

Eytan RUPPIN, M.D., Ph.D.,

CURRICULUM VITAE

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Home Address (in Israel): 5 Tel Chai, Herzelia
Date and place of birth: 18.7.1956 Israel
ZAHAL (Israeli) Military Service: 1974-1980
Marital status: Married
No. of children: three

EDUCATION

1980-1986 M.D. Medicine
Sackler School of Medicine, Tel-Aviv University
Date of award: 1986
Title of M.D. Thesis: Serum Ige Levels in Children in Israel
Name of Supervisor: Professor Israel Pick
1987-1989 M.Sc., Computer Science (Magna Cum Laude)
Tel Aviv University
Date of award: 1989
Title of Masters Thesis: Cognitive Evaluation Functions - a new method
for reasoning with uncertainty and its utilization for performing diag-
nosis in the framework of formal classification
Name of Supervisor: Professor Amiram Yehudai
1989-1993 Ph.D., Computer Science
Tel Aviv University
Date of award: 1993
Title of Doctoral Dissertation: Neural modeling of memory-related
cognitive processes in normal and pathological states
Name of Supervisor: Professor Yehezkel Yeshurun

ACADEMIC AND PROFESSIONAL EXPERIENCE

1985-1986 Intern, Beilinson Medical Center, Petach Tikvah
1987-1989 Assistant, School of Math. Sci., Tel Aviv University
1988-1992 Instructor, School of Math. Sci., Tel Aviv University

1988-1990	Resident in Psychiatry, Tel Aviv Mental Health Center, Ramat Chen
1993-1995	Post-doctoral fellow, Dept. of Comp. Sci., Univ. of Maryland. Affiliated with the Dept. of Neurology, Univ. of Maryland Medical School
1995-1998	Senior lecturer, Department of Computer Science and Department of Physiology and Pharmacology, Tel Aviv University
1998-	Associate Professor, Department of Computer Science and Department of Physiology and Pharmacology, Tel Aviv University

ACTIVE PARTICIPATION IN SCIENTIFIC MEETINGS

See list of publications

GRANTS AND AWARDS

1990, 1991, 1992	School of Mathematics Award for Distinction for Ph.D. Students, Tel Aviv University
1993-1994	Rothschild Postdoctorate Fellowship
1995-1998	Alon Fellowship
1995	Schtacher Award of the Sackler Medical School
1996-1998	Grant for CSD/Stroke Modeling Research (PI) – Israel Ministry of Health
1997-2000	Grant for Stroke Modeling Research (PI) – United States - Israel Bi-national Science Fund
1998-2001	Grant for Studying the Evolution and Analysis of Autonomous Agents – FIRST foundation of the Israel Academy of Science and Humanities
2002-2006	Grant for Computational Language Acquisition Research (PI) – United States - Israel Bi-national Science Fund

OTHER ACTIVITIES

Referee:	Journals and Conferences: Biological Cybernetics, Connection Science, Network, Neural Networks, Neural Computation, Artificial Intelligence in Medicine, Journal of Physics A, Trends in Cognitive Sciences, Cerebral Cortex, Nature Reviews Neuroscience, NIPS, IJCAI. Grants: BSF, Israel Academy of Sciences, GIF.
Editorial Board:	Artificial Intelligence in Medicine.
Editor:	Special issue on Neural Modeling of Brain Disorders, Artificial Intelligence in Medicine, MD Computing.
Editor:	Special issue on Evolutionary Computation in Medicine, Artificial Intelligence in Medicine.
Organizing and Program Committee:	The First Conference on Neural Modeling of Brain Disorders, Washington, June 1995 (sponsored by the NIMH).

Organizing and Program Committee: Workshop on Memory Organization and Consolidation, Tel Aviv University, May 1996 (sponsored by Adams brain ' center).

Organizing and Program Committee: The Second Conference on Neural Modeling of Brain Disorders, Maryland, June 1998 (sponsored by the NIMH).

Program committee - The Second International Conference on Evolvable Systems: From Biology to Hardware, Lausanne, October 1998 (ICES98).

Organizing and Program Committee: Intl. Workshop on Neural Modeling of Biological Systems, Kiryat-Anavim, 1999 (sponsored by the Israel Academy of Sciences).

Program committee - Computational Neuroscience Conference (CNS), 2002 - 2005, and board member (temporary) of the CNS Foundation.

