

Short CV

Alessandro SPERDUTI

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Personal Data:

Name: Alessandro Sperduti

Birth: May 11, 1965, Sora (FR), Italy

Current Position: Full Professor in Computer Science at the Department of Mathematics, University of Padua, Italy.

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Working Experience:

Nov.98-Feb.2002 Associate Professor at the Computer Science Department, University of Pisa, Italy.

Sept.94-Oct.98 Assistant Professor at the Computer Science Department, University of Pisa, Italy.

Jan.94-Sept.94 Postdoctoral at the Computer Science Department, University of Pisa, Italy.

Jan.93-Aug.93 Postdoctoral at the International Computer Science Institute, Berkeley, California, USA.

Studies:

Nov.89-Oct.92 Ph.D. in Computer Science, Computer Science Department, University of Pisa, Italy.

Nov.83-Oct.88 Laurea, Computer Science Department, University of Pisa, Italy. Thesis awarded A with honors.

Areas of Interest:

Neural Networks: supervised and unsupervised learning algorithms, mixed learning algorithms (supervised + unsupervised), recurrent and deep networks, representation and processing of data structures by neural networks, QSAR/QSPR tasks, Chemoinformatics, Bioinformatics;

Machine Learning: Boosting, Support Vector Machines, kernels and generative models for structured data;

Process Mining: control-flow and multi-perspective discovery, conformance checking, on-the-fly discovery of imperative and declarative models.

Scientific Activities (since 2008)

- International Tutorials:
 - Tutorial on Deep Learning for Sequences, **WCCI 2018**, July 8, 2018, Rio de Janeiro, Brazil.
 - Tutorial on Deep Learning basics: from vectors to sequences, **International Summer School on Deep Learning On-chip**, September 20-22, 2017, Torino, Italy.
 - Lectures on Deep Learning for Sequences, **International Summer School on Deep Learning 2017**, July 17-21, Bilbao, Spain.
 - Tutorial on Kernel Methods for Structured Data, **2012 IEEE World Congress on Computational Intelligence**, June 11-15, Brisbane, Australia, (jointly with Giovanni Da San Martino).
- General co-chair IEEE World Congress on Computational Intelligence (WCCI) 2022, 18 - 22 July 2022, Padova, Italy.
- General co-chair Second International Conference on Process Mining (ICPM) 2020, October 4-9, 2020, Padova, Italy.
- General co-chair INNS Big Data and Deep Learning Conference INNSBDDL 2019, 16-18 April 2019, Sestri Levante, Genova, Italy.
- Program co-chair of the 2021 IEEE Symposium on Deep Learning, December, 2021 Orlando, USA.
- Program co-chair of the 2020 IEEE Symposium on Deep Learning, December 1-4, 2020 Canberra, Australia.
- Program co-chair of the 2019 IEEE Symposium on Deep Learning, December 6-9, 2019 Xiamen, China.
- Program co-chair of the 2018 IEEE Symposium on Deep Learning, 18 - 21 November, 2018, Bengaluru, India.
- Program co-chair of the 2017 IEEE Symposium on Deep Learning, November 27- December 1, 2017, Honolulu, Hawaii, USA.
- Program co-chair of the 2016 IEEE Symposium on Deep Learning, December 6-9, 2016, Athens, Greece.

