow University, Scotland). Visiting professor grants for Prof. Peter Salamon San Diego State University (12 months).
- Co-organizer of neural net workshops in Alden Biesen, Belgium (1993,1996). Co-organizer of neural net workshops in Telluride, Colorado (1990, 1992 and 1995).
- Organizer of Human Brain Project workshop in Ebeltoft, June 1999. Organizer of THOR Workshop Bornholm March 2001. Organizer of Intelligent Sound Workshops: Korsør, May 2005; Sæby May 2006; Karlslunde, May 2007.
- Co-organizer EMMDS2009, DTU, July 2009.
- Proposer and co-organizer for NIPS Workshop RUMBA Two-Day Workshop: Concepts and Methods in Neuroimaging. Whistler, British Columbia, Canada, December, 2001 and December, 2002. Proposer and co-organizer for NIPS Workshop on Multimodal Signal Processing Whistler, British Columbia, Canada, December 2004.

Invited Talks

- International Symposium on Forecasting, Stockholm 1994, Gordon Research Conference on Thermodynamics of Algorithms, Bavaria 1994, Autumn School and Neural Net Workshop, Wurzburg 1995, Annual Meeting of the Swedish Neural Network Society, Stockholm 1995. Computer-Art-Film: International Symposium at The National Film School of Denmark, May 1996. Member of panel for discussion session on dataanalysis at the Third International Conference on Human Brain Mapping, Copenhagen May 1997. International Workshop Brain and Self: Member of Panel on Neural Basis for Consciousness, Elsinore August 1997. McDonnell-Pew Seminar, Salk Institute, USA, March 1998. Tutorial on neural networks for brain mapping, NORSIG'98 Nordic Conference on Signal Processing, Vigsø, June 1998. DSAGM Symposium, Dept. of Computer Science, Univ. Copenhagen, August 1998. Tutorial on Artificial Neural Networks, International Conference on Hydroinformatics on August 24-26 1998 Copenhagen. Workshop on Basic and Clinical Applications of Human Brain Mapping, Aalborg January, 1999. Workshop on Computational Issues in Motor Control Aalborg, January 1999. Max Planck Institute Seminar on Statistical Physics of Neural Networks, Dresden March 1999. ICANN'99 post conference workshop Edinburgh,

Scotland, Sep 1999. Interdisciplinary Inversion Workshop 6, Aarhus Universitet, Sep 1999 Minnesota Workshop on Magnetic Resonance Imaging of Brain Function Minneapolis, October, 1999. Post-NIPS workshop on Computational Brain Imaging Breckenridge, Colorado, Dec, 1999. Keynote presentation: Testing Competing Hypothesis about Single-Trial fMRI". Gatsby Unit Bayesian fMRI day. University College of London, UK, December 15, 2000. Computers in Science Seminar, Aarhus University, DK, Apr 5, 2000. Workshop on Analysis of Neural Data Woods Hole, USA, Sep 1, 2000. Advances in Neural Information Processing Systems (NIPS*2000) Workshop on Explorative analysis of functional neuroimages. Max Planck Institute Seminar on Statistical Physics of Neural Networks, Dresden, Germany, Mar 2001. Nordic Interactive Conference, Copenhagen Nov 1, 2001. Opening of Copenhagen Brain Research Center, Rigshospitalet, Copenhagen Apr 5, 2002. Computer Science Seminar, University of California, San Diego, July 10, 2002. Computer Science Seminar, Informatics and Mathematical Modelling, Nov 22, 2002. Departamento de Teoría de la Señal y Comunicaciones, Universidad Carlos III de Madrid, Spain. IGERT Neuroinformatics symposium, Minneapolis, April, 24 2003. European Summer School on ICA - from Theory to Applications Berlin, Germany, June 16 2003. University of Copenhagen, October 2003, Methods in Brain Imaging and Cognitive Neuroscience, Rutgers Univ. USA, April 2005. Nathan Kline Institute, New York April 2005. Center of Visual Cognition, University of Copenhagen, 2005. Thiele Workshop on fMIR, Sandbjerg, Nov 22-23, 2005. Predictive Coding Workshop, invited workshop speaker, CFIN Aarhus University, Feb 9, 2006. The Rutgers Conference on Philosophical Foundations of Neuroimaging April 27 & 28, 2006, Rutgers University, New Jersey, USA. Medical Image Analysis Lab Olin Neuropsychiatry Research Center, Institute of Living, Hartford, USA, April 2006. Computer Science Seminar, University of California, San Diego, July 11, 2006. Advances in Neural Information Processing Systems (NIPS) invited workshop speaker, Dec 2006. Public seminar organized by 'Mind and Body', Univ. Copenhagen, Jan 2006. Danish Society for Computer Science, March 2007. Two-Day meeting of Danish Society for Theoretical Statistics, November, 2007. 'Workshop on Algorithms for Modern Massive Data Sets' (MMDS 2008), Stanford University June, 2008. IPAM Workshop on Mathematics in Brain Imaging, UC Los Angeles, July, 2008. Advances in Neural Information Processing Systems (NIPS) invited workshop speaker, Dec 2008. Matrix Computations & Scientific Computing Seminar (UC Berkeley, January 21) Redwood Center for Theoretical Neuroscience, UC Berkeley, January 22, 2009. Plenary talk ICANNGA'09, Int. Conference on Adaptive and Natural Computing Algorithms Koupio, Finland, April, 2009. BBCI Workshop Bernstein Brain Computer Interaction Berlin, July 6, 2009. MLSP 2009 Plenary talk, IEEE Workshop Machine Learning for Signal Processing, Grenoble, Sep 2, 2009.

