Michael Biehl

List of Publications by Year
in descending order

170 papers	5,491 citations	136950 32 h-index	88630 70 g-index
181 all docs	181 docs citations	181 times ranked	7068 citing authors

#	Article	IF	Citations
1	Supervised learning in the presence of concept drift: a modelling framework. Neural Computing and Applications, 2022, 34, 101-118.	5.6	6
2	A Learning Vector Quantization Architecture for Transfer Learning Based Classification in Case of Multiple Sources by Means of Null-Space Evaluation. Lecture Notes in Computer Science, 2022, , 354-364.	1.3	1
3	DECORAS: detection and characterization of radio-astronomical sources using deep learning. Monthly Notices of the Royal Astronomical Society, 2022, 510, 5891-5907.	4.4	6
4	Hidden unit specialization in layered neural networks: ReLU vs. sigmoidal activation. Physica A: Statistical Mechanics and Its Applications, 2021, 564, 125517.	2.6	29
5	Complex-Valued Embeddings of Generic Proximity Data. Lecture Notes in Computer Science, 2021, , 14-23.	1.3	0
6	The Statistical Physics of Learning Revisited: Typical Learning Curves in Model Scenarios. Lecture Notes in Computer Science, 2021, , 128-142.	1.3	0
7	Comment on â€œA Modern Assessment of Cancer Risk in Adrenal Incidentalomas: Analysis of 2219 Patientsâ€•by Kahramangil B et al.. Annals of Surgery, 2021, 274, e887-e888.	4.2	0
8	Matrix Relevance Learning From Spectral Data for Diagnosing Cassava Diseases. IEEE Access, 2021, 9, 83355-83363.	4.2	17
9	Learning vector quantization and relevances in complex coefficient space. Neural Computing and Applications, 2020, 32, 18085-18099.	5.6	3
10	Adaptive basis functions for prototype-based classification of functional data. Neural Computing and Applications, 2020, 32, 18213-18223.	5.6	5
11	Urine Steroid Metabolomics as a Novel Tool for Detection of Recurrent Adrenocortical Carcinoma. Journal of Clinical Endocrinology and Metabolism, 2020, 105, e307-e318.	3.6	45
12	Urine metabolomic phenotyping for detection of adrenocortical carcinoma: still a long way to go â€“ Authors' reply. Lancet Diabetes and Endocrinology,the, 2020, 8, 877-878.	11.4	2
13	Data-Driven Supervised Learning for Life Science Data. Frontiers in Applied Mathematics and Statistics, 2020, 6, .	1.3	8
14	An application of generalized matrix learning vector quantization in neuroimaging. Computer Methods and Programs in Biomedicine, 2020, 197, 105708.	4.7	9
15	Urine steroid metabolomics for the differential diagnosis of adrenal incidentalomas in the EURINE-ACT study: a prospective test validation study. Lancet Diabetes and Endocrinology,the, 2020, 8, 773-781.	11.4	129
16	Tissue- and development-stageâ€“specific mRNA and heterogeneous CNV signatures of human ribosomal proteins in normal and cancer samples. Nucleic Acids Research, 2020, 48, 7079-7098.	14.5	12
17	Feature relevance determination for ordinal regression in the context of feature redundancies and privileged information. Neurocomputing, 2020, 416, 266-279.	5.9	4
18	Accurate nonâ€invasive diagnosis and staging of nonâ€alcoholic fatty liver disease using the urinary steroid metabolome. Alimentary Pharmacology and Therapeutics, 2020, 51, 1188-1197.	3.7	13

