

CURRICULUM VITAE for Hans Liljenström

Born on May 24, 1956 in Eskilstuna, Sweden



Academic degrees

Master of Science (Civ.ing) in Engineering Physics, KTH 1982

Doctor of Philosophy (TeknD) in Theoretical Physics, KTH 1987

Associate professor (Docent) in Theoretical Biophysics, KTH 1996

University positions and grants

Assistant at the Dept of Theoretical Physics, KTH, 1982-02-01 - 1986-12-31

Doctoral fellowship at the Dept. of Theor. Phys., KTH, 1987-01-01--09-30

Employed as Researcher at the Dept. of Theor. Phys., KTH, 1987-10-01--12-31

Senior lecturer/director of undergraduate students, at the Dept. of Theor. Phys., KTH, 1988-01-01--12-31

Research grant for neural networks modeling from the Swedish Natural Sciences Research Council, NFR, 1989-01-01--06-30

Postdoctor fellowship (NFR) for neural networks modeling with Prof. John Hopfield at the California Institute of Technology, (Caltech) 1989-08-01--90-11-01

Research Assistant (NFR) in Artificial Neural Networks at the Dept. of Numerical Analysis and Computing Science, KTH, 1990-11-01--94-10-31

Researcher at the Dept. of Numerical Analysis and Computing Science, KTH, 1994-11-01--96-12-31

Research grant from the Swedish Council for Planning and Coordination of Research (FRN), 1994-11-01--97-12-31

Assoc. Prof. at the Dept. of Physics, Theoretical Biophysics Group, KTH, 1997-99.

Guest researcher at the Dept. of Biometry and Informatics, SLU, 2000-01-01—01-05-31

Professor at the Dept. of Biometry and Engineering, SLU, 2001-06-01

Head of the Research Group for Systems Analysis, SLU, 2003-2006

Visiting Professor at the University of Newcastle, England, 2007-2010

Visiting Professor at Zhejiang University, Hangzhou, China, Nov 2008 –

Research grant from the Swedish Research Council for Engineering Sciences (TFR), 1997-01-01--99-12-31

Research grant from the Carl Trygger Fund, 1997-98

Research grant from the Swedish Research Council for Engineering Sciences (TFR), 1998-01-01--02-12-31

Research grant from the Swedish Agency for Innovation Systems (Vinnova), 2004-2007

Research grant from the Swedish Research Council (VR), 2006-2008

Research Grant from the EU, joint coordinator and WP leader of COMPLEX – *Knowledge Based Climate Mitigation Systems for a Low Carbon Economy*, 2012-2016.

Grant from Naturvårdsverket (the Swedish Environmental Protection Agency), 2017-2018

Grants for the Agora for Biosystems from the Swedish Council for Planning and Coordination of Research (FRN), the Swedish Natural Sciences Research Council (NFR), the Swedish Research Council for Engineering Sciences (TFR), the Swedish Council for Research in the Humanities and Social Sciences (HSFR), the Bank of Sweden Tercentenary Fund, from the Swedish Foundation for Internat. Cooperation in Research and Higher Education (STINT), and from the John Templeton Foundation for *HumaNatE – Human Nature Exploration: Interdisciplinary reflection and dialogue on the human condition* (2013-16), and for *The Neuroscience and Philosophy of Free Will* (2019-23).

Assignments and relations with organizations

Co-founder and co-organizer of an international research center, the Agora for Biosystems in Sigtuna, Sweden, from the start in 1997 to 2011 under the auspices of the Royal Swedish Academy of Sciences, now administrated by the Sigtuna Foundation. www.agoraforbiosystems.se.

Member of the FRN (Swedish Council for Planning and Coordination of Research) committee on systems analysis, 1999-2001.

Appointed principal investigator of the physics-biology interactions at the Stockholm Center for Physics and Biology, spring 2000.

Board member of the KTH School of Industrial Management (KSIM), 1998-2000.