- Talk at the 1996 Celebration of the Technical University of Denmark.

Reviews and committees

- Member of IEEE Signal Processing Society Technical Committee on Neural Networks (1996-1998). Advisory board member (1998-)
- Chairman for the Danish Chapter of IEEE Signal Processing Society (2001-2002).
- Conference vicechair NORSIG'98 Nordic Conference on Signal Processing, Vigsø, June 1998.
- Conference Chair, NORSIG'2008 Copenhagen.
- Review Coordinator for sessions on Neural Networks and Pattern Recognition: International Conference on Neural Networks (ICNN'96), International Conference on Acoustics, Speech and Signal Processing ICASSP'96 and ICASSP'97. European Signal Processing Conference EUSIPCO 2007, 2008.
- Project proposal review for Swedish Technical Research Council (1996). Ten project proposal reviews for the Swedish Foundation for Strategic Research (2001).
- Review and member of panel Vetenskabsrådet, Research Council, Sweden (2007, 2008, 2009).
- Academy of Finland. Project proposal evaluation, evaluation of two Centers of Excellence (2005), and evaluation of Academy Professor application (2005). Evaluation of ESF application (2006). Panel Member (2007). Chair of panel in bio-medical engineering (2008)
- Member of Human Brain Project proposal review committee ("Study Section") under National Institutes of Health, Washington, March 1998, October 2002, May 2003 USA.

