

## Michael Biehl - Publications

### Journal publications (excludes conference proceedings published in journals)

- [1] W. Arlt, K. Lang, A. Sitch, A.S. Dietz, Y. Rhayem, I. Bancos, A. Feuchtlinger, V. Chortis, L.C. Gilligan, P. Ludwig, A. Riester, E. Asbach, B. Hughes, D.M. O'Neill, M. Bidlingmaier, J. Tomlinson, Z. Hassan-Smith, A. Rees, C. Adolf, S. Hahner, M. Quinkler, T. Dekkers, J. Deinum, M. Biehl, B. Keevil, C. Shackleton, J.J. Deeks, A.K. Walch, F. Beuschlein, M. Reincke  
Steroid metabolome analysis reveals prevalent glucocorticoid excess in primary aldosteronism. *J. of Clinical Investigation - JCI Insight* 2(8): e93136, 2017
- [2] D. Mudali, M. Biehl, S.K. Meles, R.J. Renken, D. Garcia-Garcia, P. Clavero, J. Arbizu, J.A. Obeso, M.C. Rodriguez-Oroz, K. Leenders, J.B.T.M. Roerdink  
Differentiating Early and Late Stage Parkinson's Disease Patients from Healthy Controls. *J. of Biomedical Engineering and Medical Imaging*, 3(6): 33-43, 2016.
- [3] T. Villmann, M. Kaden, W. Herrmann, M. Biehl  
Learning Vector Quantization classifiers for ROC-optimization. *Computational Statistics*, doi: 10.1007/s00180-016-0678-y, online: 2016.
- [4] M. Biehl, B. Hammer, T. Villmann  
Prototype-based models in machine learning, *Advanced Review in WIREs Cognitive Science*, 7(2): 92-111, 2016.
- [5] F.-M. Schleif, B. Hammer, J.G. Monroy, J.G. Jimenez, J.-L. Blanco-Claraco, M. Biehl, N. Petkov  
Odor recognition in robotics applications by discriminative time-series modeling. *Pattern Anal. and Appl.*, 19(1): 207-220, online: 2015, print: 2016.
- [6] O. de Wiljes, R.A. van Elburg, M. Biehl, F.A. Keijzer  
Modeling spontaneous activity across an excitable epithelium: Support for a coordination scenario of early neural evolution. *Front. Comput. Neurosci.*, 9: Article 110, 12 pages + 5 pages supplement, 2015.
- [7] I. Giotis, N. Molders, S. Land, M. Biehl, M.F. Jonkman, N. Petkov  
MED-NODE: a computer-assisted melanoma diagnosis system using non-dermoscopic images. *Expert Systems with Appl.*, 42(19): 6578-6585, 2015.
- [8] L. Yeo, N. Adlard, M. Biehl, M. Juarez, T. Smallie, M. Snow, C.D. Buckley, K. Raza, A. Filer, D. Scheel-Toellner  
Expression of chemokines CXCL4 and CXCL7 by synovial macrophages defines an early stage of rheumatoid arthritis. *Annals of the Rheumatic Diseases*, 75(4):763-771 (+supplement), online: 2015, print: 2016.
- [9] J.J.G. de Vries, P. M.C. Lemmens, S.C. Pauws, D. Brokken, M. Biehl  
Towards emotion classification using appraisal modeling. *International Journal of Synthetic Emotions*, 6(1): 40-59, 2015.

- [10] J.J.G. de Vries, S.C. Pauws, M. Biehl  
Insightful stress detection from physiology modalities using Learning Vector Quantization. *Neurocomputing*, 151: 873-882, 2015.
- [11] S. Hormoz, G. Bhanot, M. Biehl, E. Bilal, P. Meyer, R. Norel, K. Rhrissorakrai, A. Dayarian. Inter-species inference of gene set enrichment in lung epithelial cells from proteomic and large transcriptomics datasets. *Bioinformatics*, 31(4): 492-500, online:2014, print: 2015.
- [12] E. Bilal, T. Sakellaropoulos, Challenge Participants\*, I.N. Melas, V. Belcastro, K. Rhrissorakrai, P. Meyer, R. Norel, E. Blaese, J.J. Rice, M.C. Peitsch, J. Hoeng, G. Stolovitzky, L.G. Alexopoulos, C. Poussin (\* including M. Biehl)  
A crowd-sourcing approach for the construction of species-specific cell signalling networks. *Bioinformatics*, 31(4): 484-491, online: 2014, print: 2015.
- [13] A. Dayarian, R. Romero, Z. Wang, M. Biehl, E. Bilal, S. Hormoz, P. Meyer, R. Norel, K. Rhrissorakrai, G. Bhanot, F. Luo, A.L. Tarca  
Predicting protein phosphorylation from gene expression: Top methods from the IMPROVER species translation challenge. *Bioinformatics*, 31(4): 462-470, online: 2014, print: 2015.
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Inter-species prediction of protein phosphorylation in the sbv IMPROVER species translation challenge. *Bioinformatics*, 31(4): 453-461, online: 2014, print: 2015.
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Non-Euclidean Principal Component Analysis by Hebbian Learning. *Neurocomputing*, 147: 107-119, online: 2014, print: 2015.
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The somatic genomic landscape of chromophobe renal cell carcinoma. *Cancer Cell*, 26(3): 319-330, 2014. open online access, doi:10.1016/j.ccr.2014.07.014.
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Assessment of acrosome state in boar spermatozoa heads using n-contours descriptor and RLVQ. *Computer Meth. and Programs in Biomedicine*, 111:525-536, 2013.
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Adaptive Matrices and Filters for Color Texture Classification. *J. of Math. Imaging and Vision*, 47: 79-92, 2013.
- [19] M. Biehl, K. Bunte, P. Schneider  
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Texture feature ranking with relevance learning to classify interstitial lung disease patterns. *Artificial Intelligence in Medicine*, 56:91-97, 2012.
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- [24] K. Bunte, S. Haase, M. Biehl, T. Villmann  
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## Conference contributions and book chapters