MASTERS STUDENTS SUPERVISED

1995-6 Nir Levy, Compensatory mechanisms in normal memory processing and Alzheimer disease, School of Physics, Tel Aviv University (with Prof. D. Horn)

1995-6 Assi Greenstein-Messica, Synaptic runaway in associative networks, School of Physics, Tel Aviv University.

1996-7 Gal Chechick, Synaptic overgrowth and deletion during cortical development, Dept. of Computer Science, Tel Aviv University (with Prof. I. Meilijson)

1997-9 Zach Solan, Modeling similarity with self-organization maps. School of Physics, Tel Aviv University.

1997-2000 Guy Amit, The Immune Memory System. Dept of Computer Science, Tel Aviv University (with Prof. Zvia Agur).

1998-2001 Yael Niv, Evolution of reinforcement in virtual bees. Interdisciplinary Program, Tel Aviv University (with Dr. Daphna Joel).

1999-2002 Lior Segev, Functional Contribution Analysis of Autonomous Agents. Dept. of Computer Science, Tel Aviv University

2000-2002 Shlomy Boshy, Near minimal compact encodings. Dept. of Computer Science, Tel Aviv University

2000- Keren Saggie, Evolution of Reinforcement. Dept. of Computer Science, Tel Aviv University

2001- Hezy Avraham, Evolution of a visual system, Dept. of Computer Science, Tel Aviv University

2001- Yossi Mossel, Evolution of Self-organizing learning. Dept. of Computer Science, Tel Aviv University

2001- Zohar Ganon, An Algorithm for "Skeletalization" of Neurocontrollers. Dept. of Computer Science, Tel Aviv University

2002- Roi Yehoshua, Dept. of Computer Science, Tel Aviv University, (subject not yet determined).

DOCTORAL STUDENTS SUPERVISED

1996-1999 Nir Levy, Neural regulation and associative memory in multi-modular neural networks, School of Physics, Tel Aviv University (with Prof. David Horn)

1997-2001 Tuvia Beker, Evolution of neural networks in artificial life agents, Computational Neuroscience Program, The Hebrew University of Jerusalem (with Prof. Henri Atlan)

1997- Ranit Aharonov-Aharonov, Structure and Function in artificial life agents, Computational Neuroscience Program, The Hebrew University of Jerusalem (with Prof. Hanoach Gutfreund)

2001- Zach Solan, A Computational Study of Language Acquisition, School of Physics, Tel Aviv University (with Prof. David Horn and Prof. Shimon Edelman (Cornell)).

2001- Elhanan Borenstein, School of Computer Science, (subject not yet determined).

2002- Alon Keinan, School of Computer Science, Localization of Function (Pending approval of the PhD committee).

Date: August 2002

Eytan RUPPIN, M.D., Ph.D.**LIST OF PUBLICATIONS****ARTICLES**

1. E. Ruppín, M. Mimuni, H. Weiss, Y. Danon, I. Gerlanter, R. Tamir, I. Pick.
Serum IgE concentration in children in Israel
Harefua 115 (3-4) (1988), 57-62.
2. E. Schiff, E. Peleg, M. Goldenberg, T. Rosenthal, E. Ruppín, M. Tamarkin, G. Barkai,
G. Ben-Baruch, I. Yahal, J. Blankstien, B. Goldman, S. Mashiach
The use of Aspirin to prevent Pregnancy Induced Hypertension and lower the ratio of
Thromboxane A2 to Prostacyclin in relatively high risk pregnancies.
N Engl J Med 321(6) (1989), 351-356.
3. E. Ruppín, M. Usher
An attractor neural network model of semantic fact retrieval.
Network: Comput. Neural Syst. 1 (1990), 325-344.
4. E. Ruppín, Y. Yeshurun
Recall and recognition in an attractor neural network of memory retrieval.
Connection Science 3(4) (1991), 381-400.
5. D. Horn, E. Ruppín
Extra-pyramidal symptoms in Alzheimer's disease: a hypothesis.
Medical Hypothesis 39 (1992), 316-318.
6. M. Herrmann, E. Ruppín, M. Usher
A neural model of the dynamic activation of memory.
Biological Cybernetics 68 (1993), 455-463.
7. I. Meilijson, E. Ruppín
History-dependent attractor neural networks.
Network: Comput. Neural Syst. 4 (1993), 195-221.
8. D. Horn, E. Ruppín, M. Usher, M. Herrmann
Neural network modeling of memory deterioration in Alzheimer's disease.
Neural Computation 5 (1993), 736-749.
9. E. Ruppín, E. Schwartz, Y. Yeshurun
Examining the volume-efficiency of the cortical architecture in a multi-processor net-
work model.
Biological Cybernetics 70 (1993), 89-94.
10. I. Meilijson, E. Ruppín
Optimal signalling in attractor neural networks.
Network: Comput. Neural Syst. 5(2) (1994), 277-298.