- Guest editor (with M Nielsen, P. Johansen): Special issue of Journal of Mathematical Imaging and Vision (2002). Guest editor (with T. Adali et al.) IEEE Journal of Selected Topics in Signal Processing (J-STSP) Special Issue on fMRI Analysis for Human Brain Mapping (2008).
- International Conference on Advances in Neural Information Processing Systems, NIPS*98, 1998. Program co-chair. Area responsible for the “Implementation” and “Applications” areas.
- Reviewer for: NeuroImage, International Journal of Neural Systems, Journal of Geophysical Research: Solid Earth, NIPS*96, NIPS*98, IEEE Transactions on Systems, Man and Cybernetics, IEEE Transactions on Signal Processing, Europhysics Letters, ICASSP*98, NORSIG*98. NIPS*01,NIPS*02,NIPS*06, Neural Computation, NeuroImage, Neural Computation, ISCAS2008.
- Other scientific committee memberships: IEEE Workshop on Neural Networks for Signal Processing 1995 (NNSP*95), NNSP*97. ECCV’2002, ICA’2001. NORSIG’2002,2004,2006, KES2004,2005,2006. LEARNING’04, EUSIPCO 2007, MICCAI Workshop on functional neuroimaging (2008). SCIA 2007, 2009.
- Member of NISAC - Nordic IJCAI Scientific Advisory Committee (1999).
- External member of 13 Ph.D.-committees, eight in DK, two in Sweden, in France, in Finland, and in Belgium. External examiner for oral Ph.D.-exam. at Dept. of Biochemistry, DTU, 1999.
- Member of evaluation committee for Doctoral thesis Aarhus University (2005-06).
- External examiner for numerous MSc. projects: Aarhus University, Odense University, University of Copenhagen (Niels Bohr Institute and Dept. of Computer Science), and Aalborg University. Member of examiner corps in computer science and in engineering.
- Chairman of evaluation committee for assoc. prof. position in multimedia applications, Center for Tele-Informatics, Technical University of Denmark. Member of search committee for “Docent”, Ingeniørhøjskolen i Aarhus. Chairman for evaluation committee for full professorship in communications, Technical University of Denmark. Chairman for evaluation committee for full professorship in computer vision, IT-University Copenhagen. Member of evaluation committee for full professor in signal processing, Aalborg University, 2006. Chairman for evaluation committee for full professor in image analysis, DTU, 2007.
- Evaluation of full Professor in Physics Helsinki University of Technology.
- Professor promotion letters in the US and Canada: Illinois Institute of Technology, Chicago; Florida State University Tallahassee, Florida; Univ. California San Diego; Univ. New Mexico, Albuquerque, New Mexico, University of Toronto, Toronto, Canada. City University, New York.

Teaching

- Main supervisor for nine on-going Ph.D.-projects. Two are funded by MR Dept. Hvidovre Hospital, one is funded by the Oticon Foundation, one is funded by ITG (Industrial, ‘Erhvervsforsker’), one is funded by the Danish Research Councils, one is funded by LundbeckFonden, and three are funded by the Technical University of Denmark.
- Main supervisor for 24 completed Ph.D-projects.
- Co-supervisor for ten completed Ph.D-projects.
- Ph.D.-courses: Advanced Digital Signal Processing (June 1996,1999,2000,2002,2003,2005,2006,2007), Medical Informatics (October 1996), Topics in Learning Theory (2000), Cognitive Systems (2006).
- Main supervisor for more than 75 DTU MSc. projects 1991-2007.
- MSc.-courses, DTU: Digital Signal Processing Methods, Non-linear Signal Processing, Applied Digital Signal Processing, Advanced Topics Digital Signal Processing. Numerous individual projects in digital signal processing, neural networks, and application areas.

Innovation related activities

- The THOR Center for Neuroinformatics hosts the start-up company HypoSafe (2006-07). HypoSafe has a patented technology for diagnosing low blood sugar levels based on EEG (electric brain waves), the system is partly developed by DTU on an earlier contract.
- The Intelligent Sound project has spun-off the machine learning consultancy company Epital A/S (www.epital.dk).
- Extensive private consultancy to industry: Danish Technological Institute, NEuroTech A/S, Andrex Radiation Products A/S, Magnus Petersen A/S, Midas Aps, Celwave RF A/S, Danish Institute of Technology Innovation. GN Resound A/S.

Other professional activities

- Numerous popular presentations on neural networks and neuroimaging in companies, schools and public fora.
- Collaboration with the Danish science museum *Experimentarium*, on the Human Brain exhibition (1997) and the FutureBody exhibition (2000).
- National radio and TV appearances: 'Studio 2000' , radio interviews, 'Harddisken', radio interviews. Radio interview 'DR Principia', September 24, 2002. 'Viden-Om' October 12, 2004, TV interview and expert panel on Web-site. 'Morgenradio' 2005.
- Danish Science Festival 2000: Abstract for talk in festival catalogue. Three popular talks. Danish Science Festival 2002: Abstract for talk in festival catalogue. Two popular talks. Consultant for impromptu play 'brain builders'.

Publications

- Summary

In total 225 reviewed publications: 1 book, 77 journal papers, 10 book chapters, and 137 full conference papers.