- Co-organizer of the Deep Learning Workshop: Theory, Algorithms, and Applications, Bertinoro, May 2015.
- Program co-chair of the 2011 IEEE Symposium on Computational Intelligence and Data Mining, Apr 11-15, 2011, Paris, France.
- Program Committee Member of:
 - *30th International Joint Conference on Artificial Intelligence, IJCAI 2021*, Aug., 2021, Montreal, Canada. (Area Chair).
 - *Ninth International Conference on Learning Representations, ICLR 2021*, May 4-8 2021, 2020, Vienna, Austria. (Area Chair).
 - *Twenty-Ninth International Joint Conference on Artificial Intelligence, IJCAI 2020*, July 11-17, 2020, Yokohama, Japan. (Area Chair).
 - *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML/PKDD)*, 14-18 September 2020, Ghent, Belgium. (Senior member).
 - *29th ACM International Conference On Information and Knowledge Management*, 19-23 October 2020, Galway, Ireland.
 - *24th European Conference on Artificial Intelligence, ECAI 2020*, August 29-September 2, 2020, Santiago de Compostela, Spain.
 - *28th European Symposium On Artificial Neural Networks, Computational Intelligence and Machine Learning*, 2-4 October 2020, Bruges (Belgium),
 - *36th International Conference on Machine Learning, ICML 2019*, 9-15 June 2019, Long Beach, California, USA.
 - *Twenty-Eighth International Joint Conference on Artificial Intelligence, IJCAI 2019*, August 10-16, 2019, Macao, China.
 - *7th International Conference on Learning Representations, ICLR 2019*, May 6-9, 2019, New Orleans, LA, USA.
 - *33rd Annual Conference on Neural Information Processing Systems 2019, NeurIPS 2019*, 8-14 December 2019, Vancouver, Canada. (Area Chair).
 - *27th European Symposium On Artificial Neural Networks, Computational Intelligence and Machine Learning*, Bruges (Belgium), 24-26 April 2019.
 - *32nd Annual Conference on Neural Information Processing Systems 2018, NeurIPS 2018*, 3-8 December 2018, Montréal, Canada. (in the top 30% reviewers).
 - *26th European Symposium On Artificial Neural Networks, Computational Intelligence and Machine Learning*, Bruges (Belgium), 25-28 April 2018.
 - *39th International ACM SIGIR conference on Research and Development in Information Retrieval*, July 17 - 21, 2016, Pisa, Italy.
 - *14th International Conference on Business Process Management (BPM)*, September 18-22, 2016, Rio de Janeiro, Brazil.
 - *12th Workshop on Business Process Intelligence 2016 (BPI)*, held in conjunction with BPM 2016, September 18-22, 2016, Rio de Janeiro, Brazil.
 - *24th European Symposium on Artificial Neural Networks Advances in Computational Intelligence and Learning 2016 (ESANN)*, April 27-29, 2016, Bruges (Belgium).

- *38th Annual ACM SIGIR Conference 2015 (SIGIR)*, August 9-13, 2015, Santiago, Chile.
- *International Joint Conference on Neural Networks (IJCNN 2015)*, July 12-17, 2015, Killarney, Ireland.
- *23rd European Symposium on Artificial Neural Networks Advances in Computational Intelligence and Learning 2015 (ESANN)*, April 22-24, Bruges (Belgium).
- *Twenty-Ninth AAAI Conference on Artificial Intelligence (AAAI 2015)*, January 25-30, 2015, Austin, Texas, USA.
- *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases 2014 (ECML-PKDD)*, Nancy, France, September 15 - 19, 2014.
- *24th International Conference on Artificial Neural Networks 2014 (ICANN)*, 15-19 September 2014, Hamburg, Germany.
- *10th Workshop on Business Process Intelligence 2012 (BPI)*, held in conjunction with BPM 2014, Haifa, Israel, September 7th - 11th 2014.
- *37th Annual ACM SIGIR Conference 2014 (SIGIR)*, July 6-11, Gold Coast, Australia.
- *International Joint Conference on Neural Networks (WCCI-IJCNN 2014)*, July 6-11, 2014, Beijing, China.
- *22nd European Symposium on Artificial Neural Networks Advances in Computational Intelligence and Learning 2014 (ESANN)*, April 23-25, Bruges (Belgium).
- *23rd International Joint Conference on Artificial Intelligence (IJCAI 2013)*, August 3-9, 2013, Beijing, China. (Membro del Senior Program Committee).
- *9th Workshop on Business Process Intelligence 2012 (BPI)*, held in conjunction with BPM 2013, Beijing, China, August 26th - 30th 2013.
- *21st European Symposium on Artificial Neural Networks Advances in Computational Intelligence and Learning 2013 (ESANN)*, April 24-26, Bruges (Belgium).
- *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases 2012 (ECML-PKDD)*, Bristol, UK, September 24 - 28, 2012.
- *8th Workshop on Business Process Intelligence 2012 (BPI)*, held in conjunction with BPM 2012, 3-7 September, 2012, Tallinn, Estonia.
- *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases 2012 (ECML-PKDD)*, Bristol, UK, September 24 - 28, 2012.
- *22nd International Conference on Artificial Neural Networks 2012 (ICANN)*, September 11-14, 2012, Lausanne, Switzerland.
- *20th European Conference on Artificial Intelligence 2012 (ECAI)*, Montpellier, France, August 27 - 31, 2012.
- *13th International Conference on Intelligent Data Engineering and Automated Learning*, August 29 - 31, 2012, Natal, Brazil.
- *20th European Symposium on Artificial Neural Networks Advances in Computational Intelligence and Learning 2012 (ESANN)*, April 25-27, Bruges (Belgium).
- *7th Workshop on Business Process Intelligence 2011 (BPI)*, held in conjunction with BPM 2011, Clermont-Ferrand, France, August 28th - September 2nd 2011.
- *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases 2011 (ECML-PKDD)*, Athens, Greece, 5-9 September, 2011.

