Curriculum Vitae — Lars Kai Hansen

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Personalia

Born September 16, 1957 (Samsø, Danmark).
Married, two children (1982,1987).

Education

1992	Course in Pedagogical Methods, Technical University of Denmark.
1986	Ph.D. Physics, University of Copenhagen.
1986	Gold Medal of the University of Copenhagen.
1984-86	Kandidatstipendiat, Physics, University of Copenhagen.
1983	MSc. Physics, University of Copenhagen.
1976-83	Studies in physics and mathematics, University of Copenhagen.

Employments

2011	Catedra de Excelencia, Dep. Signal Theory and Communications, Universidad Carlos III de Madrid.
2001-	Head of Section for Cognitive Systems, DTU Compute.
2000-	Professor DTU Compute (former: Informatics and Mathematical Modelling) Technical University of Denmark.
1997-98	Visiting Professor Brain Image Analysis Lab., University of California San Diego (6 months).
1996-00	Associate Professor, Department of Mathematical Modelling, Technical University of Denmark.
1994-95	Associate Professor, Electronics Institute.
1990-94	Assistant Professor, Electronics Institute, Technical University of Denmark.
1988-98	Visiting Professor San Diego State University (7 months).
1987-90	Researcher, Andrex Radiation Products A/S.
1986-87	Research Assistant, Physics Laboratory, University of Copenhagen.

Professional activities

Research interests

Statistical machine learning with applications in bio-medicine and digital media.

Organization and major research grants

- Head of Neurotechnology for 24/7 mental state monitoring, project funded by the Danish Innovationsfonden (2014-2016). With Aarhus University, Danish Hyposafe A/S, and Roskilde Hospital.

- Member of the The Danish Council for Independent Research | Technology and Production Sciences 2011-2014 (FTP).

- Head of *THOR Center for Neuroinformatics*, DTU Compute, Technical University of Denmark. The center was initially founded on a grant from the Danish Research councils 'THOR' plan in 1998.

- Head of Section for Cognitive Systems, DTU Compute, Technical University of Denmark. In January 2009 a six member evaluation international panel[1] awarded the Section the highest possible grade and applauded it for '..a crisp and clear research agenda to a highly relevant field of high societal importance and impact'. The panel concluded: 'The Section is a core asset of DTU and Danish research as a whole, it has the highest international reputation.'

- 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 (80 mill DKK $\approx$ 10.6 mill Euro, 2006-2015, project headed by Prof. G.M. Knudsen, Rigshospitalet, Denmark.) www.cimbi.dk

- Principal investigator in the Danish Strategic Research Council *Responsible Business in the Blogosphere* project. In collaboration with Mette Morsing, Center for Corporate Social Responsibility, Copenhagen Business School (Funding 1.6 mill Euro 2009-2013).

- 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 (0.5 mill EUR, 2001-2004).

- 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.

- Additional grants: Prof. Ingemar Cox, University College London (Mønsted Foundation, 3 months). Co-principal investigator in *MAPAWAMO 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 *DI-ADEME*: 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).

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[1]Prof. Dr. Klaus-Robert Müller, panel chair, Berlin Institute of Technology. Prof. Dr.Math. Friedhelm Mayer auf der Heide, Heinz Nixdorf Institute, University of Paderborn. Prof. Manuel Hermenegildo, Universidad Politecnica de Madrid. Prof. Grace Wahba, Dept. of Statistics, University of Wisconsin-Madison. Prof. Chris Williams, Institute for Adaptive and Neural Computation, University of Edinburgh. Prof. Dr. Reinhard Wilhelm, Universität des Saarlandes

- Member of editorial board of The Open Medical Imaging Journal and Open Medical Informatics Journal(2007, withdrawn 2008 based on the Journal's page charge 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).

- 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.

Other recent awards and honors

- 2013. The ERC Advanced Grant proposal: *Computational Challenges in Deep Personal State Decoding CCDeep*, was accepted for second round reviews with the conclusion: "Overall, the panel considers that the proposal meets the ERC's excellence criterion, however is not at a sufficiently high position in the ranking order to be retained for funding."