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19	Prototype-Based Classifiers in the Presence of Concept Drift: A Modelling Framework. Advances in Intelligent Systems and Computing, 2020, , 210-221.	0.6	1
20	Early detection of plant diseases using spectral data. , 2020, , .		5
21	Structure Preserving Encoding of Non-euclidean Similarity Data. , 2020, , .		4
22	A low-cost 3-D printed smartphone add-on spectrometer for diagnosis of crop diseases in field. , 2020, , .		1
23	Galaxy classification: A machine learning analysis of GAMA catalogue data. Neurocomputing, 2019, 342, 172-190.	5.9	6
24	Analysis of feature relevance using an image quality index applied to digital mammography. , 2019, , .		1
25	A Computer Vision Pipeline that Uses Thermal and RGB Images for the Recognition of Holstein Cattle. Lecture Notes in Computer Science, 2019, , 108-119.	1.3	5
26	Learning vector quantization classifiers for ROC-optimization. Computational Statistics, 2018, 33, 1173-1194.	1.5	8
27	Statistical Mechanics of On-Line Learning Under Concept Drift. Entropy, 2018, 20, 775.	2.2	15
28	Effect estimate comparison between the prescription sequence symmetry analysis (PSSA) and parallel group study designs: A systematic review. PLoS ONE, 2018, 13, e0208389.	2.5	6
29	Fusion of deep learning architectures, multilayer feedforward networks and learning vector quantizers for deep classification learning. , 2017, , .		9
30	Marker selection for the detection of trisomy 21 using generalized matrix learning vector quantization. , 2017, , .		0
31	Empirical evaluation of gradient methods for matrix learning vector quantization. , 2017, , .		4
32	Adaptive basis functions for prototype-based classification of functional data. , 2017, , .		1
33	Prototypes and matrix relevance learning in complex fourier space. , 2017, , .		1
34	Biomedical Applications of Prototype Based Classifiers and Relevance Learning. Lecture Notes in Computer Science, 2017, , 3-23.	1.3	3
35	Steroid metabolome analysis reveals prevalent glucocorticoid excess in primary aldosteronism. JCI Insight, 2017, 2, .	5.0	187
36	Sequence Learning in Unsupervised and Supervised Vector Quantization Using Hankel Matrices. Lecture Notes in Computer Science, 2017, , 131-142.	1.3	1

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37	Prototypeâ€based models in machine learning. Wiley Interdisciplinary Reviews: Cognitive Science, 2016, 7, 92-111.	2.8	81
38	Predicting recurrence in clear cell Renal Cell Carcinoma: Analysis of TCGA data using outlier analysis and generalized matrix LVQ. , 2016, , .		3
39	Prototype-based Models for the Supervised Learning of Classification Schemes. Proceedings of the International Astronomical Union, 2016, 12, 129-138.	0.0	1
40	Odor recognition in robotics applications by discriminative time-series modeling. Pattern Analysis and Applications, 2016, 19, 207-220.	4.6	19
41	Expression of chemokines CXCL4 and CXCL7 by synovial macrophages defines an early stage of rheumatoid arthritis. Annals of the Rheumatic Diseases, 2016, 75, 763-771.	0.9	133
42	Prototype-Based Classification for Image Analysis and Its Application to Crop Disease Diagnosis. Advances in Intelligent Systems and Computing, 2016, , 329-339.	0.6	10
43	Classification of FDG-PET Brain Data by Generalized Matrix Relevance LVQ. Lecture Notes in Computer Science, 2016, , 131-141.	1.3	0
44	Modeling spontaneous activity across an excitable epithelium: Support for a coordination scenario of early neural evolution. Frontiers in Computational Neuroscience, 2015, 9, 110.	2.1	7
45	Stationarity of Matrix Relevance LVQ. , 2015, , .		12
46	Inferring Feature Relevances From Metric Learning. , 2015, , .		2
47	Predicting protein phosphorylation from gene expression: top methods from the IMPROVER Species Translation Challenge. Bioinformatics, 2015, 31, 462-470.	4.1	14
48	Inter-species prediction of protein phosphorylation in the sbv IMPROVER species translation challenge. Bioinformatics, 2015, 31, 453-461.	4.1	9
49	A crowd-sourcing approach for the construction of species-specific cell signaling networks. Bioinformatics, 2015, 31, 484-491.	4.1	10
50	MED-NODE: A computer-assisted melanoma diagnosis system using non-dermoscopic images. Expert Systems With Applications, 2015, 42, 6578-6585.	7.6	241
51	Inter-species inference of gene set enrichment in lung epithelial cells from proteomic and large transcriptomic datasets. Bioinformatics, 2015, 31, 492-500.	4.1	3
52	Learning Vector Quantization with Adaptive Cost-Based Outlier-Rejection. Lecture Notes in Computer Science, 2015, , 772-782.	1.3	4
53	Facial Expression Recognition Using Learning Vector Quantization. Lecture Notes in Computer Science, 2015, , 760-771.	1.3	3
54	Developments in computational intelligence and machine learning. Neurocomputing, 2015, 169, 185-186.	5.9	1