- *First IAPR TC3 Workshop on Partially Supervised Learning*, September 15-16, Ulm, Germany, 2011.
- *2011 International Joint Conference on Neural Networks*, San Jose, California, July 31 - August 5, 2011.
- *Twenty-second International Joint Conference on Artificial Intelligence*, July 16-22, 2011, Barcelona, Spain.
- *2011 International Symposium on Neural Networks*, European Liason, May 29 - June 1, 2011, Guilin, China.
- *19th European Symposium On Artificial Neural Networks Advances in Computational Intelligence and Learning 2011 (ESANN)*, April 27-29, Bruges (Belgium).
- *NASA Conference on Intelligent Data Understanding 2010 (CIDU)*, Oct 5-7, Mountain View, CA, USA.
- *20th International Conference on Artificial Neural Networks 2010 (ICANN)*, September 15-18, 2010, Thessaloniki, Greece
- *18th European Symposium On Artificial Neural Networks Advances in Computational Intelligence and Learning 2010 (ESANN)*, April 28-30, Bruges (Belgium).
- *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases 2010 (ECML-PKDD)*, September 20-24, Barcelona, Spain.
- *6th Workshop on Business Process Intelligence 2010 (BPI)*, held in conjunction with BPM 2010, September 14-16, Hoboken, New Jersey, United States.
- *33rd Annual ACM SIGIR Conference 2010 (SIGIR)*, July 19-23, Geneva, Switzerland.
- *19th International Conference on Artificial Neural Networks 2009 (ICANN)*, September 14-17, Limassol, Cyprus.
- *17th European Symposium On Artificial Neural Networks Advances in Computational Intelligence and Learning 2009 (ESANN)*, April 22-24, Bruges (Belgium).
- *32nd Annual ACM SIGIR Conference 2009 (SIGIR)*, July 19-23, Boston, Massachusetts, USA.
- *IEEE Symposium on Computational Intelligence and Data Mining 2009 (CIDM)*, within IEEE Symposium Series on Computational Intelligence, March 30 - April 2, Sheraton Music City Hotel, Nashville, TN, USA,
- *18th International Conference on Artificial Neural Networks 2008 (ICANN)*, September 3-6, Diplomat Hotel, Prague, Czech Republic.
- *16th European Symposium On Artificial Neural Networks Advances in Computational Intelligence and Learning 2008 (ESANN)*, April 23-25, Bruges (Belgium).
- *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases 2008 (ECML-PKDD)*, September 15-19, Antwerp, Belgium.
- Invited plenary speaker at ICANN 2020 (postponed to 2021 due to COVID-19), WSOM 2019, ANNPR 2016, CIDM 2013, ISNN 2012.
- Member of the IEEE Frank Rosenblatt Award Committee (2014-2015).
- Co-chair of the IEEE CIS Task Force on Deep Learning (2016-2019).