- 2012. Royal Society (UK) International Exchange grant with Prof Ingemar Cox, UCK (12.000 GBP)

- 2011. "Cátedra de Excelencia" at Universidad Carlos III de Madrid / Banco Santander (60,000 EUR) .

- 2009. H.C. Ørsteds Fond (28,000 Euro)

- 2009. Direktør Dr.Techn. A.N. Neergaard og Hustrus Fond (27,000 EUR).

- 2005. Int. Conf. on Adaptive Knowledge Representation and Reasoning AKRR'05, Helsinki, Best Paper Award.

- Two of my PhD students have received the Danish Research Ministers Elite Travel Award (2x40.000 EUR), Morten Mørup (2006) and Trine Julie Abrahamsen (2012).

Major Talks 2008-12

'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. AI Seminar, Dept. Computer Science UC San Diego (Jan, 2010). Dept. of Psychology, UC Santa Barbara (Jan 2010). Formal DCCN Colloquium, Donders Intitute for Brain, Cognition and Behaviour (Nijmegen, May 2010). Keynote talk Bernstein Conference 2010 (Sep 2010, Berlin). ZKW Kolloquium, Center for Cognitive Sciences, University of Bremen (Apr 18 2011, Bremen). INC Chalk Talk, Institute for Neural Computation (UCSD, Jan 19, 2012). UCSD AI seminar (UCSD, Jan 23, 2012). MTV Tech Talk (Google, Jan 27, 2012). Institutionen för Psykologi Seminar (Lund Univ., Mar 30, 2012). Keynote Workshop on Cognitive Information Processing CIP 2012 (Baiona, Spain, May 30, 2012), SICSA Summer School Tutorial (Glasgow Univ., Jun 13, 2012). Workshop on Neural Data Analysis (Radboud University Nijmegen, Jul 6, 2012). Keynote 9th Sound and Music Computing Conference (Aalborg Univ., Jul 14, 2012). BBCI Summer School 2012 Tutorial (Berlin, Sep 21, 2012). Keynote 10th international workshop on Adaptive Multimedia Retrieval (Royal School of Library, Copenhagen, Oct 24, 2012).

Other 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.

- Member of Organizing Committee EUSIPCO 2010 (Plenary talks).

- Member of Program Committee NIPS∗98 (Area-chair: Applications and Implementations areas)

- 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 Vetenskabsraatet, Research Council, Sweden (2007, 2008, 2009, 2010).

- 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, 2008). Chair of panel in bio-medical engineering (2009, 2010, 2015). Chair of panel in data analysis (2011).

- National Institutes of Health, Washington, USA. Member of Human Brain Project proposal review committee ("Study Section") March 1998, October 2002, May 2003.

- 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 (2009).

- Reviewer for: Nature, 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.

- Numerous scientific committee memberships, e.g., BCI2013(Korea), PRNI2013, PRNI2015.

- 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 MSc. projects: Aarhus University, Odense University, University of Copenhagen (Niels Bohr Institute and Dept. of Computer Science), and Aalborg University. Member of national 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 committe for "Docent", Ingeniørhøjskolen i Aarhus. Chairman for evaluation committee for full professorship in communications, Technical 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. Chairman for evaluation committee for full professor in software engineering, DTU, 2011. Chairman for evaluation committee for full professor in software engineering, DTU, 2015.

- Professor promotion letters in the US and Canada: Illinois Institute of Technology, Chicago; Florida State University Tallahassee, Florida; Univ. Califonia San Diego; Univ. New Mexico, Albuquerque, New Mexico, University of Toronto, Toronto, Canada. City University, New York. Member of evaluation panel of full Professor in Physics Helsinki University of Technology.

Teaching

- Main supervisor for six on-going Ph.D.-projects. two are funded by the Danish Strategic Research Councils, one is funded by Psychiatric Center Glostrup, three are funded by the Technical University of Denmark.

