

## **Publikationsliste Elmar W. Lang**

**2018**

### **Journals**

Th. I. Götz, A. M. Tomé, B. Hensel, Ch. Bert and **E. W. Lang**

*Electromagnetic Tracking in High Dose Rate Brachytherapy - A Composite Analysis Model*  
Advances in Applied Science Research, **9**(1),1-21, (2018)

M. Goldhacker, A. M. Tomé, M. Greenlee and **E. W. Lang**

*Frequency-resolved Dynamic Functional Connectivity Reveals Scale-Stable Features of Connectivity States*

Front. Hum. Neurosci. **12**:253, (2018), doi: 10.3389/fnhum.2018.00253

Supplement: [https://www.researchgate.net/publication/326458092\\_Supplementary\\_Material](https://www.researchgate.net/publication/326458092_Supplementary_Material)

Th. I. Götz, B. Hensel, A. M. Tomé and E. W. Lang

MDSLAB: A Toolbox for the Analysis of Point Sets using Multi-dimensional Scaling, Hartigan Dip Test and  $\alpha$ -stable Distributions.

Biomedical Physics & Engineering Express, **4**(6), 605, (2018)., DOI:10.1088/2057-1976/aac19c

V. Vigneron, A. Kodewitz, M. Nazareth da Costa, A. M. Tomé and E. W. Lang

Non-negative sub-tensor ensemble factorization (NsTEF) algorithm. A new incremental tensor factorization for large data sets..

Signal Processing **144**, 77–86, (2018), DOI:10.1016/j.sigpro.2017.09.012

**2017**

### **Books**

S. Al-Baddai, B. Ludwig, **E. W. Lang**

*EEMD of functional Images.*

Edited by Anastasia Olaru, 06/2017; LAP LAMBERT Academic Publishing., ISBN: 978-3-330-32642-2

### **Journals**

Götz T.I, Lahmer G, Strnad V, Bert C., Hensel B, Tomé A. M, and **E. W. Lang**

*A tool to automatically analyze electromagnetic tracking data from high dose rate brachytherapy of breast cancer patients.*

PLoS ONE **12**(9): e0183608. (2017), <https://doi.org/10.1371/journal.pone.0183608>

Th. I. Götz, M. Ermer, D. Salas-Gonzalez, M. Kellermeier, V. Strnad, Ch. Bert, B. Hensel, A. M. Tomé and **E. W. Lang**

*On the use of multi-dimensional scaling and electromagnetic tracking in high dose rate brachytherapy.*

Physics in Medicine and Biology **62**(20), 7959–7980, (2017), DOI:10.1088/1361-6560/aa8944

Th. I. Götz, G. Lahmer, T. Brandt, K. Kallis, V. Strnad, Ch. Bert, B. Hensel, A. M. Tomé and **E. W. Lang**

*On the use of particle filters for electromagnetic tracking in high dose rate brachytherapy.*

Physics in Medicine and Biology **62**(19), 7617-7640, (2017); ., DOI:10.1088/1361-6560/aa8591

M. Goldhacker, P. Keck, A. Igel, **E. W. Lang** and A. M. Tomé

*A multi-variate Blind Source Separation Algorithm.*

Computer Methods and Programs in Biomedicine **151**, 91–99, (2017); **151**., DOI:10.1016/j.cmpb.2017.08.019

S. Al-Baddai, K. Al-Subari, **E. W. Lang** and B. Ludwig:

*Optimizing Approach for Sifting Process to Solve a Common Type of EMD Mode Mixing.*

International Journal of Electrical and Computer Engineering, **11**(6), 717–720(2017),

[doi.org/10.5281/zenodo.1131231](https://doi.org/10.5281/zenodo.1131231)

## 2016

### Books

T. Schön, M. Stetter, O. Belova, A. Koch, A. M. Tomé and **E. W. Lang**  
*Physarum Learner: A Slime Mold Inspired Structural Learning Approach*  
in A. Adamatzky (Ed.), *Advances in Physarum Machines*, ISBN: 978-3-319-26662-6, Springer (2016)

D. Salas-Gonzales, O. Horeth, E. W. Lang, J. M. Gorriz-Saez, J. Ramirez  
*Study of the Histogram of the Hippocampus in MRI Using the  $\alpha$ -stable Distribution*  
In „Bioinformatics and Biomedical Engineering“, DOI: 10.1007/978-3-319-16483-0\_22, pp. 216-221, (2016)