- Chair of the Continuous Education Committee of the IEEE Computational Intelligence Society (2015).
- Chair of the Student Games-Based Competition Committee of the IEEE Computational Intelligence Society (2013-2014).
- Chair of the Neural Networks Technical Committee of the IEEE Computational Intelligence Society (2011-2012).
- Chair of the Data Mining Technical Committee of the IEEE Computational Intelligence Society (2009-2010).
- Member of the European Neural Networks Society (ENNS) Executive Committee (2001-2010).
- Editorial Board Member of *Theoretical Computer Science* (Theory of Natural Computing (TCS-C)), ISSN: 0304-3975.
- Editorial Board Member of *Neural Networks*, ISSN: 0893-6080.
- Editorial Board Member (past) of *IEEE Intelligent Systems Magazine*, ISSN: 1541-1672.
- Editorial Board Member (past) of *AI Communications*, ISSN: 0921-7126.
- Editorial Board Member of *Natural Computation*, ISSN: 1567-7818 (print version), ISSN: 1572-9796 (electronic version).
- Associate Editor (2009-2012) *IEEE Transactions on Neural Networks and Learning Systems*, ISSN: 1045-9227.
- Editorial Board Member (2010-2012) of *Neural Processing Letters*, ISSN: 1370-4621 (print version), ISSN: 1573-773X (electronic version).
- Member of IEEE CIS Nominations and Award Committees.
- Reviewer for conferences and journals, such as *IEEE Transactions on Neural Networks*, *IEEE Transactions on Fuzzy Systems*, *IEEE Transactions on Systems, Man, and Cybernetics*, *Neurocomputing*, *Discrete Applied Mathematics*.
- in charge of many national and international research projects in Neural Networks, Machine Learning, Data and Process Mining.

Award

- 2000 AI*IA (Italian Association for Artificial Intelligence) "MARCO SOMALVICO" Young Researcher Award.

List of Publications

Journal Papers

1. “Suppression of a SARS-CoV-2 outbreak in the Italian municipality of Vo ”, Enrico Lavezzo, Elisa Franchin, Constanze Ciavarella, Gina Cuomo-Dannenburg, Luisa Barzon, Claudia Del Vecchio, Lucia Rossi, Riccardo Manganeli, Arianna Loregian, Nicol Navarin, Davide Abate, Manuela Sciro, Stefano Merigliano, Ettore De Canale, Maria Cristina Vanuzzo, Valeria Besutti, Francesca Saluzzo, Francesco Onelia, Monia Pacenti, Saverio G Parisi, Giovanni Carretta, Daniele Donato, Luciano Flor, Silvia Cocchio, Giulia Masi, Alessandro Sperduti, Lorenzo Cattarino, Renato Salvador, Michele Nicoletti, Federico Caldart, Gioele Castelli, Eleonora Nieddu, Beatrice Labella, Ludovico Fava, Matteo Drigo, Katy AM Gaythorpe, Alessandra R Brazzale, Stefano Toppo, Marta Trevisan, Vincenzo Baldo, Christl A Donnelly, Neil M Ferguson, Ilaria Dorigatti, Andrea Crisanti, *Nature*, 584 (7821), 425-429.
2. “A framework for the definition of complex structured feature spaces Neurocomputing”, Nicolò Navarin, Van Dinh Tran, Alessandro Sperduti, *Neurocomputing*, <https://doi.org/10.1016/j.neucom.2019.11.115>, (2020).
3. “Multi-task learning for the prediction of wind power ramp events with deep neural networks”, Manuel Dorado-Moreno, Nicolò Navarin, Pedro Antonio Gutiérrez, Luis Prieto, Alessandro Sperduti, Sancho Salcedo-Sanz, César Hervás-Martínez, *Neural Networks*, vol. 123, pp. 401–411, (2020).
4. “Heterogeneous Networks Integration for Disease Gene Prioritization with Node Kernels”, Van Dinh Tran, Alessandro Sperduti, Rolf Backofen, Fabrizio Costa, *Bioinformatics*, doi:10.1093/bioinformatics/btaa008, (2020).
5. “Discovering high-level BPMN process models from event data”, Anna A. Kalenkova, Andrea Burattin, Massimiliano de Leoni, Wil M. P. van der Aalst, Alessandro Sperduti, *Business Proc. Manag. Journal*, 25(5): 995-1019 (2019).
6. “Scuba: scalable kernel-based gene prioritization”, Guido Zampieri, Dinh Tran-Van, Michele Donini, Nicolò Navarin, Fabio Aioli, Alessandro Sperduti, Giorgio Valle. *BMC Bioinformatics*, 19(1): 23:1-23:12 (2018).
7. “Time and activity sequence prediction of business process instances”, Mirko Polato, Alessandro Sperduti, Andrea Burattin, Massimiliano de Leoni. *Computing*, 100(9): 1005-1031 (2018).
8. “The conjunctive disjunctive graph node kernel for disease gene prioritization”, Dinh Tran-Van, Alessandro Sperduti, Fabrizio Costa. *Neurocomputing* 298: 90-99 (2018).
9. “Learning with Kernels: a Local Rademacher Complexity-based Analysis with Application to Graph Kernels”, L. Oneto, N. Navarin, M. Donini, S. Ridella, A. Sperduti, F. Aioli, D. Anguita, *IEEE Transactions on Neural Networks and Learning Systems*, 29(10): 4660-4671 (2018).
10. “Multilayer Graph Node Kernels: Stacking While Maintaining Convexity”, L. Oneto, N. Navarin, A. Sperduti, D. Anguita, *Neural Processing Letters*, 48(2): 649-667 (2018).
11. “Tree-Based Kernel for Graphs With Continuous Attributes”, G. Da San Martino, N. Navarin, A. Sperduti, *IEEE Transactions on Neural Networks and Learning Systems*, 29(7): 3270-3276 (2018).