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55	Insightful stress detection from physiology modalities using Learning Vector Quantization. Neurocomputing, 2015, 151, 873-882.	5.9	35
56	Non-Euclidean principal component analysis by Hebbian learning. Neurocomputing, 2015, 147, 107-119.	5.9	12
57	Towards Emotion Classification Using Appraisal Modeling. International Journal of Synthetic Emotions, 2015, 6, 40-59.	0.3	6
58	Valid interpretation of feature relevance for linear data mappings. , 2014, , .		5
59	The Somatic Genomic Landscape of Chromophobe Renal Cell Carcinoma. Cancer Cell, 2014, 26, 319-330.	16.8	665
60	Distance Measures for Prototype Based Classification. Lecture Notes in Computer Science, 2014, , 100-116.	1.3	18
61	Prototype-Based Classifiers and Their Application in the Life Sciences. Advances in Intelligent Systems and Computing, 2014, , 121-121.	0.6	1
62	Adaptive Matrices and Filters for Color Texture Classification. Journal of Mathematical Imaging and Vision, 2013, 47, 79-92.	1.3	10
63	Critical assessment of automated flow cytometry data analysis techniques. Nature Methods, 2013, 10, 228-238.	19.0	509
64	Regularization and improved interpretation of linear data mappings and adaptive distance measures. , 2013, , .		10
65	Assessment of acrosome state in boar spermatozoa heads using n-contours descriptor and RLVQ. Computer Methods and Programs in Biomedicine, 2013, 111, 525-536.	4.7	10
66	Analysis of Flow Cytometry Data by Matrix Relevance Learning Vector Quantization. PLoS ONE, 2013, 8, e59401.	2.5	40
67	Non-Euclidean Principal Component Analysis and Ojaâ€™s Learning Rule â€“ Theoretical Aspects. Advances in Intelligent Systems and Computing, 2013, , 23-33.	0.6	4
68	Differentiable Kernels in Generalized Matrix Learning Vector Quantization. , 2012, , .		8
69	Texture feature ranking with relevance learning to classify interstitial lung disease patterns. Artificial Intelligence in Medicine, 2012, 56, 91-97.	6.5	29
70	Admire LVQâ€”Adaptive Distance Measures in Relevance Learning Vector Quantization. KI - Kunstliche Intelligenz, 2012, 26, 391-395.	3.2	7
71	Visualization of processes in self-learning systems. , 2012, , .		2
72	A General Framework for Dimensionality-Reducing Data Visualization Mapping. Neural Computation, 2012, 24, 771-804.	2.2	75