11. D. Horn, E. Ruppin
Compensatory mechanisms in an attractor neural network model of Schizophrenia.
Neural Computation 7(1) (1994), 1494-1517.
12. I. Meilijson, E. Ruppin, M. Sipper
A single iteration threshold Hamming network.
IEEE Trans of NN 6(1) (1995), 261-266.
13. E. Ruppin, J. Reggia
A neural model of memory impairment in diffuse cerebral atrophy.
Br. Jour. of Psychiatry 166(1) (1995), 19-28.
14. E. Ruppin, J. Reggia
Patterns of functional damage in neural network models of associative memory.
Neural Computation 7(5) (1995), 1105-1127.
15. E. Ruppin
Neural modeling of psychiatric disorders.
Network: Comput. Neural Syst. 6 (1995), 635-656.
16. E. Ruppin, J. Reggia, D. Horn
Pathogenesis of schizophrenic delusions and hallucinations: A neural model
Schizophrenia Bulletin 22(1) (1996), 105-123.
17. I. Meilijson, E. Ruppin
Optimal firing in sparsely-connected low-activity attractor networks.
Biological Cybernetics 74 (1996), 479-485.
18. D. Horn, N. Levy, E. Ruppin
Neuronal-based synaptic compensation: A computational study in Alzheimer's disease.
Neural Computation 8(6) (1996), 1227-1243.
19. R. Levi, E. Ruppin, Y. Matias, J. Reggia
Frequency-spatial transformation: A proposal for parsimonious intra-cortical communication.
Int. Jour. of Neural Systems 7(5) (1996), 591-598.
20. M. Sipper, E. Ruppin
Co-evolving architectures for cellular machines.
Physica D 99 (1997), 428-441.
21. S. Goodall, J. Reggia, Y. Chen, E. Ruppin, C. Whitney
A computational model of acute focal cortical lesions.
Stroke, 28, (1997), 101-109.
22. J. Reggia, E. Ruppin, R. Sloan Berndt
Computer Modeling: A New Approach to the Investigation of Disease.
MD Computing, 14(3), (1997), 160-168.

23. D. Horn, N. Levy, E. Ruppin
Memory Maintenance via Neuronal Regulation.
Neural Computation, 10(1), (1998), 1-18.
24. A. Greenstein-Messica, E. Ruppin
Synaptic runaway in associative networks and the pathogenesis of schizophrenia
Neural Computation, 10(2), (1998), 451-465.
25. E. Ruppin, J. Reggia
Seeking order in disorder: Computational studies of neurologic and psychiatric diseases.
Artificial Intelligence in Medicine, 13(1-2), (1998), 1-12.
26. G. Chechik, I. Meilijson, E. Ruppin.
Synaptic Pruning in Development: A Computational Account
Neural Computation, 10(7), (1998), 1759-1777.
27. K. Revett, E. Ruppin, S. Goodall, J. Reggia
Spreading depression in focal ischemia: A computational study.
Journal of Cerebral Blood Flow and Metabolism, 18(9), (1998), 998-1007.
28. D. Horn, N. Levy, E. Ruppin
Neuronal Regulation versus Synaptic Unlearning in Memory Maintenance Mechanisms.
Network: Comput. Neural Syst., 9, (1998), 577-586.
29. E. Ruppin, E. Ofer, J. Reggia, K. Revett, S. Goodall.
Pathogenic mechanisms in ischemic damage: A computational study.
Computers in Biology and Medicine, 29(1), (1999), 39-59.
30. G. Chechik, I. Meilijson, E. Ruppin.
Neuronal regulation: A mechanism for synaptic pruning during brain maturation.
Neural Computation, 11(8), (1999), 2061-2080.
31. E. Cohen, E. Ruppin.
From Parallel To Serial Processing: A Computational Study of Visual Search.
Perception and Psychophysics, 61(7), (1999), 1449-1461.
32. N. Levy, D. Horn, E. Ruppin.
Associative memory in a multi-modular network.
Neural Computation, 11(7), (1999), 1717-1737.
33. E. Ruppin.
NMDA receptor delayed maturation and schizophrenia.
Medical Hypotheses, 54(5), (2000), 693-697.
34. I. Bar-Gad, G. Havazelet-Heimer, E. Ruppin and H. Bergman
Reinforcement driven dimensionality reductions; a model for information processing in the basal ganglia.
J. Basic and Clin. Physiol. Phram, 11(4), (2000), 305-320.