12. “Generative Kernels for Tree-Structured Data”, Davide Bacciu, Alessio Micheli, Alessandro Sperduti. *IEEE Trans. Neural Netw. Learning Syst.* 29(10): 4932-4946 (2018).
13. “Measuring the expressivity of graph kernels through Statistical Learning Theory”, L. Oneto, N. Navarin, M. Donini, A. Sperduti, F. Aioli, D. Anguita, *Neurocomputing*, 268: 4-16 (2017).
14. “Learning Orthographic Structure with Sequential Generative Neural Networks”, A. Testolin, I. Stoianov, A. Sperduti, M. Zorzi, *Cognitive Science*, 40(3): 579-606 (2016). Impact Factor 2,706.
15. “An empirical study on budget-aware online kernel algorithms for streams of graphs”, G. Da San Martino, N. Navarin, A. Sperduti, *Neurocomputing*, 216: 163-182 (2016). Impact Factor 2,392.
16. “Conformance checking based on multi-perspective declarative process models”, A. Burattin, F. M. Maggi, A. Sperduti, *Expert Syst. Appl.* 65: 194-211 (2016). Impact Factor 2,981.
17. “Ordered Decompositional DAG kernels enhancements”, G. Da San Martino, N. Navarin, A. Sperduti, *Neurocomputing* 192: 92-103 (2016). Impact Factor 2,392.
18. “Neural Networks for Sequential Data: a Pre-training Approach based on Hidden Markov Models”, L. Pasa, A. Testolin, A. Sperduti, *Neurocomputing*, 169: 323-333 (2015).
19. “An Efficient Topological Distance-based Tree Kernel”, F. Aioli, G. Da San Martino, A. Sperduti, *IEEE Transactions on Neural Networks and Learning Systems*, 26(5): 1115-1120 (2015). Impact Factor 4,854.
20. “Online Discovery of Declarative Process Models from Event Streams”, A. Burattin, M. Cimitile, F. M. Maggi, A. Sperduti, *IEEE Trans. Services Computing* 8(6): 833-846 (2015). Impact Factor 2,365.
21. “An input-output hidden Markov model for tree transductions”, D. Bacciu, A. Micheli, A. Sperduti, *Neurocomputing*, Vol. 112: 34-46 (2013).
22. “Compositional Generative Mapping for Tree-Structured Data - Part II: Topographic Projection Model”, D. Bacciu, A. Micheli, A. Sperduti, *IEEE Transactions on Neural Networks and Learning Systems*, 24(2): 231-247 (2013).
23. “Compositional Generative Mapping for Tree-Structured Data - Part I: Bottom-Up Probabilistic Modeling of Tree”, D. Bacciu, A. Micheli, A. Sperduti, *IEEE Transactions on Neural Networks and Learning Systems*, 23(12): 1987-2002 (2012).
24. “Mining Structured Data”, G. Da San Martino, A. Sperduti, *IEEE Computational Intelligence Magazine*, vol. 5; p. 42-49, ISSN: 1556-603X, doi: 10.1109/MCI.2009.935308, 2010.
25. “Learning non-sparse kernels by Self-Organization Maps for Structured Data”, F. Aioli, G. Da San Martino, M. Hagenbuchner, A. Sperduti, *IEEE Transactions on Neural Networks*, vol. 20; p. 1938-1949, ISSN: 1045-9227, doi: 10.1109/TNN.2009.2033473, 2009.
26. “Preferential text classification: learning algorithms and evaluation measures”, F. Aioli, R. Cardin, F. Sebastiani, A. Sperduti. *Information Retrieval*, vol. 12; p. 559-580, ISSN: 1386-4564, doi: 10.1007/s10791-008-9071-y, 2009.