- [1] A. Nolte, L. Wang, M. Biehl  
Prototype-based analysis of GAMA galaxy catalogue data  
In: M. Verleysen (ed.), Proc. 26th European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning *ESANN*, Bruges/Belgium, d-side publishing, pp. 339-344, 2018.
- [2] M. Biehl, K. Bunte, G. Longo, P. Tino  
Machine Learning and data analysis in astroinformatics  
In: M. Verleysen (ed.), Proc. 26th European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning *ESANN*, Bruges/Belgium, d-side publishing, pp. 307-314, 2018.
- [3] G. Bani, U. Seiffert, M. Biehl, F. Melchert  
Adaptive Basis Functions for Prototype-based Classification of Functional Data.  
In: Proc. of the 12th Intl. Workshop on Self-Organizing Maps and Learning Vector Quantization, Clustering and Data Visualization (WSOM), Nancy/France, 2017, 8 pages, IEEE, 2017. doi: 10.1109/WSOM.2017.8020020
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Empirical Evaluation of Gradient Methods for Matrix Learning Vector Quantization. In: Proc. of the 12th Intl. Workshop on Self-Organizing Maps and Learning Vector Quantization, Clustering and Data Visualization (WSOM), Nancy/France, 2017, 8 pages, IEEE, 2017. doi: 10.1109/WSOM.2017.8020027
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Fusion of Deep Learning Architectures, Multilayer Feedforward Networks and Learning Vector Quantizers for Deep Classification Learning.  
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- [7] M. Mohammadi, M. Biehl, A. Villmann, T. Villmann  
Sequence Learning in Unsupervised and Supervised Vector Quantization Using Hankel Matrices. In: Proc. Intl. Conference on Artificial Intelligence and Soft Computing (ICAISC 2017), pp 131-142, Springer, 2017
- [8] M. Biehl  
Biomedical applications of prototype based classifiers and relevance learning. In: D. Figueiredo, C. Martin-Vide, D. Pratas, M.A. Vega-Rodriguez (eds). Proc. 4th Intl. Conference on Algorithms for Computational Biology (AlCoB), pp 3-23, Springer (2017)



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Marker Selection for the Detection of Trisomy 21 Using Generalized Matrix Learning Vector Quantization. In: Proc. International Joint Conference on Neural Networks *IJCNN*, Anchorage/USA, IEEE, pp 3704-3708, 2017
- [10] S. Ghosh, E.S. Baranowski, R. van Veen, G.-J. de Vries, M. Biehl, W. Arlt, P. Tino, K. Bunte. Comparison of strategies to learn from imbalanced classes for computer aided diagnosis of inborn steroidogenic disorders. In: M. Verleysen (ed.), Proc. European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning *ESANN*, Bruges/Belgium, 2017.
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Prototype based models for the supervised learning of classification schemes. In: M. Brescia, S.G. Djogovski, E. Feigelson, G. Longo, S. Cavuoti (eds.), International Astronomical Union, Symposium 325: Astroinformatics. Sorrento/Italy, October 2016. Cambridge University Press, 10 pages, 2017.
- [12] M. Biehl, D. Mudali, K.L. Leenders, J.B.T.M. Roerdink  
Classification of FDG-PET Brain Data by Generalized Matrix Relevance LVQ. In: K. Amunts, L. Grandinetti, T. Lippert, N. Petkov (eds.), Proc. International Workshop on Brain Inspired Computing, *BrainComp 2015*, Springer LNCS Vol. 10087: 131-141, online 2016, print: 2017.
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Functional approximation for the classification of smooth time series. In: B. Hammer, T. Martinetz, T. Villmann (eds.), *Proc. Workshop on New Challenges in Neural Computation 2016, Machine Learning Reports*, 04/2016: 24-31, 2016.
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The sugar dataset - A multimodal hyperspectral dataset for classification and research. In: F.-M. Schleif, T. Villmann (eds.), *Proc. MIWOCI Workshop 2016, Machine Learning Reports*, 03/2016: 15-18, 2016.
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