35. Z. Solan and E. Ruppín.
Similarity in Perception: A Window to Brain Organization.
Journal of Cognitive Neuroscience, 13(1), (2001), 18-30.
36. R. Aharonov-Barki, T. Beker, E. Ruppín.
Emergence of memory-driven command neurons in evolved artificial agents.
Neural Computation, 13(3), (2001), 691-716.
37. G. Chechik, I. Meilijson, E. Ruppín.
Effective learning with ineffective Hebbian learning rules.
Neural Computation, 13(4), (2001), 817-840.
38. E. Ruppín, J. Reggia.
Cortical Spreading Depression and the Pathogenesis of Brain Disorders: A Computational and Neural Network-Based Investigation.
Neurological Research, 23 (5), (2001), 447-456.
39. N. Levy, D. Horn, I. Meilijson, E. Ruppín.
Distributed Synchrony in a Cell Assembly of Spiking Neurons.
Neural Networks, 14(6/7), (2001), 815-824.
40. E. Ruppín.
Evolutionary Embodied Agents: A Neuroscience Perspective.
Nature Reviews Neuroscience, 3(2), (2002), 132-142.
41. L. Finkelstein, E. Gabrilovitch, Y. Matias, E. Rivlin, Z. Solan, G. Wolfman, E. Ruppín.
Placing search in context: the concept revisited.
ACM Transactions of Information Systems, 20(1), (2002), 116-131.
42. D. Joel, Y. Niv, E. Ruppín.
Actor-critic models of the basal ganglia: new anatomical and computational perspectives.
Neural Networks, 15(4-6), (2002), 535-547.

Accepted for Publication

1. Y. Niv, D. Joel, I. Meilijson, E. Ruppín.
Evolution of Reinforcement Learning in Foraging Bees.
Adaptive Behavior.
2. R. Aharonov, L. Segev, I. Meilijson, E. Ruppín.
Localization of Function Via Lesion Analysis
Neural Computation.
3. L. Segev, R. Aharonov, I. Meilijson, E. Ruppín.
High-Dimensional Analysis of Autonomous Agents
Artificial Life.

Submitted

1. E. Cohen, D. Zakay, E. Ruppin.
The workings of internal clocks: A computational and experimental study of duration judgements.
Cognitive Science.
2. S. Boshy, E. Ruppin.
Evolution of Near Minimal Agents With a Self-Organizing Compressed Encoding.
Artificial Life.
3. A. Keinan, I. Meilijson, E. Ruppin.
Controlled analysis of neurocontrollers with Informational Lesioning
Proc. of the Royal Society of London, A.

BOOKS - EDITING

1. J. Reggia, E. Ruppin, R. Sloan Berndt (eds.)
Neural Modeling of Brain and Cognitive Disorders.
World Scientific Publishing, UK, 1996.
2. J. Reggia, E. Ruppin, D. Glanzman (eds.)
Brain, Behavioral and Cognitive Disorders: The Neurocomputational Perspective.
Progress in Brain Research series, Elsevier Science Publishers, 1999.

CHAPTERS IN BOOKS

1. J. Reggia, E. Ruppin, R. Sloan Berndt
Modeling brain and cognitive disorders.
In "Neural Modeling of Brain and Cognitive Disorders" (J. Reggia, E. Ruppin, R. Berndt, eds.), World Scientific Publishing, UK, 1996, 3-39.
2. E. Ruppin, J. Reggia
Functional versus structural damage in multi-infarct dementia: A computational study.
In "Neural Modeling of Brain and Cognitive Disorders" (J. Reggia, E. Ruppin, R. Berndt, eds.), World Scientific Publishing, UK, 1996, 303-325.
3. E. Ruppin, D. Horn, N. Levy, J. Reggia
Computational studies of synaptic alterations in Alzheimer's disease.
In "Neural Modeling of Brain and Cognitive Disorders" (J. Reggia, E. Ruppin, R. Berndt, eds.), World Scientific Publishing, UK, 1996, 63-87.
4. J. Reggia, S. Goodall, Y. Chen, E. Ruppin, C. Whitney
Modeling post-stroke cortical map reorganization.
In "Neural Modeling of Brain and Cognitive Disorders" (J. Reggia, E. Ruppin, R. Berndt, eds.), World Scientific Publishing, UK, 1996, 283-302.