27. "Combining selectivity and affinity predictions using an integrated Support Vector Machine (SVM) approach: An alternative tool to discriminate between the human adenosine A2A and A3 receptor pyrazolo-triazolo-pyrimidine antagonists binding sites", L. Michielan, C. Bolcato, S. Federico, B. Cacciari, M. Bacilieri, K-N. Klotz, S. Kachler, G. Pastorin, R. Cardin, A. Sperduti, G. Spalluto, S. Moro, *Bioorganic & Medicinal Chemistry*, vol. 17; p. 5259-5274, ISSN: 0968-0896, doi:10.1016/j.bmc.2009.05.038, 2009.
28. "Graph self-organizing maps for cyclic and unbounded graphs", M. Hagenbuchner, A. Sperduti, A-C. Tsoi. *Neurocomputing*, vol. 72; p. 1419-1430, ISSN: 0925-2312, 2009.
29. "Constraint-based Temporal Reasoning with Preferences", L. Khatib, P. Morris, R. Morris, F. Rossi, A. Sperduti, K.B. Venable. *AI COMMUNICATIONS*. ISSN: 0921-7126, 2007; 20(3): 181-209.
30. "An Introduction to Recursive Neural Networks and Kernel Methods for Cheminformatics", A.Micheli, A.Sperduti, A. Starita, *Current Pharmaceutical Design*, ISSN: 1381-6128, 2007; 13(14): 1469-1495.
31. "Predicting Physical Chemical Properties of Compounds from Molecular Structures by Recursive Neural Networks", L. Bernazzani, C. Duce, A. Micheli, V. Mollica, A. Sperduti, A. Starita, M.R. Tine', *JOURNAL OF CHEMICAL INFORMATION AND MODELING*. ISSN: 1549-9596, 2006; 46(5) pp 2030 - 2042.
32. "Empirical Comparison of Recursive Neural Networks and Tree kernel Methods on Regression Tasks for Tree Structured Domains", A.Micheli, F. Portera, A.Sperduti, *Neurocomputing*, vol. 64, pp. 73-92 ISSN: 0925-2312, 2005.
33. "The Loading Problem for Recursive Neural Networks", M. Gori, A. Sperduti, *Neural Networks*, vol. 18(8), pp. 1064-1079 ISSN: 0893-6080, 2005.
34. "Multi-Prototype Support Vector Machines", F. Aioli, A. Sperduti, *Journal of Machine Learning Research*, vol. 6, pp. 817-850 ISSN: 1532-4435, 2005.
35. "Universal Approximation Capability of Cascade Correlation for Structures", *Neural Computation*, vol. 64, pp. 73-92 ISSN: 0925-2312. 2005.
36. "Acquiring both constraint and solution preferences", F. Rossi, A. Sperduti, *Constraints*, vol.9, n. 4, pp. 311-332 ISSN: 1383-7133, 2004.
37. "Recursive self-organizing network models", B.Hammer, A. Micheli, A. Sperduti, M.Strickert, Special issue on "New Developments in Self-Organizing Systems", *Neural Networks*, vol. 17, pp. 1061-1085 ISSN: 0893-6080, 2004.
38. "Contextual Processing of Structured Data by Recursive Cascade Correlation.", A. Micheli, D. Sona, A. Sperduti, *IEEE Transactions on Neural Networks*, vol. 15(6), pp. 1396-1410 ISSN: 1045-9227, 2004.
39. "A general framework for unsupervised processing of structured data", B.Hammer, A.Micheli, M.Strickert, A.Sperduti, *Neurocomputing*, Vol. 57, Page(s): 3-35, March 2004.
40. "A Self-Organizing Map for Adaptive Processing of Structured Data", M. Hagenbuchner, A. Sperduti, A.C. Tsoi, *IEEE Transactions on Neural Networks*, Volume: 14 Issue: 3, May 2003 Page(s): 491 -505.