Associate Dean of international affairs, SLU, 2002-2003.

Faculty Board member, SLU, 2003-2006.

Board member of Centre of Biostochastics, SLU, 2002-2007

President of the Board for Biosystems Engineering, SLU, 2002-2006

President of the Center for Environmental and Developing Studies (CEMUS), Uppsala University and SLU, 2003-2007

President of the CEMUS Graduate School, Uppsala University and SLU, 2003-2007

President of the Centre for Research Ethics, Uppsala University and SLU, 2003-2007

Board member of the Baltic University Programme, 2004-2007

Member of the Swedish Committee for IIASA, the International Institute for Applied Systems Analysis, (hosted by Formas), 2004-2013.

Member of the Editorial Board of *Cognitive Neurodynamics* (Springer)

Member of the Editorial Board of *Science and Consciousness Review*

Co-chair of the Evaluation Panel for FLAG-ERA HBP grant proposals, 2018

Chair of the Evaluation Panel for FLAG-ERA HBP grant proposals, 2019

International research collaborations (current)

Primarily within the international and interdisciplinary research project, Neuroscience and Philosophy of Free Will, jointly funded by the John Templeton Foundation and the Fetzer Franklin Fund, www.neurophil-freewill.org.

Teaching experience

At the Dept. of Energy and Technology, SLU: Teaching and organizing courses in “Mathematics for Biologists”, “Mathematics for Economists”, “Systems, Models, and Simulations”, “Systems Analysis for Sustainable Development”, “Problem Solving for Scientists”, and “Philosophy of Science”.

At Uppsala University: Giving lectures in various courses, such as Sustainable Design, Sustainable Development (master courses) and Theories of Evolution (PhD course).

At the Dept. of Theoretical Physics, KTH: Teaching assistant in most courses given at the department in 1982-87, including “Thermodynamics and statistical mechanics” and “Quantum mechanics“. In 1988 worked as a senior lecturer and director of undergraduate courses, lecturing in courses such as “Vector analysis“, “Mathematical methods in physics“, and “Theory of relativity“. Lectured courses in “Environmental physics” (developed by HL) and “Vector analysis”, 1997-99.

At the Dept. of Numerical Analysis and Computing Science, KTH: Organized and lectured the undergraduate course, “Artificial neural networks and neurophysiology“ 1994-97. Participating in the course “Communication and cognition“, including project supervision.

At the Karolinska Institute and Stockholm University: Lectured and coorganized a course in “Theoretical biology and philosophy of science“ for graduate students from KTH, Karolinska Institutet and Stockholm University, 1991-94.

In business, industry, and international universities: Gave a course on “Artificial neural networks“ at a major bank in Stockholm, spring 1995. Lectured at a course on “Technical application of neural networks“ at ABB in spring 1996. Developed an application oriented course on artificial neural networks for engineering students at the University of Montevideo, Uruguay, and participating in a graduate course there on Neural Networks in Research, 1997. I have given courses in systems analysis for sustainable at the Addis Ababa University, Ethiopia (2010), and at Zhejiang University, China (2011, 2012).

Other work related to education and administration

Initiated and organised a graduate course on *Theoretical Biology and Philosophy of Science*, jointly with Karolinska Institutet and Stockholm University, 1991–1994

Organized and coordinated an undergraduate course on *Artificial neural networks and neurophysiology*, at the Dept. of Numerical Analysis and Computing Science, autumn 1994.

Initiated, developed and headed an undergraduate compulsory course in *Environmental Physics*, KTH. 5 credit points, 1997-1999.

Taking active part in the *Graduate School* of Biophysics, organized jointly by KTH, Stockholm University and Karolinska Institutet.

Initiated and developed (together with colleagues) the undergraduate program on Biosystems Engineering, SLU. Chairman of the Board for Biosystems Engineering, since 2002.

Developed an introductory course in *Biosystems Engineering*, 2003, 3 credit points.