5. I. Meilijson, E. Ruppin, M. Sipper.
Fast Computation in Hamming and Hopfield Networks.
In "Neural Network Systems Techniques and Applications" (C.T. Leonedes, ed.), Academic Press, San Diego, CA, 1998, 123-154.
6. E. Ruppin, K.Revett, E. Ofer, S. Goodall, J. Reggia.
Penumbra Tissue Damage Following Acute Stroke: A Computational Investigation.
In "Brain, Behavioral and Cognitive Disorders: The Neurocomputational Perspective", (J. Reggia, E. Ruppin, D. Glanzman, eds.), Progress in Brain Research series, Elsevier Science Publishers, Amsterdam, 1999, 243-260.
7. D. Horn, N. Levy, E. Ruppin.
Multimodular networks and semantic memory impairments
(J. Reggia, E. Ruppin, D. Glanzman, eds.), Progress in Brain Research series, Elsevier Science Publishers, Amsterdam, 1999, 67-72.
8. J. Reggia, R. Berndt, E. Ruppin.
Connectionist Models in Behavioral Neurology.
In "Handbook of Neuropsychology" (2nd edition), (F. Boller and J. Grafman, eds.), Elsevier Science Publishers, 2000.
9. J. Reggia, S. Goodall, K. Revett, E. Ruppin.
Computational modeling of the cortical response to focal damage.
In "Cerebral Reorganization of Function after Brain Damage", (H. Levin, J. Grafman, eds.), Oxford University Press, 2000.
10. J. Reggia, E. Ruppin.
Neural Network Modeling of Brain and Cognitive Disorders.
In the Encyclopedia of Computer Science and Technology, (A. Kent and J. Williams), Marcel Dekker Inc, New York, 2001.

To appear as chapters in books

1. G. Chechik, D. Horn, E. Ruppin
Neuronal Regulation and Hebbian Learning.
In "Handbook of Brain Theory and Neural Networks", (Michael A. Arbib, Ed.), MIT Press, 2002.
2. E. Ruppin, J.A. Reggia
Neural Modeling of Neurologic and Psychiatric Disorders.
In "Handbook of Brain Theory and Neural Networks", (Michael A. Arbib, Ed.), MIT Press, 2002.

PUBLICATIONS IN PROCEEDINGS OF CONFERENCES

1. E. Ruppin, A. Yehudai
Performing diagnosis in the framework of a formal classification via the Cognitive Value method for reasoning with uncertainty.
Tenth International Workshop on Expert Systems and their Applications, Proceedings of the General conference, 421-433, Avignon 1990.
2. E. Ruppin, M. Usher
An attractor neural network model of semantic fact retrieval.
International Joint Conference on Neural Networks, San Diego, 683-688, 1990. (See also Article No. 3.)
3. E. Ruppin, Y. Yeshurun
An attractor neural network model of recall and recognition.
In *Advances in Neural Information Processing Systems 3*, R.P. Lippman, J.E. Moody and D.S. Touretzky (Eds.), 642-648, Morgan Kauffman Publishers, 1991. (See also Article No. 4.)
4. D. Horn, E. Ruppin, M. Usher, M. Herrmann
Synaptic deletion and compensation in Alzheimer disease: A neural model.
In *Computation and Neural Systems*, F.H. Eeckman and J.M. Bower (Eds.), 467-472, Kluwer Academic Publishers, 1993. (See also Article No. 8.)
5. N. Arad, E. Ruppin, Y. Yeshurun
Dopaminergic modulation and neural fatigue in discrete time sigmoidal networks.
In *Computation and Neural Systems*, F.H. Eeckman and J.M. Bower (Eds.), 369 - 374, Kluwer Academic Publishers, 1993.
6. M. Herrmann, D. Horn, E. Ruppin, M. Usher
Variability in the pathogenesis of Alzheimer's disease: analytical results.
In "Artificial Neural Networks 2" (I. Aleksander, J. Taylor, eds.), Elsevier Science Publishers, 1335-1338 (1992).
7. Y. Matias, E. Ruppin
A neural model for a randomized frequency-spatial transformation.
In *Computation and Neural Systems*, F.H. Eeckman and J.M. Bower (Eds.), 449-454, Kluwer Academic Publishers, 1993. (See also Article No. 19.)
8. I. Meilijson, E. Ruppin, M. Sipper
Single-iteration threshold Hamming networks.
In *Advances in Neural Information Processing Systems 5*, S.J. Hanson, J.D. Cowan and C.L. Giles (Eds.), 564-571, Morgan Kauffman Publishers, 1993. (See also Article No. 12.)
9. I. Meilijson, E. Ruppin
History-dependent attractor neural networks.
In *Advances in Neural Information Processing Systems 5*, S.J. Hanson, J.D. Cowan