### Journals

Th. Götz, L. Stadler, A. M. Tomé, H. Hausner and **E. W. Lang**  
*A combined cICA - EEMD analysis of EEG recordings from depressed or schizophrenic patients during olfactory stimulation*  
*Journal Neural Engineering*, 14, 016011, (2016)

K. Al-Subari, S. Al-Baddai, A. M. Tomé, G. Volberg, B. Ludwig and **E. W. Lang**  
*Combined EMD-sLORETA Analysis of EEG Data collected during a Contour Integration Task*  
*PloS One*, 11(12):e0167957, (2016), DOI:10.1371/journal.pone.0167957, (2016)

A.M. Tomé, D. Malafaia, J.N. Vieira, A.R. Teixeira and **E.W. Lang**  
*Singular Spectrum Analysis for Narrowband Signal Enhancement and Detection*  
*Digital Signal Processing*, accepted, (2016)

S. Al-Baddai, A. Neubauer, A. M. Tomé, V. Vigneron, D. Salas-Gonzalez, J. M. Górriz, C. G. Puntonet and **E. W. Lang** and the Alzheimer's Disease Neuroimaging Initiative  
*Functional biomedical images of Alzheimer's disease - A Green's function-based Empirical Mode Decomposition Study*  
*Current Alzheimer Research*, 13(6), (2016)

S. Al-Baddai, K. Al-Subari, A. M. Tomé, J. Solé-Casals and **E. W. Lang**.  
*A Green's function-based Bidimensional Ensemble Empirical Mode Decomposition*,  
*Information Sciences*, 348, 305–321, (2016)

D. Salas-Gonzalez, F. Segovia, F. J. Martínez-Murcia, **E. W. Lang**, J. M. Gorriz, and J. Ramirez,  
*An optimal approach for selecting discriminant regions for the diagnosis of alzheimer's disease*,  
*Current Alzheimer Research*, 13(7), pp. 838-844, (2016).

## 2015

### Books

R. Schachtner, G. Pöppel, A. M. Tomé, **E. W. Lang**  
*From Binary NMF to Variational Bayes NMF: A Probabilistic Approach*  
in G. Naik, ed., *NMF – Advances in Theory and Applications*, Springer Berlin (2015)

### Journals

D. Salas-Gonzales, J. M. Górriz, J. Ramírez, I. A. Illán, P. Padilla, F. J. Martínez-Murcia, **E. W. Lang**  
*Building a FP-CIT SPECT brain template using a posterization approach*  
*Neuroinformatics*, 13(4), 391—402, (2015)

K. Al-Subari, S. Al-Baddai, A. M. Tomé, and **E. W. Lang**.  
*EMDLAB: a toolbox for analysis of single trial EEG dynamics using empirical mode decomposition*.  
Journal of Neuroscience Methods.253, 193-205, (2015)

K. Al-Subari, S. Al-Baddai, A. M. Tomé , G. Volberg, R. Hammwöhner and **E. W. Lang**  
*Ensemble Empirical Mode Decomposition Analysis of EEG Data collected during a Contour Integration Task*  
PLOS ONE, 1--27, (2015), DOI: 10.1371/journal.pone.0119489

S. Al-Baddai, K. Al-Subari, A. M. Tomé, G. Volberg and **E. W. Lang**  
*A combined EMD-ICA analysis of simultaneously registered EEG-fMRI data*  
Annals of the BMVA, 2, 1 - 15, (2015)

### **Conference Proceedings**

D. Salas-Gonzales, O. Horeth, J. M. Górriz, J. Ramirez and **E. W. Lang**  
Study of the histogram of the Hippocampus in MRI using the  $\alpha$  – stable distribution  
LNCS 9043, 216—221, (2015)

E. Gallego-Jutglà, S. Al-Baddai, K. Al-Subari, A. M. Tomé, **E. W. Lang**, and Jordi Solé-Casals.  
*Face recognition by fast and stable bi-dimensional empirical mode decomposition*.  
In H. Loose, A. Fred and D. Elias, editors, BIOSIGNALS 2015 - Proceedings of the International Conference on Bio-inspired Systems and Signal Processing, Lisbon, Portugal, pp. 385–391, 12-15 (2015)

D. Salas-Gonzalez, O. Horeth, **E. W. Lang**, J. M. Górriz, and J. Ramírez, “Bioinformatics and biomedical engineering: third international conference, iwbbio 2015, granada, spain, april 15-17, 2015, proceedings, part i,” , F. Ortuño and I. Rojas, Eds., Cham: Springer International Publishing, 2015, pp. 216-221.