Developed graduate courses in *Biodynamics*, 5 credit points, and in *Philosophy of Science, with focus on Man’s relation with Nature*, 5 credit points.

Dean of postgraduate studies at the Dept of Biometry and Engineering 2004-2008.

Supervised the *postdocs*, Xiangbao Wu from Shanghai, 1992-94, Soumalee Basu from University of Calcutta, India, 1998-2000, Dirk Repsilber from University of Hamburg, 2000-2002, Yuqiao Gu from Nankai University, China, 2002- 2004.

Supervised the *graduate student* Tomas Wilhelmsson, on parallel implementation of cortical neural network models, 1995-96.

Supervised the *graduate student* Per Aronsson, on neurophysical modeling, KTH, 1998-2001.

Supervised the *graduate student* Geir Halnes, on modeling biological networks, SLU, 2002-2007

Supervising the *graduate student* Nils Jonsson, on biosystems engineering, SLU, 2007-

Supervising the *graduate student* Huayi Lin (China), on systems analysis of socio-natural systems, 2014-

Supervising the *graduate student* Azadeh Hassanejad Nazir (Iran), on systems analysis of socio-natural systems, 2014-

Supervised the *Diploma Arbeiter* Kerstin Ronneberger on efficient learning rules, 2000

Supervised *master’s theses work* on various topics in biophysics, computational biology.

Faculty opponent for a licentiate and doctoral theses in various subjects, primarily at Uppsala University.

Member of several thesis committees at SLU, Uppsala University, Royal Institute of Technology, and the Karolinska Institute.

Given a number of public lectures and seminars on physics, biology, origin and evolution of life, brain theory, brain and mind relation etc. for a general audience and for high school students and teachers.

Editorial and organizational work

Reviewer for the journals Biological Cybernetics, Journal of Theoretical Biology, Analytical Chemistry, PNAS, Phys. Rev. E, Neural Networks, Network, Theoretical Medicine, for The Handbook of Brain Theory and Neural Networks (ed. Arbib), and applications for the Human Frontier Science Program.

Organized and chaired a symposium on artificial neural networks, “Ten years with Hopfield nets — where have we got?“, KTH, Apr 1992

Co-editor of a special issue on Mind and Matter in J. theor. Biol. 1994, and another one on the Origin of Life in J. theor. Biol. 1996.

Co-editor of a book, “Matter Matters? – On the Material Basis of the Cognitive Activity of Mind” (Arhem, P., Liljenström, H. and Svedin, U., eds) Berlin: Springer 1997.

Co-editor of a book, “Disorder versus Order in Brain Functioning – Essays in Theoretical Neurobiology” (Arhem, P., Blomberg, C. And Liljenström, H., eds) London: Worlds Scientific Publ. Co. (2000)

Co-editor of a book, “Micro–Meso–Macro: Addressing Complex Systems Couplings” (H. Liljenström and U. Svedin, eds) London: World Scientific Publ. Co. (2005)

In the programme committee of the International Conference on Engineering Applications of Neural Networks, EANN 1995-99, and chairman of EANN'97, Stockholm, Jun 1997.

Session chairman of the Biology session of the international conference on Virtual Intelligence and Dynamical Neural Networks, VI-DYNN'98, Stockholm Jun 1998.

In the programme committee of the International Conference on Computational Intelligence for Modelling, Control and Automation, CIMCAL'99, Vienna, 1999.

Co-organizer of three international workshops on "The role and control of random events in biological systems", together with Clas Blomberg, Physics dept, KTH, and Peter Århem, Nobelinstitute for neurophysiology, Karolinska Institutet, held at Sigtuna, Sweden, Sep 1995, Sep 1996, and Sep 1998.

Co-organizer of the 1999 Abisko Workshop on Complex Systems, Abisko, 17-21 May 1999 (organized jointly between FRN and Agora for Biosystems).