- and C.L. Giles (Eds.), 572-579, Morgan Kauffman Publishers, 1993. (see also Article No. 10.)
10. M. Herrmann, E. Ruppin, M. Usher
A network for semantic and episodic associations showing disturbances due to neural loss.
In *Computation and Neural Systems*, F.H. Eeckman and J.M. Bower (Eds.), 467-472, Kluwer Academic Publishers, 1993. (See also Article No. 6.)
 11. I. Meilijson, E. Ruppin
Optimal signalling in attractor neural networks.
In *Advances in Neural Information Processing Systems 6*, J.D. Cowan, G. Tesauro and J. Alspector (Eds.), 485-492, Morgan Kauffman Publishers, 1994. (See also Article No. 10.)
 12. E. Ruppin, J. Reggia
Patterns of damage in neural networks: The effects of lesion area, shape and number.
In *Advances in Neural Information Processing Systems 7*, G. Tesauro, D. S. Touretzky and T. K. Leen (Eds.), 35-42, MIT Press, Cambridge MA, 1995. (See also Article No. 14).
 13. E. Ruppin, J. Reggia, D. Horn
A neural model of delusions and hallucinations in schizophrenia.
In *Advances in Neural Information Processing Systems 7*, G. Tesauro, D. S. Touretzky and T. K. Leen (Eds.), 149-156, MIT Press, Cambridge MA, 1995. (See also Article No. 16.)
 14. D. Horn, N. Levy, E. Ruppin
Local compensation in Alzheimer's disease: A computational study.
In *Computational Neuroscience Trends in Research 1995* (ed. James M. Bower), 361-366, Academic Press 1996. (See also Article No. 18).
 15. D. Horn, N. Levy, E. Ruppin
Neuronal adaptivity and network fault tolerance.
In *Cybernetics and Systems 96*, (ed. Robert Trappl), 1061-1065, Austrian Society for Cybernetics Studies, 1996. (See also Article No. 18).
 16. M. Sipper, E. Ruppin
Co-evolving cellular architectures by cellular programming.
In *Proc. of IEEE Third International Conference on Evolutionary Computation (ICEC 96)*, 306-311, 1996. (See also Article No. 20.)
 17. D. Horn, N. Levy, E. Ruppin
Neuronal homeostasis and REM sleep.
In *Proceedings of the 18th Annual Conference of the Cognitive Science Society*, (ed. G. W. Cottrell), 436-440, 1996.