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73	Large margin linear discriminative visualization by Matrix Relevance Learning. , 2012, , .		11
74	Functional relevance learning in generalized learning vector quantization. Neurocomputing, 2012, 90, 85-95.	5.9	30
75	Stochastic neighbor embedding (SNE) for dimension reduction and visualization using arbitrary divergences. Neurocomputing, 2012, 90, 23-45.	5.9	79
76	Limited Rank Matrix Learning, discriminative dimension reduction and visualization. Neural Networks, 2012, 26, 159-173.	5.9	79
77	Dimensionality reduction mappings. , 2011, , .		7
78	Texture feature selection with relevance learning to classify interstitial lung disease patterns. Proceedings of SPIE, 2011, , .	0.8	1
79	Learning effective color features for content based image retrieval in dermatology. Pattern Recognition, 2011, 44, 1892-1902.	8.1	58
80	Divergence-based classification in learning vector quantization. Neurocomputing, 2011, 74, 1429-1435.	5.9	46
81	Neighbor embedding XOM for dimension reduction and visualization. Neurocomputing, 2011, 74, 1340-1350.	5.9	43
82	Urine Steroid Metabolomics as a Biomarker Tool for Detecting Malignancy in Adrenal Tumors. Journal of Clinical Endocrinology and Metabolism, 2011, 96, 3775-3784.	3.6	369
83	A General Framework for Dimensionality Reduction for Large Data Sets. Lecture Notes in Computer Science, 2011, , 277-287.	1.3	3
84	Adaptive local dissimilarity measures for discriminative dimension reduction of labeled data. Neurocomputing, 2010, 73, 1074-1092.	5.9	38
85	Hyperparameter learning in probabilistic prototype-based models. Neurocomputing, 2010, 73, 1117-1124.	5.9	19
86	Post-correlation radio frequency interference classification methods. Monthly Notices of the Royal Astronomical Society, 2010, , .	4.4	138
87	Window-Based Example Selection in Learning Vector Quantization. Neural Computation, 2010, 22, 2924-2961.	2.2	17
88	Regularization in Matrix Relevance Learning. IEEE Transactions on Neural Networks, 2010, 21, 831-840.	4.2	59
89	Generalized Derivative Based Kernelized Learning Vector Quantization. Lecture Notes in Computer Science, 2010, , 21-28.	1.3	8
90	The Mathematics of Divergence Based Online Learning in Vector Quantization. Lecture Notes in Computer Science, 2010, , 108-119.	1.3	5

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91	Adaptive Relevance Matrices in Learning Vector Quantization. Neural Computation, 2009, 21, 3532-3561.	2.2	248
92	Distance Learning in Discriminative Vector Quantization. Neural Computation, 2009, 21, 2942-2969.	2.2	71
93	Phase transitions in vector quantization and neural gas. Neurocomputing, 2009, 72, 1390-1397.	5.9	0
94	Matrix Metric Adaptation Linear Discriminant Analysis of Biomedical Data. Lecture Notes in Computer Science, 2009, , 933-940.	1.3	2
95	Nonlinear Dimension Reduction and Visualization of Labeled Data. Lecture Notes in Computer Science, 2009, , 1162-1170.	1.3	2
96	Metric Learning for Prototype-Based Classification. Studies in Computational Intelligence, 2009, , 183-199.	0.9	13
97	Automatic classification of the acrosome status of boar spermatozoa using digital image processing and LVQ. Computers in Biology and Medicine, 2008, 38, 461-468.	7.0	24
98	Learning dynamics and robustness of vector quantization and neural gas. Neurocomputing, 2008, 71, 1210-1219.	5.9	11
99	Progress in modeling, theory, and application of computational intelligence. Neurocomputing, 2008, 71, 1117-1119.	5.9	0
100	Simulation of self-assembled nanopatterns in strained 2D alloys on the face centered cubic (111) surface. Journal of Physics Condensed Matter, 2008, 20, 265004.	1.8	2
101	Discriminatory Data Mapping by Matrix-Based Supervised Learning Metrics. Lecture Notes in Computer Science, 2008, , 78-89.	1.3	3
102	Formation and consequences of misfit dislocations in heteroepitaxial growth. Physica Status Solidi C: Current Topics in Solid State Physics, 2007, 4, 3210-3220.	0.8	8
103	Advances in computational intelligence and learning. Neurocomputing, 2007, 70, 1117-1119.	5.9	0
104	Analysis of Tiling Microarray Data by Learning Vector Quantization and Relevance Learning. , 2007, , 880-889.		8
105	Performance analysis of LVQ algorithms: A statistical physics approach. Neural Networks, 2006, 19, 817-829.	5.9	23
106	Learning vector quantization: The dynamics of winner-takes-all algorithms. Neurocomputing, 2006, 69, 660-670.	5.9	29
107	Lattice Gas Models and Kinetic Monte Carlo Simulations of Epitaxial Growth. , 2005, , 3-18.		7
108	Interplay of strain relaxation and chemically induced diffusion barriers: Nanostructure formation in 2D alloys. Surface Science, 2005, 586, 157-173.	1.9	14