Co-organizer of the 1999 Agora Meeting on Fluctuations in Biological Systems, Sigtuna, Sweden, 3-7 August 1999. The conference is sponsored by IUPAP and FRN.

Co-organizer of the 1999 workshop and course on Use of Simulations in Bio-technical and Socio-technical Problems, held in Sigtuna, 13-17 Sep 1999 (with the Summer University of Southern Stockholm & Royal Institute of Technology).

Co-organizer of a workshop on Altruism and Consciousness in Evolution, at the Royal Swedish Academy of Sciences, in conjunction with the Crafoord Prize, 25 Sep 1999 (together with Birgitta Tullberg, Dept. of Zoology, Stockholm University).

Co-organizer of the 2000 Abisko Workshop on Systems Shocks – Systems Resilience, Abisko, 21-26 May 2000 (organized jointly with FRN).

Organizer of the Nordic Symposium on Computational Biology, Sigtuna, Sweden, 18-23 Jun 2000.

- Co-organizer of a workshop on major transitions in evolution, with Collegium Budapest, 24-27 Oct 2000.
- Co-organizer of a series of Agora workshops on consciousness and evolution, 2001-2005
- Organizer of the Abisko Meeting on Modeling Mental Processes and Disorders, 16-20 Jan 2002.
- Co-organizer of the Agora Meeting on Modeling Mental Processes and Disorders, Kusadasi, Turkey, 24-29 May 2004. (Organized jointly with Center for Brain Research, Ege University, Izmir).
- Organizer of the Symposium on Systems Analysis Applied to Ecology and Natural Resource Management, Uppsala, Sweden, 20 May 2005.
- Co-organizer of the Symposium on Models of Socio-Natural Systems, Stockholm, Sweden, 26-27 October 2006.
- Organizer of the Agora Jubilee Conference on the Linnaean Tradition in Modern Biology – A Revival?, Royal Swedish Academy of Sciences (KVA), 29-30 Oct 2007.
- Organizer of the Uppsala Symposium on Socio-Environmental Modeling of the Baltic Sea Region, SLU, Uppsala, 9-11 Nov 2007.
- Co-organizer of a series of interdisciplinary symposia on “Human Nature” at the Sigtuna Foundation, 2007-2010.
- Co-chair of the 3rd International Conference on Cognitive Neurodynamics in Sapporo, Japan, 9-13 June 2011.
- Organizer of the Agora workshop on Fluctuations in Neural Systems, Sigtuna, Sweden, 28-30 July 2011
- Organizer of the 4th International Conference on Cognitive Neurodynamics in Sigtuna, Sweden, 23-27 June 2013.
- Co-chair of the 5th International Conference on Cognitive Neurodynamics in Sanya, China, 4-8 June 2015
- Program chair of the conference Towards a Science of Consciousness, Helsinki, 9-13 June 2015.
- Co-organizers of the international conference, Climate Existence, Sigtuna, 6-8 April 2016.
- Co-organizer of the international conference, Life and Mind – Scientific Challenges, Sigtuna, 13-16 October 2016.
- Co-organizer of the Agora Conference on Free Will, Sigtuna, Sweden, 24-26 June 2017