D. Salas-Gonzalez, **E. W. Lang**, J. M. Górriz, and J. Ramirez,  
*A posterization strategy for the registration of [123i]fp-cit spect brain images*.  
Proc. International Conference on Computer Vision Theory and Applications (VISIGRAPP), pp. 88-92, (2015).

## **2014**

### **Journals**

R. Schachtner, G. Pöppel, A. M. Tomé, C. G. Puntonet, **E. W. Lang**  
*A New Bayesian Approach to Nonnegative Matrix Factorization: uniqueness and model order selection*  
Neurocomputing, **138**, 142—156, (2014)

T. Schön, M. Stetter, A. M. Tomé, C. G. Puntonet, **E. W. Lang**  
*Physarum Learner: A bio-inspired way of learning structure from data*.  
Expert Systems with Applications, **44**(11), 5353—5370, (2014)

A. Neubauer, A. M. Tomé, A. Kodewitz, J. M. Górriz, C. G. Puntonet and **E. W. Lang**  
*Bidimensional Ensemble Empirical Mode Decomposition of functional biomedical Images*  
Advances Adaptive Data Analysis, **6**(1), 1450004 (36 pages), (2014)  
DOI: 10.1142/S1793536914500046

D. Salas-Gonzales, J. M. Górriz, J. Ramírez, I. A. Illán, P. Padilla, F. J. Martínez-Murcia, **E. W. Lang**

*Affine registration of [123I]FP-CIT SPECT brain images.*  
Studies in Health Technology and Informatics, **207**, 65—73, (2014)

S. Al-Baddai, K. Al-Subari, A.M. Tomé, G. Volberg, S. Hanslmayr, R. Hammwöhner, **E.W. Lang**  
*Bidimensional ensemble empirical mode decomposition of functional biomedical images taken during a contour integration task*  
Biomedical Signal Processing and Control, 13, 218--236, (2014).

R. Schachtner, G. Poeppel, A.M. Tomé, **E.W. Lang**  
*A Bayesian approach to the Lee–Seung update rules for NMF*  
Pattern Recognition Letters 45, 251—256, (2014)

### **Conference Proceedings**

D. Salas-Gonzalez, J. M. Górriz, J. Ramírez, **E. W. Lang**  
*Why Using the Alpha-stable Distribution in Neuroimage?*  
Proc. SIGMAP, pp. 297-301, (2014)

S. Al-Baddai, K. Al-Subari, A. M. Tomé, G. Volberg, **E. W. Lang**  
*Combining EMD with ICA to Analyze Combined EEG-fMRI Data.*  
Proc. MIUA (2014)

## **2013**

### **Books**

A. Zeiler, R. Faltermeier, A. Brawanski, I. R. Keck, A. M. Tomé, C. Puntonet and **E. W. Lang**  
*Sliding Empirical Mode Decomposition – Brain Status Data Analysis and Modeling*  
In L. Mihaylova, P. Georgieva, eds., Advances in Signal Processing and Data Mining, Studies in Computational Intelligence, **410**, pp 311-349, (2013), Springer, Berlin

### **Journals**

A. Zeiler, R. Faltermeier, A. M. Tomé, C. Puntonet, A. Brawanski, **E. W. Lang**  
*Weighted Sliding Empirical Mode Decomposition for Online Analysis of Biomedical Time Series*  
Neural Processing Letters (2013), DOI: 10.1007/s11063-012-9270-9, ISSN: 1370-4621

D. Salas-Gonzalez, J. M. Górriz, J. Ramírez, M. Schloegl, A. Ortiz, **E. W. Lang**  
*Parameterization of the distribution of white and grey matter in MRI using the  $\alpha$ -stable distribution.*  
Comp. in Bio. and Med. 43(5): 559-567 (2013)

D. Salas-Gonzalez, J. M. Górriz, J. Ramírez, I. Álvarez Illán, **E. W. Lang**:  
*Linear intensity normalization of FP-CIT SPECT brain images using the  $\alpha$ -stable distribution.*  
NeuroImage 65: 449-455 (2013)