- Books

1. P.M. Nørgaard, O. Ravn, N.K. Poulsen, and L.K. Hansen: *Neural Networks for Modelling and Control of Dynamic Systems*. Advanced Textbooks in Control and Signal Processing, Springer-Verlag Ltd. (2000).

- Journal papers

2. L.K. Hansen and K. Carneiro, *On the Peierls Transition in a Pinning Potential*. Solid State Comm. **49**, 531, (1984).
3. L.K. Hansen and K. Carneiro, *The Peierls Transition in Pinning Potentials from Counterions*. Mol.Cryst.Liq.Cryst. **120**, 413, (1985).
4. K. Carneiro, L.K. Hansen, A. Braude, K. Mortensen, C.S. Jacobsen, D. Turner and A.E. Underhill, *Regular Properties and anomalous behavior of Conducting Metal-Oxalato-Platinates, M-OP (M=Ni, Co, Zn, Mg, Mn)*. Mol.Cryst.-Liq.Cryst. **119**, 471, (1985).
5. L.K. Hansen and D. Baeriswyl, *Collective Modes and Impurity Effects in Onedimensional Charge Density Wave Systems*. Journal of Physics **C19**, 5615, (1986).
6. L.K. Hansen and K. Carneiro, *Coulomb Induced Pseudo-Critical Behavior in Disordered CDW's*. Physica **143B**, 216, (1986).
7. J.S. Petersen, K. Carneiro, L.K. Hansen and M. Almeida, *Phonons in TCNQ Conductors Measured by Inelastic Neutron Scattering and Their Relation to Electronic Correlations*. Synth. Metals **19**, 433, (1987).
8. P. Alstrøm, L.K. Hansen and D.R. Rasmussen, *Cross-over Scaling for Moments in Multifractal Systems*. Physical Review **A36**, 827-837, (1987).
9. L.K. Hansen and P. Salamon: *Neural Network Ensembles*. IEEE Transactions on Pattern Analysis and Machine Intelligence **12** 993-1001 (1990).
10. L.K. Hansen: *Stochastic Linear Learning: Exact Test and Training Error Averages*. Neural Networks **6**, 393-396, (1993)
11. L.K. Hansen, R. Pathria and P. Salamon: *Stochastic Dynamics of Supervised Learning*. Journal of Physics A **26**, 63-72, (1993)
12. P. Salamon, J.C. Wooton, A.K. Konopka, and L.K. Hansen: *On the Robustness of Maximum Entropy Relationships for Complexity Distributions of Nucleotide Sequences*. Computers and Chemistry **17**, 135-148, (1993)
13. J. Gorodkin, L.K. Hansen, A. Krogh, C. Svarer, and O. Winter: *A Quantitative Study of Pruning by Optimal Brain Damage*. Int. Journ. Neural Systems **4**, 159-171, (1993)
14. L.K. Hansen and N. Lindbo Larsen: *Industriell anvendelse af neurale netværk*. KVANT Fysisk Tidsskrift **4**, 22-23, (1993) (in Danish).
15. L.K. Hansen and C.E. Rasmussen: *Pruning from Adaptive Regularization*. Neural Computation **6** 1223-1232 (1994).
16. L.K. Hansen: *Book Review: Time Series Processing: Forecasting the Future and Understanding the Past*. Eds. A.S. Weigend and N. Geshenfeld. Invited book review for International Journal of Neural Systems (1994).