PUBLICATION LIST for Hans LiljenströmRefereed in international journals

1. Blomberg C., Johansson J. and Liljenström H. [1985]
Error propagation in E. coli protein synthesis
J. theor. Biol. 113, 407-423
2. Liljenström H., von Heijne G., Blomberg C. and Johansson J. [1985]
The tRNA cycle and its relation to the rate of protein synthesis
Eur. Biophys. J. 12, 115-119
3. Liljenström H. [1987]
Maintenance of accuracy during amino acid starvation
FEBS Lett. 223, 1-5.
4. Liljenström H. and von Heijne G. [1987]
Translation rate modification by preferential codon usage: Intragenic position effects
J. theor. Biol. 124, 43-55
5. Liljenström H. and Blomberg C. [1987]
Site dependent time optimization of protein synthesis - with special regard to accuracy
J. theor. Biol. 129, 41-56
6. von Heijne G., Blomberg C. and Liljenström H. [1987]
Mini review: *Theoretical modelling of protein synthesis*
J. theor. Biol. 125, 1-14
7. Liljenström H. [1991a]
Modeling the Dynamics of Olfactory Cortex Using Simplified Network Units and Realistic Architecture.
Int. J. Neural Systems 2, 1-15.
8. Lansner A. and Liljenström H. [1994]
Computer Models of the Brain – How far can they take us?
J. theor. Biol. 171:61–73.
9. Wu X. and Liljenström H. [1994]
Regulating the Nonlinear Dynamics of Olfactory Cortex.
Network: Computation in Neural Systems 5:47–60.
10. Blomberg C., Liljenström H., Lindahl B.I.B., and Århem P. [1994]
Mind and Matter: Essays from Biology, Physics and Philosophy –An Introduction
J. theor. Biol. 171:1–5.
11. Liljenström H. [1995a]
Autonomous Learning with Complex Dynamics
Intl. J. Intelligent Systems 10:119–153.
12. Liljenström H. and Hasselmo M. [1995]
Cholinergic Modulation of Cortical Oscillatory Dynamics.
J. Neurophysiol. 74:288–297.
13. Liljenström H. and Wu X. [1995b]
Noise-enhanced Performance In A Cortical Associative Memory Model
Intl. J. Neural Systems. 6:19–29.

14. Liljenström H. [1996a]
Neuromodulation Can Significantly Change the Dynamical State of Cortical Networks
Behavioral and Brain Sciences 19:303–304.
15. Liljenström H. [1996b]
Global Effects of Fluctuations in Neural Information Processing.
Intl. J. Neural Systems 7:497–505.
16. Liljenström H. and Århem, P. [1997]
Investigating Amplifying and Controlling Mechanisms for Random Events in Neural Systems.
In "Computational Neuroscience", (Ed. J.M. Bower), New York: Plenum Press, 1997
17. Baltscheffsky, H., Blomberg C., Liljenström H., Lindahl B.I.B., and Århem P. [1997]
On the Origin and Evolution of Life - An Introduction
J. theor. Biol. 187:453-459.
18. Århem, P. and Liljenström H. [1997]
On the Coevolution of Cognition and Consciousness.
J. theor. Biol. 187:601-612
19. Drets, G. and Liljenström H. [1998]
Fingerprint Sub-Classification and Singular Point Detection
Intl. J. Pattern Recognition and Artificial Intelligence 12:407-422.
20. Liljenström H. [2000]
Inter-scale Interactions in Cortical Neural Networks
Behavioral and Brain Sciences 23:408-409.
doi.org/10.1017/S0140525X00323251
21. Aronsson, P. and Liljenström, H. [2000]
Non-synaptic Modulation of Cortical Network Dynamics
Neurocomputing, 32/33:285-290.
22. Liljenström H. [2001]
How (Dis)ordered is Our Brain?
Behavioral and Brain Sciences 24(3):793-847.
23. Aronsson P. and Liljenström H. [2001]
Increased Dynamical Order with Non-synaptic Cortical Interaction
BioSystems 63:43-56.
24. Basu, S. and Liljenström, H. [2001]
Spontaneously Active Cells Induce State Transitions in a Model of Olfactory Cortex
BioSystems 63:57-69.
25. Århem, P., Liljenström, H., and Lindahl, B.I.B. [2001]
Conference report on Unconsciousness -Consciousness: Tools for Exploring the Transitions.
J. Consc. Studies 8:33-35.
26. Århem, P., Liljenström, H., and Lindahl, B.I.B. [2002]
Evolution of Consciousness: Report of Agora Workshop in Sigtuna, Sweden, August 2001.
J. Consc. Studies. 9: 81-84