41. "Theoretical and Experimental Analysis of a Two-Stage System for Classification", N. Giusti, F. Masulli, A. Sperduti. *IEEE Trans. PAMI*. Volume: 24 Issue: 7, Jul 2002, pp. 893-904.
42. "A Re-weighting Strategy for Improving Margins", F. Aioli, A. Sperduti. *Artificial Intelligence*, Elsevier. Volume 137, Issues 1-2, May 2002, pp. 197-216.
43. "Analysis of the Internal Representations Developed by Neural Networks for Structures Applied to QSAR Studies of Benzodiazepines", A. M. Bianucci, A. Micheli, A. Sperduti, A. Starita. *Journal of Chemical Information and Computer Sciences*, Vol. 41, no. 1, pp. 202-218, 2001.
44. "Discriminant Pattern Recognition Using Transformation Invariant Neurons", D. Sona, A. Sperduti, and A. Starita. *Neural Computation*. Vol. 12, n.6, June 2000.
45. "Application of Recursive Cascade-Correlation Networks to Chemical Structures", *Applied Intelligence*, Bianucci A.M., Micheli A., Sperduti A., Starita A., Special Issue on "Neural Networks and Structured Knowledge", Vol. 12 (1/2):115-145, January 2000.
46. "On the Implementation of Frontier-to-Root Tree Automata in Recursive Neural Networks", M. Gori, Andreas Kuchler, and A. Sperduti. *IEEE Transactions on Neural Networks*. Vol. 10, n.6, 1999.
47. "A Framework for Adaptive Data Structures Processing", P. Frasconi, M. Gori, and A. Sperduti. *IEEE Transactions on Neural Networks*. Vol. 9, No. 5, pp. 768-786, 1998.
48. "Learning Solution Preferences in Constraint Problems", F. Rossi, A. Sperduti. *Journal of Experimental and Theoretical Artificial Intelligence*. Vol 10, pp. 103-116, 1998.
49. "Rule Specialization in Networks of Fuzzy Basis Functions", F. Casalino, F. Masulli, and A. Sperduti. *Intelligent Automation and Soft Computing*, Vol. 4, No. 1, pp. 73-82, 1998.
50. "Supervised Neural Networks for the Classification of Structures", A. Sperduti, A. Starita. *IEEE Transactions on Neural Networks*. Vol. 8, n. 3, pp. 714-735, 1997.
51. "On the Computational Power of Neural Networks for Structures", A. Sperduti. *Neural Networks*. Vol. 10, n. 3, pp. 395-400, 1997.
52. "A System for the Automatic Morphological Analysis of Mediaeval Manuscripts", F. Masulli, D. Sona, A. Sperduti A. Starita, G. Zaccagnini. *Journal of Forensic Document Examination*, Vol. 9, pp. 45-55, Fall 1996.
53. "Stability Properties of the Labeling Recursive Auto-Associative Memory", A. Sperduti. *IEEE Transactions on Neural Networks*, Vol.6, n. 6, 1995.
54. "A Neural Network Model for Associative Access of Structures", A. Sperduti, A. Starita. *International Journal of Neural Systems*, Suppl. Vol. 6, pp. 189-194, 1995.
55. "Labeling RAAM", A. Sperduti. *Connection Science*, Vol. 6, n. 4, pages 429-459, 1994.
56. "Speed Up Learning and Network Optimization with Extended Back Propagation", A. Sperduti, A. Starita. *Neural Networks*, Vol. 6, pp. 365-383, 1993.