17. L.K. Hansen and J. Larsen: *Linear Unlearning for Crossvalidation* Advances in Computational Mathematics **5** 269-280 (1996).
18. L.K. Hansen, C. Liisberg, and P. Salamon: *The Error-Reject Trade-Off*. Open Systems and Information Dynamics **4**, 159-184, 1997.
19. L.K. Hansen: *Commentary on paper by Nicholas Lange and Scott Zeger*. Invited comment on "Lange N, Zeger SL. Non-linear Fourier time series analysis for human brain mapping by functional magnetic resonance imaging (with Discussion)". J Royal Stat Soc, Appl Stat (1997).
20. C. Goutte and L.K. Hansen: *Regularization by a Pruning Prior*. Neural Networks **10**, 1053-9 (1997).
21. L.K. Hansen, I. Law, E. Rostrup, C. Svarer, O.B. Paulson: *Tankebilleder*. Naturens Verden **7** 268-276 (1997)
22. S.C. Strother, N. Lange, J.R. Anderson, K.A. Schaper, K. Rehm, L.K. Hansen, and D.A. Rottenberg: *Activation pattern reproducibility: Measuring the effect of group size and data analysis models*. Human Brain Mapping **5**, 312-316 (1997).
23. J. Larsen and L.K. Hansen: *Generalization: The Hidden Agenda of Learning* in J.-N. Hwang, S.Y. Kung, M. Niranjani & J.C. Principe (eds.), The Past, Present, and Future of Neural Networks for Signal Processing, IEEE Signal Processing Magazine, 43-45, Nov. 1997 (1997).
24. J. Gorodkin, L.K. Hansen, B. Lautrup and S. Solla: *Universal distribution of saliencies for pruning in layered neural networks* International Journal of Neural Systems, Vol. 8, Nos. 5 & 6 489-498 (1997)
25. M. Hintz-Madsen, L.K. Hansen, J. Larsen, M.W. Pedersen, and M. Larsen: *Neural Classifier Construction Using Regularization, Pruning and Test Error Estimation*. Neural Networks, **11**, 1659-1670 (1998).
26. J.E. Wilhjelm, M.-L.M. Grønholdt, B. Wiebe, S.K. Jespersen, L.K. Hansen & H. Sillesen: *Quantitative Analysis of Ultrasound B-mode Images of Carotid Atherosclerotic Plaque: Correlation with Visual Classification and Histological Examination*. IEEE Transactions on Medical Imaging, Vol. 17. No. 6. pp 910-922, (1998).
27. C. Goutte, P. Toft, E. Rostrup, F.Å. Nielsen and L.K. Hansen: *On clustering fMRI time series*. NeuroImage **9**:298-310, (1999).
28. L.K. Hansen, J. Larsen, F.Å. Nielsen, S.C. Strother, E. Rostrup, R. Savoy, N. Lange, J.J. Sidtis, C. Svarer, O.B. Paulson: *Generalizable Patterns in Neuroimaging: How Many Principal Components?* NeuroImage **9**, 534-544 (1999).
29. U. Kjems, S.C. Strother, J. Anderson, I. Law, L.K. Hansen. *Enhancing the Multivariate Signal of 15-0 water PET Studies With a New Non-Linear Neuroanatomical Registration Algorithm*. IEEE Transactions in Medical Imaging **18** 306-319, (1999).
30. N. Lange, S.C. Strother, J.R. Anderson, F.Å. Nielsen, A.P. Holmes, T. Kolenda, R. Savoy, L.K. Hansen. *Plurality and Resemblance in fMRI Data Analysis* NeuroImage, **10** (3):282-303, (1999)
31. Liow JS. Rehm K. Strother SC. Anderson JR. Morch N. Hansen LK. Schaper KA. Rottenberg DA. *Comparison of voxel- and volume-of-interest-based analyses in FDG PET scans of HIV positive and healthy individuals* Journal of Nuclear Medicine. 41(4):612-621, (2000).
32. C. Goutte, F.Å. Nielsen, L.K. Hansen *Modelling the hemodynamic response in fMRI with smooth FIR filters* IEEE Transaction on Medical Imaging, **19** 1188-1200 (2000).
33. C. Goutte, L.K. Hansen, M.G. Liptrot and E. Rostrup. *Feature-Space Clustering for fMRI Meta-Analysis*. Human Brain Mapping **13** 165-183 (2001).
34. L.K. Hansen, F.Å. Nielsen, S.C. Strother, N. Lange *Consensus Inference in Neuroimaging*, NeuroImage **13** 1212-1218, (2001).
35. L.K. Hansen, F.Å. Nielsen, and J. Larsen. *Exploring fMRI data for periodic components*. Artificial Intelligence in Medicine, 25(1): 35-44, (2002).
36. F.Å. Nielsen and L.K. Hansen: *Modeling of activation data in BrainMapTM: Detection of outliers* Human Brain Mapping, **15**(3): 146-156 (2002).