27. Repsilber, D., Liljenström, H., and Andersson, S. [2002]
Reverse Engineering of Regulatory Networks: Simulation Studies on a Genetic Algorithm Approach for Ranking Hypotheses
BioSystems 66:31-41.
28. Liljenström, H. [2003]
Neural Stability and Flexibility - A Computational Approach
Neuropsychopharmacology 28: S64-S73
29. Århem, P., Liljenström, H., and Lindahl, B.I.B. [2003]
Consciousness and Comparative Neuroanatomy: Report of Agora Workshop in Sigtuna, Sweden, August 2002.
J. Consc. Studies 10:88-89
30. Gu, Y., Halnes, G., Liljenstrom, H., and Wahlund, B. [2004]
A Cortical Network Model for Clinical EEG Data Analysis
Neurocomputing 58-60:1187-1196
31. Liljenström, H. and Halnes, G. [2004]
Noise in Neural Networks – In Terms of Relations
Fluctuation and Noise Letters 4: L97-L106 (special issue, eds. P. Hanggi, P. Jung, A. Neiman and L. Schimanski-Geier).
32. Gu, Y., Wahlund, B., Liljenström, H., von Rosen, D. and Liang, H. [2005]
Analysis of Phase Shifts in Clinical EEG Evoked by ECT
Neurocomputing, 65-66:475-483
33. Gu, Y., Halnes, G., Liljenström, H., Liang, H., von Rosen, D., and Wahlund, B. [2006]
Modelling ECT Effects by Connectivity Changes in Cortical Neural Networks
Neurocomputing 69:1341-1347
34. Gu, Y. and Liljenstrom, H. [2007]
Modeling Efficiency in Insect Olfactory Information Processing
BioSystems 89:236-243
35. Gu, Y. and Liljenstrom, H. [2007]
A neural network model of attention-modulated neurodynamics
Cognitive Neurodynamics 1:275-285.
36. Halnes, G., Liljenstrom, H. and Århem, P. [2007]
Density dependent neurodynamics
BioSystems 89:126-134
37. Halnes, G., Fath, B. and Liljenström, H. [2007]
The modified niche model: Including detritus in simple structural food web models. Ecological Modelling 208:9-16.
38. Culic, M., Gjoneska, B., Hinrikus, H., Jändel, M., Klonowski, W., Liljenström, H., Pop-Jordanova, N., Psatta, D., von Rosen, D. and Björn Wahlund [2009]
Signatures of Depression in Non-Stationary Biometric Time Series,
Computational Intelligence and Neuroscience Vol. 2009:1-7. Article ID 989824,
doi:10.1155/2009/989824, <http://www.hindawi.com/journals/cin/2009/989824.html>.