18. G. Chechik, I. Meilijson, E. Ruppin
Synaptic Pruning in Development: A Novel Account in Neural Terms.
In *Computational Neuroscience Trends in Research 1998*, (ed. James M. Bower), 149-154, Plenum Press NY, 1998. (See also Article No. 26).
19. D. Horn, N. Levy, E. Ruppin
Dynamic Memory Maintenance.
In *Computational Neuroscience Trends in Research 1998*, (ed. James M. Bower), 47-51, Plenum Press NY, 1998. (See also Article No. 23).
20. D. Horn, N. Levy, E. Ruppin
Neuronal Mechanism of Memory Maintenance.
In *Proceedings of the Nineteenth Annual Conference of the Cognitive Science Society*, (Eds. M. G. Shafto and P. Langley) 319–324, 1997. (See also Article No. 23).
21. E. Cohen, E. Ruppin
On Parallel Versus Serial Processing: A Computational Study of Visual Search.
In *Advances in Neural Information Processing Systems*, 10, Michael I. Jordan, Michael J. Kearns, and Sara A. Solla (eds.), 10-16, Cambridge, MA: MIT Press, 1998. (See also Article No. 31).
22. D. Horn, N. Levy, E. Ruppin
Multi-modular Associative Memory.
In *Advances in Neural Information Processing Systems*, 10, Michael I. Jordan, Michael J. Kearns, and Sara A. Solla (eds.), 52-58, Cambridge, MA: MIT Press, 1998. (See also Article No. 32).
23. G. Chechik, I. Meilijson, E. Ruppin
Neuronal Regulation: A Biologically Plausible Mechanism For Efficient Synaptic Pruning In Development.
Neurocomputing, Vol. 26-27, 389-394, June, 1999. (See also Article No. 30).
24. D. Horn, N. Levy, E. Ruppin
The Importance of Nonlinear Dendritic Processing in Multimodular Memory Networks.
Neurocomputing, Vol. 26-27, 633-639, June, 1999. (See also Article No. 32).
25. G. Chechik, I. Meilijson, E. Ruppin
Neuronal regulation implements efficient synaptic pruning.
In *Advances in Neural Information Processing Systems*, 12, Michael Kearns, Sara Solla, David Cohn (eds), Cambridge, MA: MIT Press, 1999. (See also Article No. 30).
26. G. Chechik, I. Meilijson, E. Ruppin
Neuronal normalization provides effective learning via ineffective learning rules.
Neurocomputing, Vol. 32, 345-351, June, 2000. (See also Article No. 37).
27. E. Cohen, N. Levy, E. Ruppin
Global vs local processing of compressed representations: A computational model of

- visual search.
Neurocomputing, Vol. 32, 667-672, June, 2000.
28. D. Horn, N. Levy, E. Ruppin
Distributed synchrony in an attractor of spiking neurons.
Neurocomputing, Vol. 32, 409-414, June, 2000. (See also Article No. 39).
 29. R. Aharonov-Barki, T. Beker, E. Ruppin
Spontaneous Evolution of Command Neurons, Place Cells and Memory Mechanisms in Autonomous Agents.
In *Advances in Artificial Life*, D. Floreano, J-D Nicoud, F. Mondada (Eds.), Lecture Notes in Computer Science, 1674, Springer-Verlag, Heidelberg, 1999. (See also Article No. 36).
 30. D. Horn, N. Levy, E. Ruppin
Distributed Synchrony of Spiking Neurons in a Hebbian Cell Assembly
In *Advances in Neural Information Processing Systems*, 12, Sara Solla, Todd Leen, Klaus-Robert Mülle (eds.), 129-136, Cambridge, MA: MIT Press, 2000. (See also Article No. 39).
 31. G. Checkik, I. Meilijson, E. Ruppin
Effective learning requires neuronal remodeling of Hebbian synapses
In *Advances in Neural Information Processing Systems*, 12, Sara Solla, Todd Leen, Klaus-Robert Mülle (eds.), 96-102, Cambridge, MA: MIT Press, 2000. (See also Article No. 37).
 32. T. Beker, R. Aharonov, E. Ruppin.
Emerging command neuron circuitry in evolved autonomous agents.
Neurocomputing, Vol. 38, 1101-1106, June, 2001. (See also Article No. 36).
 33. R. Aharonov, I. Meilijson, E. Ruppin.
Who does what: A Novel Algorithm to Determine Function Localization.
In *Advances in Neural Information Processing Systems*, 12, Todd Leen, Tom Dietterich, Volker Tresp (eds), 8-15, Cambridge, MA: MIT Press, 2001. (See also Article No. 1, submitted for publication).
 34. L. Finkelstien, E. Gavrilovitch, Y. Matias, E. Rivlin, Z. Solan, G. Wolfman, E. Ruppin.
Placing search in context: the concept revisited.
Proc. of the World Wide Web (WWW) 10, Vincent Y. Shen, Nobuo Saito (eds), Section P12 - Search Technologies, 2001. (See also Article No. 41).
 35. Y. Niv, D. Joel, I. Meilijson, E. Ruppin.
Evolution of Reinforcement Learning in Uncertain Environments: Emergence of Risk-aversion and Matching.
In *Advances in Artificial Life*, J. Kelemen, P. Sosik (Eds.), Lecture Notes in Computer Science, 2159, 252-261, Springer-Verlag, Heidelberg, 2001. (See also Article No. 2, accepted for publication).

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