37. J. Larsen and L.K. Hansen. *Comments for: Rivals, I., and Personnaz L. (2000). Construction of confidence intervals for neural networks based on least squares estimation, Neural Networks, 13, 463-484.* Neural Networks **15**(1): 141-142(2002).
38. J. Larsen, A. Szymkowiak and L.K. Hansen. *Probabilistic Hierarchical Clustering with Labeled and Unlabeled Data.* International Journal of Knowledge-Based Intelligent Engineering Systems **6**(1): 56-62 (2002).
39. P.A.d.F.R. Højen-Sørensen, O. Winther, and L.K. Hansen. *Mean Field Approaches for Independent Component Analysis* Neural Computation **14**: 889-918 (2002).
40. J. Larsen, L.K. Hansen, A. Szymkowiak, T. Christiansen and T. Kolenda. *Webmining: Learning from the World Wide Web.* Computational Statistics and Data Analysis, **38**:517-532 (2002).
41. U. Kjems, L.K. Hansen, J. Anderson, S. Frutiger, S. Muley, J. Sidtis, D. Rottenberg, and S.C. Strother. *The Quantitative Evaluation of Functional Neuroimaging Experiments: Mutual Information Learning Curves.* NeuroImage **15**(4): 772-786 (2002).
42. S.C. Strother, J. Anderson, L.K. Hansen, U. Kjems, R. Kustra, J. Sidtis, S. Frutiger, S. Muley, S. LaConte, and D. Rottenberg. *The Quantitative Evaluation of Functional Neuroimaging Experiments: The NPAIRS Data Analysis Framework.* NeuroImage **15**(4):747-771 (2002). .
43. O.B. Paulson, P. Born, C. Bundesen, A. Gade, C. Gerlach, L.K. Hansen, S. Holm, M. Jensen, S. Kyllingsbæk, A. Larsen, I. Law, E. Rostrup, C. Svarer: *Den arbejdende hjerne - hvordan kan den se ud?*. Ugeskrift for læger, vol. 164:2267-2275 (2002, Danish).
44. P.A.d.F.R. Højen-Sørensen, O. Winther and L.K. Hansen. *Analysis of Functional Neuroimages Using ICA Adaptive Binary Sources.* Neurocomputing **49**, 213-225 (2002).
45. D. Balslev, F.Å. Nielsen, S.A. Frutiger, J.J. Sidtis, T.B. Christiansen, C. Svarer, S.C. Strother, D.A. Rottenberg, L.K. Hansen, O.B. Paulson, I. Law *Cluster analysis of activity-time series in motor learning* Human Brain Mapping, vol. 15(3), pp. 135-145, (2002)
46. A.C.N. Chen, F.A.A. Nielsen, L.K. Hansen: *Neuroimaging of human pain and virtual reality modelling.* Advances in Clinical Neurophysiology, vol. 54:163-169 (2002).
47. I.K. Andersen, A.S. Have, C.E. Rasmussen, L. Hansson, J.R. Marstrand, H.B. Larsson, L.K. Hansen: *Perfusion Quantification Using Gaussian Process Deconvolution.* Magnetic Resonance in Medicine, vol. 48(2), pp. 351-361 (2002)
48. L.S. LaConte, D. Rottenberg, S. Strother, J. Anderson, S. Muley, J. Ashe, S. Frutiger, K. Rehm, L.K. Hansen, E. Yacoub, X. Hu: *The Evaluation of Preprocessing Choices in Single-Subject BOLD fMRI Using NPAIRS Performance Metrics.* NeuroImage, **18** pp. 10-27, (2003)
49. M. McKeown, L.K. Hansen, and T.J. Sejnowski: *Independent Component Analysis for fMRI: What is Signal and What is Noise?* Current Opinion in Neurobiology **13**(5) 620-629 (2003).
50. M. Gniadecka, P.A. Philipsen, S. Sigurdsson, S. Wessel, O.F. Nielsen, D.H. Christensen, J. Hercogova, K. Rossen, H.K. Thomsen, R. Gniadecki, L.K. Hansen, H.C. Wulf: *Malignant Melanoma Diagnosis by Raman Spectroscopy and Neural Network: Structure Alterations in Proteins and Lipids in Intact Cancer Tissue.* Journal of Investigative Dermatology **122**:443-449 (2004).
51. S. Sigurdsson, P.A. Philipsen, L.K. Hansen, J. Larsen, M. Gniadecka, and H.C. Wulf: *Detection of Skin Cancer by Classification of Raman Spectra.* To appear IEEE transactions on Biomedical Engineering **51**(10) (2004).
52. F.A.A. Nielsen, L.K. Hansen, *Finding related functional neuroimaging volumes.* Artificial Intelligence in Medicine **30**(2) 141-151 (2004).
53. F. Calamante, M. Mørup, L. K. Hansen: *Defining a Local Arterial Input Function for Perfusion MRI Using Independent Component Analysis.* Accepted for publication in Magnetic Resonance in Medicine **52** 789-797 (2004).
54. F.Å. Nielsen, L.K. Hansen, D. Balslev: *Mining for associations between text and brain activation in a functional neuroimaging database* Neuroinformatics, **2**(4), 369-380, (2004).