39. Wahlund, B., Piazza, P., vonRosen, D., Liberg, B. and Liljenström, H. [2009]
Seizure (Ictal)EEG Characteristics in Subgroups of Depressive Disorder in Patients Receiving Electroconvulsive Therapy (ECT)A Preliminary Study andMultivariate Approach,
Computational Intelligence and Neuroscience, Vol. 2009, Article ID 965209,
doi:10.1155/2009/965209.
40. Gonzalez, E., Liljenström, H., Ruiz, Y. and Li, G. [2009]
A Biologically Inspired Model for Pattern Recognition
J Zhejiang Univ-Sci B (Biomed & Biotechnol) 2010 11(2):115-126
41. Liljenström H. [2010]
Network Effects of Synaptic Modifications.
Pharmacopsychiatry 43: S67 – S81
42. Liljenström, H. [2011]
Mesosopic Brain Dynamics and Mental Disorders
European Psychiatry 26:2225-2225
43. Liljenström, H. [2011]
Intention and Attention in Consciousness Dynamics and Evolution
J. Cosmology 14:4848-4858 (special issue edited by R. Penrose & S. Hameroff),
<http://journalofcosmology.com/Consciousness138.html>
44. Liljenström, H. [2012]
Mesosopic Brain Dynamics
Scholarpedia 7(9):4601
45. Hassanejad Nazir, A. and Liljenström, H. [2015]
A Cortical Network Model for Cognitive and Emotional Influences in Human Decision Making.
BioSystems 136: 128-141. [doi:10.1016/j.biosystems.2015.07.004](https://doi.org/10.1016/j.biosystems.2015.07.004)
46. Svedin, U. and Liljenström, H. [2016]
Energy Policy Paths to Low Carbon Societies by 2050 – The energy system and its regional socio-ecological context. A Swedish case. *Energy Policy* (in press).
47. Svedin, U., Borgström, S. and Liljenström, H. [2017]
Connecting urban and regional socio-ecological transitions: Paths to a non fossil society in the Swedish Stockholm-Mälars area.
Procedia Engineering 198C (2017) pp. 1036-1045, doi.org/10.1016/j.proeng.2017.07.148
48. Liljenström, H. [2017]
4711 – Is Grandma a Strange Attractor?
Chaos and Complexity Letters 11:49-79. ISSN: 15563995
49. Svedin, U. and Liljenström, H. [2018]
A Multilevel Approach to Urban Regional Agglomerations – a Swedish Case of Transition Paths Towards a “Fossil-free Society” by 2050. In: *Urban Agglomeration*, Ch3 pp 65-85, *InTechOpen*, ISBN 978-953-51-3898-3. Doi: 10.5772/intechopen.73104
50. Liljenström, H. [2018]
Intentionality as a Driving Force
J. Consc. Studies, 25 (1-2):206-229
<http://www.ingentaconnect.com/contentone/imp/jcs/2018/00000025/f0020001/art00014>

51. Bressler, S., Kay, L., Kozma, R., Liljenström, H., and Vitiello, G. [2018]
Freeman Neurodynamics: The Past 25 Years
J. Consc. Studies, 25 (1-2):13-32
52. Liljenström H. [2018]
Modeling effects of neural fluctuations and inter-scale interactions.
Chaos, 28(10):106319. doi: 10.1063/1.5044510.
53. Liljenström H. [2019]
Peak experiences in a consciousness landscape: Report on The Science of Consciousness Conference in Interlaken, Switzerland, 2019.
J. Consc. Studies 26:238-263(26)
54. Liljenström H. [2020]
Computational modeling aids in linking structure, dynamics, and function of neural systems.
Physics of Life Reviews, available online 16 Nov 2020, doi.org/10.1016/j.plrev.2020.11.003
55. Lin, H., Zebrowski, P., Fath, B. D., Liljenström, H., Rovenskaya, E. [2021]
Modelling stakeholder satisfaction for conflict resolution in wildlife management: a case of wolf population in Sweden.
European J. of Wildlife Research 67(4) doi: [10.1007/s10344-021-01495-1](https://doi.org/10.1007/s10344-021-01495-1)
56. Liljenström, H. [2022]
Consciousness, decision-making, and volition – Freedom beyond chance and necessity.
Theory in Biosciences, 141(2):125-140 (Springer). doi.org/10.1007/s12064-021-00346-6

Refereed conference papers

Blomberg C. and Liljenström H. [1988]
Efficiency in Biosynthesis - Cellular Synergetics
Proceedings of the Conference on Synergetics, Order and Chaos, Madrid Oct. 12-17, 1987. Ed. M.G. Velarde, World Scientific Publ. Co., Singapore 1988.

Liljenström H. [1992]
Complex Dynamics In A Realistic Neural Network Model.
Proceedings of 2nd International Conference on Fuzzy Logic and Neural Networks, 897-900, Iizuka, Japan, Jul 17-22, 1992.