Book Chapters

57. "Artificial Neural Network Models", P. Tino, L. Benuskova, A. Sperduti. In: J. Kacprzyk, W. Pedrycz (Eds.). *Handbook of Computational Intelligence* 2015: 455-471.
58. "Probabilistic Modeling in Machine Learning", D. Bacciu, P. J. G. Lisboa, A. Sperduti, T. Villmann. In: J. Kacprzyk, W. Pedrycz (Eds.). *Handbook of Computational Intelligence* 2015: 545-575.
59. "A Preference Optimization Based Unifying Framework for Supervised Learning Problems", F. Aioli, A. Sperduti. In: FURNKRANZ J., HULLERMEIER E.. *Preference Learning*. p. 19-42, BERLIN:Springer, ISBN: 978-3-642-14124-9, doi: 10.1007/978-3-642-14125-6, 2011.
60. "Self Organizing Maps for the Clustering of Large Sets of Labeled Graphs", S. Zhang, M. Hagenbuchner, A-C. Tsoi, A. Sperduti. *Advances in Focused Retrieval*. vol. 5631/2009, p. 469-481, BERLIN: Springer Berlin / Heidelberg, ISBN/ISSN: 978-3-642-03760-3, doi: 10.1007/978-3-642-03761-0_49, 2009.
61. "Self-Organizing Maps for Structured Domains: Theory, Models, and Learning of Kernels", F. Aioli, G. Da San Martino, M. Hagenbuchner, A. Sperduti, *Innovations in Neural Information Paradigms and Applications*. vol. 247/2009, p. 9-42, BERLIN: Springer Berlin / Heidelberg, ISBN/ISSN: 978-3-642-04002-3, doi: 10.1007/978-3-642-04003-0_2, 2009.
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- “Editorial of the Special issue on Neural Networks and Kernel Methods for Structured Domains”, B. Hammer, C. Saunders and Sperduti, A. *Neural Networks* 18(8), October 2005, Elsevier Science B.V., Pages 1015-1018.
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- Luca Oneto, Nicolò Navarin, Alessandro Sperduti, Davide Anguita: Recent Advances in Big Data and Deep Learning, Proceedings of the INNS Big Data and Deep Learning Conference INNSBDDL 2019, held at Sestri Levante, Genova, Italy 16-18 April 2019. Springer 2020, ISBN 978-3-030-16840-7.
- Francesco Masulli, Alessio Micheli, Alessandro Sperduti: Computational Intelligence and Bioengineering - Essays in Memory of Antonina Starita. Frontiers in Artificial Intelligence and Applications 196, IOS Press 2009, ISBN 978-1-60750-010-0.
- Emmanuel Ifeachor, Antonina Starita, Alessandro Sperduti (editors)(1998), Neural Networks and Expert Systems in Medicine and Healthcare (Proceedings of the Third International Conference on), World Scientific Publishing Company, ISBN-13: 978-9810236113.

PhD Thesis

- “Optimization and Functional Reduced Descriptors in Neural Networks”, A. Sperduti. *TD-22/93*, Dipartimento di Informatica, Università di Pisa.

Teaching

- Since 1995, teacher of many computer science courses (*Programming, Operating Systems, Computer Architectures, Artificial Intelligence, Machine Learning, Introduction to Computer Science*) within undergraduate, master, and graduate programs at the University of Pisa and Padova.

Academic Service (main activities)

Since October 2015, in charge of the Information Systems of the University of Padova and president of its Information Technology Center.

(2009 - 2015) Chair of the Computer Science Curricula of the University of Padova.

(2005 - 2008) Member of the Advisory Committee of the Information Technology Center of the University of Padova.

(2008 - 2012) Chair of the Advisory Committee of the Information Technology Center of the University of Padova.

(2008 - 2012) Member of the Scientific and Technical Board of the Information Technology Center of the University of Padova.

(2012 - today) Member of the Steering Committee of the Information Technology Center of the University of Padova.

National/International grants (as PI since 2009)

(only projects with funding above 40.000,00 euros are reported)

Project ID/Acronym: SIAF; Time span: 14/11/17 - 7/11/2020; Funding: euros 463.521,49; Covered Topic: Smart Integration of Appliances for high quality and sustainable Food processing; Funding Agency: Veneto Region;

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Project ID/Acronym: PRIN 2009LNP494.005; Time span: 01/01/10 - 31/12/11; Funding: euros 41.323,00; Covered Topic: Machine Learning on Structured Data; Funding Agency: MIUR;

Project ID/Acronym: BIT4M; Time span: 01/01/09 - 02/11/09; Funding: euros 48.000,00; Covered Topic: Machine Learning, Cloud Computing, Mobile Computing for Business; Funding Agency: Industrial Consortium.

Prof. Alessandro Sperduti