- Main supervisor for >50 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), Advanced Machine Learning (2008-2015).

- Main supervisor for more than 130 DTU MSc. projects 1991-2014.

- 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 hosted 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 first version of the signal detection system was developed by DTU on contract.

- The Intelligent Sound project spun-off the machine learning consultancy company Epital A/S (www.epital.dk).

- Industrial PhD-projects with Adform A/S, ISG A/S, M.A.N. B& W, Bruel & Kjaer.

- 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, HypoSafe 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. Radio intervies: P3 'Morgenradio' 2005; 'Videnskabens Verden' (2008, 2009, 2012, 2013); 'MorgenP1' (2013).

- 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'. Danish Science Festival 2008: Talks at high schools on neuroscience and search engines.

Major recent scientific achievements

I conceived and directed the 'Intelligent Sound' large framework project funded by the Danish Technical Research Council (14 mill. DKK 1.9 mill Euro, 2005-2009). In the project we did theoretical research on audio representation, kernel multi-class detection, and we developed three audio search engines. 'MiRocket' is a 'more like this' real-time recommender based on music similarity for WinAmp. 'CastSearch' is an online audio podcast news search engine with speech-to-text transcription and latent semantic modelling which allows us to retrieve documents in which keywords were missed in the transcription. 'MuZeeker.com' is an online enriched music information search engine fusing Wikipedia music data and Youtube music video rendering. The impact from the Intelligent sound project derives from demonstrations, industry related innovation activity, and published papers having accumulated over 500 citations. Results from this project were presented in many invited talks and keynote presentations, including an invited talk at Facebook in Jan, 2013. A by-product the Matrix Cookbook has obtained another 500+ citations and in excess of 1 mill. downloads. Funding for a so-called innovation network 'Danish Sound' with over 200 Danish Companies in the audio business sector and for 'CoSound', a strategic research project featuring the leading media company Bang and Olufsen, have been secured (>30 mill DKK 4.0 mill Euro). Both of the latter industry related projects are headed by Assoc.prof. Jan Larsen in the Section for Cognitive Systems.

I am cofounder and principal investigator in 'Center for Integrated Molecular Brain Imaging' (CIMBI) funded by the Lundbeck Foundation (80 mill DKK 10.6 mill Euro, 2005-2015, project headed by Prof. G.M. Knudsen, Rigshospitalet, Denmark). This project is one of the most comprehensive imaging (functional and receptor) studies in the world. The project studies 100s of normal subjects with intensive protocols to understand the role of the serotonin receptor systems in personality variability. The role of my group is to develop new statistical modelling tools for the integration of multidimensional data. Our impact has been in expanding the Brede neuroinformatics framework, developing the internationally acclaimed 'Smartphone Brain Scanner'[2], and a large number of well-cited methods papers.

I am PI in the Responsible Business in the Blogosphere project, lead by prof. Mette Morsing, Center for Corporate Social Responsibility, Copenhagen Business School, with Danish Strategic Research Council funding (1.6 mill Euro 2009-2013). A unique interdisciplinary study of brand value and viral mechanisms in social media. The role of my group is to develop statistical tools for modelling virality in social media data and developing a service for companies to track their on-line persona. My recent work on Twitter virality (2011) is cited by Prof. Jon Kleinberg, among others, and I presented the results in a MTV Techtalk at Google Janury 2012.

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[2]Selected for the Netexplo 100 list of major inventions in 2012

Publications

- **Summary**

In total 299 reviewed publications: 1 book, 99 journal papers, 12 book chapters, and 187 full conference papers. Accumulated more than 11500 citations, h-index = 47 (Google Scholar).

- **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: *Industriel anvendelse af neurale netværk*. KVANT Fysisk Tidskrift **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. Niranjan & J.C. Principe (eds.), The Past, Present, and Furture 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 Regualrization, 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.AA. Nielsen, L.K. Hansen *Modelling the heamodynamic 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.AA. 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.AA. 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).

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