55. S.C. Strother, S. La Conte, L.K. Hansen, J. Anderson, J. Zhang, S. Pulapura and D. Rottenberg: *Optimizing the fMRI data-processing pipeline using prediction and reproducibility performance metrics: I. A preliminary group analysis*. NeuroImage **23**(S1), S196-S207 (2004).
56. K.B. Petersen, O. Winther, and L.K. Hansen: *On the slow convergence of EM and VBEM in low noise linear mixtures*. Neural Computation **17**(9) 1921-1926 (2005).
57. F.Å. Nielsen, D. Balslev, L.K. Hansen: *Mining the posterior cingulate: Segregation between memory and pain components*, NeuroImage, **27** 520-532 (2005).
58. T. Grotkjær, O. Winther, B. Regenberg, J. Nielsen, L.K. Hansen: *Robust multi-scale clustering of large DNA microarray datasets with the consensus algorithm*. Bioinformatics **22** 58-67 (2006).
59. M. Mørup, L.K. Hansen, C.S. Hermann, J. Parnas, S.M. Arnfred: *Parallel Factor Analysis as an exploratory tool for wavelet transformed event-related EEG*. NeuroImage **29**(3) 938-947 (2006).
60. F.Å. Nielsen, M.S. Christensen, K.M. Madsen, T.E. Lund, and L.K. Hansen: *fMRI Neuroinformatics*. IEEE Engineering in Medicine and Biology Magazine **25**(2), 112-119 (2006).
61. R.K. Olsson and L.K. Hansen: *Linear State-space Models for Blind Source*, Journal of Machine Learning Research, **7**, 2585-2602, (2006).
62. B. Regenberg, T. Grotkjær, O. Winther, A. Fausbøll, M. Aakesson, C. Bro, L.K. Hansen, S. Brunak, J. Nielsen: *Growth-rate regulated genes have profound impact on interpretation of transcriptome profiling in Saccharomyces cerevisiae* Genome Biology, **7**, R107, (2006).
63. Dyrholm, M., S. Makeig, L.K. Hansen: *Convolutive ICA for Spatio-Temporal Analysis of EEG*, Neural Computation **19**(4): 934-955 (2007).
64. S.M. Arnfred, L.K. Hansen, J. Parnas, J., M. Mørup: *Proprioceptive Evoked Gamma Oscillations* Brain Research, **1147** 167-174 (2007).
65. A.S Lukic, M.N. Wernick, Y. Yang, L.K. Hansen, K. Arfanakis, S.C. Strother: *Effect of Spatial Alignment Transformations in PCA and ICA of Functional Neuroimages* IEEE Transactions on Medical Imaging, **26** 1058-1068 (2007).
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