Liljenström H. and Hasselmo M. [1992]
Acetylcholine and Cortical Oscillatory Dynamics.
Proceedings of the First Annual Meeting on Computation and Neural Systems, San Francisco, Jul. 21–25, 1992.

Liljenström H. and Hasselmo M. [1993]
Acetylcholine and Cortical Oscillatory Dynamics.
In "Computation and Neural Systems", pp. 523–530, (Eds. F.H. Eeckman & J.M. Bower), Boston: Kluwer Academic Publ.

Liljenström H. and Wu X. [1993]
Simulated Neuromodulatory Effects on the Nonlinear Dynamics of Olfactory Cortex.
Proceedings of Intl. Joint Conf. on Neural Networks, Nagoya, Japan, Oct. 25–29, 1993.

Fransén E., Lansner A., and Liljenström H. [1993]
A Model of Cortical Associative Memory Based on Hebbian Cell Assemblies.

In "Computation and Neural Systems", pp. 431–435, (Eds. F.H. Eeckman & J.M. Bower), Kluwer Academic Publ.

Liljenström H. [1994a]

Cognition, Neurodynamics, and Computer Models.

In: "Connectionism in a Broad Perspective", Niklasson, L.F. and Bodén, M.B. eds., pp. 89–98. London: Ellis Horwood Publ.

Liljenström H. [1994b]

Oscillations and Associative Memory: Brain and Model.

In: "Brain and Mind", Biological Transactions 43:109–123, Danish Academy of Sciences and Letters, R. Cotterill, ed.

Liljenström H. [1994c]

The Functional Role of Noise and Chaos in Neural Systems

Proc. 2nd NATO Meeting on "Fluctuations in Physics and Biology: Stochastic Resonance, Signal Processing and Related Phenomena", Elba, Italy, 5–10 June 1994. (abstract).

Liljenström H. [1994d]

Neurodynamical Basis For Consciousness States

Proceedings of 7th Intl. Congress on Psychophysiology, Thessaloniki, Greece, Sep 27– Oct 2, 1994 (abstract).

Liljenström H. and Wu X. [1994a]

Noise and Neuromodulatory Effects On A Cortical Associative Memory

Proceedings of World Congress on Neural Networks, Orlando, Jun. 28–Jul 2, 1994.

Neural Networks, 1994. IEEE World Congress on Computational Intelligence., 1994

Vol. 2: 970-975, ISBN: 0-7803-1901-X

Liljenström H. and Wu X. [1994b]

Noise and Chaos in Associative Memory

Proceedings of Computation and Neural Systems Meeting, Monterey, Jul. 21–25, 1994.

Fransén E., Lansner A., and Liljenström H. [1994]

A Model of Cortical Associative Memory Based on Hebbian Cell Assemblies.

In: "Connectionism in a Broad Perspective", Niklasson, L.F. and Bodén, M.B. eds. pp. 165–172, London: Ellis Horwood Publ.

Liljenström H. [1995b]

A Cortical Associative Memory Model For Odor Recognition

In: "Engineering Applications of Artificial Neural Networks", (Eds. A.B. Bulsari, and S. Kallio) pp. 179–184, Helsinki: Finnish Artificial Intelligence Society.

Liljenström H. [1995c]

Neuromodulatory Control of the Dynamics And Functions of Cortical Structures

Proc. of the Intl. Workshop on Neuronal Coding, Prague, 11–14 Sep 1995. (abstract).

Liljenström H. and Wu X. [1995a]

Oscillations, Chaos and Noise in Associative Memory

In: "The Neurobiology of Computation" (Ed. J.M. Bower) pp. 257–262, Boston: Kluwer Academic Publ.

Wilhelmsson T. and Liljenström H. [1995]

A Parallel Implementation of an Olfactory Cortex Model: Dynamics and Associative Memory

Proc. of the Fourth Ann. Computation and Neural Systems Conf., Monterey, 11-14 Jul 1995.

- Drets, G. and Liljenström, H. [1997]
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