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109	Efficient training of multilayer perceptrons using principal component analysis. Physical Review E, 2005, 72, 026117.	2.1	1
110	Off-lattice Kinetic Monte Carlo Simulations of Strained Heteroepitaxial Growth. , 2005, , 41-56.		7
111	Off-Lattice KMC Simulations of Stranski-Krastanov-Like Growth. , 2005, , 89-102.		1
112	Kinetic model of II-VI(001) semiconductor surfaces: Growth rates in atomic layer epitaxy. Physical Review B, 2004, 69, .	3.2	7
113	Kinetic Monte Carlo simulations of heteroepitaxial growth. Thin Solid Films, 2003, 428, 52-55.	1.8	23
114	Simulation of wetting-layer and island formation in heteroepitaxial growth. Europhysics Letters, 2003, 63, 14-20.	2.0	44
115	The Statistical Physics of Learning: Phase Transitions and Dynamical Symmetry Breaking. , 2003, , 89-99.		0
116	Advanced Fluid Information. Terrace Sizes and Particle Currents in Epitaxial Growth.. JSME International Journal Series B, 2002, 45, 112-116.	0.3	1
117	Flat (001) surfaces of IIâ€“VI semiconductors: a lattice gas model. Surface Science, 2002, 505, 124-136.	1.9	6
118	Modeling (001) surfaces of IIâ€“VI semiconductors. Computer Physics Communications, 2002, 147, 107-110.	7.5	2
119	A Kinetic Monte Carlo method for the simulation of heteroepitaxial growth. Computer Physics Communications, 2002, 147, 226-229.	7.5	24
120	Kinetic Monte Carlo simulations of dislocations in heteroepitaxial growth. Europhysics Letters, 2001, 56, 791-796.	2.0	20
121	A lattice gas model of II-VI(001) semiconductor surfaces. Europhysics Letters, 2001, 53, 169-175.	2.0	11
122	Modelling sublimation and atomic layer epitaxy in the presence of competing surface reconstructions. Surface Science, 2001, 488, L553-L560.	1.9	6
123	Training multilayer perceptrons by principal component analysis. Physica A: Statistical Mechanics and Its Applications, 2001, 302, 56-63.	2.6	0
124	Efficiently Learning Multilayer Perceptrons. Physical Review Letters, 2001, 86, 2166-2169.	7.8	2
125	Particle currents and the distribution of terrace sizes in unstable epitaxial growth. Physical Review B, 2001, 64, .	3.2	2
126	Anthropogenic disturbance changes the structure of arboreal tropical ant communities. Ecography, 2001, 24, 547-554.	4.5	50

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127	Learning structured data from unspecific reinforcement. Journal of Physics A, 2001, 34, 4267-4267.	1.6	0
128	Statistical physics of learning: Phase transitions in multilayered neural networks. , 2000, , 819-826.		3
129	Learning structured data from unspecific reinforcement. Journal of Physics A, 2000, 33, 6843-6857.	1.6	4
130	Singularity spectra of rough growing surfaces from wavelet analysis. Physical Review E, 2000, 62, 1773-1777.	2.1	2
131	The influence of the crystal lattice on coarsening in unstable epitaxial growth. Surface Science, 2000, 465, 339-346.	1.9	7
132	On-line Learning of Prototypes and Principal Components. , 1999, , 231-250.		2
133	Weight-decay induced phase transitions in multilayer neural networks. Journal of Physics A, 1999, 32, 5003-5008.	1.6	1
134	Noisy regression and classification with continuous multilayer networks. Journal of Physics A, 1999, 32, L531-L536.	1.6	2
135	Optimization of on-line principal component analysis. Journal of Physics A, 1999, 32, 4061-4067.	1.6	4
136	Receiver operating characteristics of perceptrons: Influence of sample size and prevalence. Physical Review E, 1999, 60, 5926-5931.	2.1	2
137	Unconventional MBE strategies from computer simulations for optimized growth conditions. Physical Review B, 1999, 60, 2893-2899.	3.2	16
138	A simple model of epitaxial growth: the influence of step edge diffusion. Computer Physics Communications, 1999, 121-122, 347-352.	7.5	2
139	Evaporation and step edge diffusion in MBE. Journal of Crystal Growth, 1999, 201-202, 85-87.	1.5	0
140	Statistical physics and practical training of soft-committee machines. European Physical Journal B, 1999, 10, 583-588.	1.5	10
141	The role of step edge diffusion in epitaxial crystal growth. Surface Science, 1999, 439, 191-198.	1.9	22
142	Phase transitions in soft-committee machines. Europhysics Letters, 1998, 44, 261-267.	2.0	10
143	A simple model of epitaxial growth. Europhysics Letters, 1998, 41, 443-448.	2.0	16
144	The dynamics of on-line principal component analysis. Journal of Physics A, 1998, 31, L97-L103.	1.6	10

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145	Learnability of periodic activation functions: General results. Physical Review E, 1998, 58, 3606-3609.	2.1	11
146	Specialization processes in on-line unsupervised learning. The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties, 1998, 77, 1487-1494.	0.6	1
147	Dynamics of on-line competitive learning. Europhysics Letters, 1997, 38, 73-78.	2.0	11
148	Noise robustness in multilayer neural networks. Europhysics Letters, 1997, 37, 427-432.	2.0	16
149	Comment on ``On-Line Gibbs Learning''. Physical Review Letters, 1997, 78, 4305-4305.	7.8	2
150	Transient dynamics of on-line learning in two-layered neural networks. Journal of Physics A, 1996, 29, 4769-4780.	1.6	42
151	Supervised Learning from Clustered Input Examples. Europhysics Letters, 1995, 30, 251-251.	2.0	0
152	Learning from noisy data: An exactly solvable model. Physical Review E, 1995, 52, R4624-R4627.	2.1	44
153	Supervised Learning from Clustered Input Examples. Europhysics Letters, 1995, 30, 117-122.	2.0	12
154	Learning by on-line gradient descent. Journal of Physics A, 1995, 28, 643-656.	1.6	119
155	On-line backpropagation in two-layered neural networks. Journal of Physics A, 1995, 28, L507-L513.	1.6	49
156	An Exactly Solvable Model of Unsupervised Learning. Europhysics Letters, 1994, 25, 391-396.	2.0	16
157	On-Line Learning with a Perceptron. Europhysics Letters, 1994, 28, 525-530.	2.0	69
158	Statistical mechanics of unsupervised structure recognition. Journal of Physics A, 1994, 27, 1885-1897.	1.6	37
159	Construction algorithm for the parity-machine. Physica A: Statistical Mechanics and Its Applications, 1993, 193, 307-313.	2.6	1
160	The statistical mechanics of learning a rule. Reviews of Modern Physics, 1993, 65, 499-556.	45.6	376
161	Statistical Mechanics of Unsupervised Learning. Europhysics Letters, 1993, 24, 421-426.	2.0	31
162	Learning drifting concepts with neural networks. Journal of Physics A, 1993, 26, 2651-2665.	1.6	32

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163	On-Line Learning of a Time-Dependent Rule. Europhysics Letters, 1992, 20, 733-738.	2.0	30
164	Tilinglike learning in the parity machine. Physical Review A, 1991, 44, 6888-6894.	2.5	20
165	The AdaTron: An Adaptive Perceptron Algorithm. Europhysics Letters, 1989, 10, 687-692.	2.0	174
166	Urine steroid metabolomics as a diagnostic tool in primary aldosteronism. Endocrine Abstracts, 0, , .	0.0	2
167	Steroid metabolomics for accurate and rapid diagnosis of inborn steroidogenic disorders. Endocrine Abstracts, 0, , .	0.0	4
168	Urine steroid metabolomics is a highly sensitive tool for post-operative recurrence detection in adrenocortical carcinoma. Endocrine Abstracts, 0, , .	0.0	1
169	The urinary steroid metabolome as a non-invasive tool to stage non-alcoholic fatty liver disease. Endocrine Abstracts, 0, , .	0.0	1
170	Towards Emotion Classification Using Appraisal Modeling. , 0, , 552-572.		3