A. M. Tomé, R. Schachtner, V. Vigneron, C. G. Puntonet, **E. W. Lang**  
*A logistic non-negative matrix factorization approach to binary data sets*  
Multidim Syst Sign Process, (2013), DOI 10.1007/s11045-013-0240-9

M. Böhm, R. Faltermeier, A. Brawanski, **E. W. Lang**  
*Mathematical modeling of human brain physiological data*  
Phys. Rev. E, 062711, (2013), <http://dx.doi.org/10.1103/PhysRevE.88.062711>

## **Conference Proceedings**

A.M. Tomé, A.R. Hidalgo-Muñoz, M.M. López, A.R. Teixeira, I.M. Santos, A.T. Pereira, M. Vázquez-Marrufo, **E.W. Lang**

*Feature extraction and classification of biosignals: Emotion valence detection from EEG signals.*  
Proc. Biosignals, (2013)

T. Schön, M. Stetter, A. M. Tomé, **E. W. Lang**

*A New Physarum Learner for Network Structure Learning from Biomedical Data.*  
Proc. Biosignals, (2013)

## **2012**

### **Journals**

Gallix, A., Górriz, J.M., Ramírez, J., Illán, I.A., **Lang, E.W.**

*On the empirical mode decomposition applied to the analysis of brain SPECT images*  
Expert Systems with Applications, **39**(18), pp. 13451 – 13461, (2012)

**E. W. Lang**, A. M. Tomé, I. R. Keck, J. M. Górriz-Saez, C. G. Puntonet.

*Brain Connectivity Analysis - A short survey.*

Computational Intelligence and Neurosciences, pp 1 – 21, ( 2012), DOI: 10.1155/2012/412512

I. A. Illán, J. M. Górriz, J. Ramirez, **E. W. Lang**, D. Salas-Gonzalez, C. G. Puntonet

*Bilateral symmetry aspects in computer-aided Alzheimer's disease diagnosis by single-photon emission-computed tomography imaging*

Artificial Intelligence in Medicine, 56(3), 191-198, (2012)

### **Conference Proceedings**

A. Gallix, J. M. Górriz, J. Ramirez, I. Á. Illán, **E. W. Lang**,

*SPECT Computer-Aided Diagnosis System based on the Empirical Mode Decomposition.*

Proc. KES, 2220-2231, (2012)

T. Schön, M. Stetter, **E. W. Lang**

*Structure Learning for Bayesian Networks Using the Physarum Solver*

Proc. Machine Learning and Applications (ICMLA), (2012)

## **2011**

### **Books**

J. M. Górriz Sáez, **E. W. Lang**, J. Ramirez, eds.

*Advances in Biomedical Signal Processing,*

Bentham Publishers, (2011)

**E.W. Lang**, R. Schachtner, D. Lutter, D. Herold, A. Kodewitz, F. Blöchl, F. J. Theis, I. R. Keck, J.M. Górriz Sáez, P. Gómez Vilda, A. M. Tomé,

*Exploratory Matrix Factorization Techniques for Large Scale Biomedical Data Sets,*

in J. M. Górriz Sáez, E. W. Lang, J. Ramirez, eds., *Recent Advances in Biomedical Signal Processing*, Bentham Publishers, pp 26 – 47, (2011).

A. M. Tomé, A. R. Teixeira, **E. W. Lang**,  
*Subspace Techniques and Biomedical Time Series Analysis*,  
in J. M. Górriz Sáez, E. W. Lang, J. Ramirez, eds., *Recent Advances in Biomedical Signal Processing*, Bentham Publishers, pp 48-59, (2011).

A. Zeiler, R. Faltermeier, M. Böhm, I. R. Keck, A. M. Tomé, C. G. Puntonet, A. Brawanski, and **E. W. Lang**,  
*Empirical Mode Decomposition Techniques for Biomedical Time Series Analysis*  
in J. M. Górriz, E. W. Lang, J. Ramirez, eds., *Recent Advances in Biomedical Signal Processing*, Bentham Publishers, pp 60 – 81, (2011).

F. Blöchl, A. Rasclé, J. Kastner, R. Witzgall, **E. W. Lang**, F. J. Theis  
*Are we to integrate previous information into microarray analysis? Interpretation of a Lmx1b-knockout experiment*  
in J. M. Górriz, E. W. Lang, J. Ramirez, eds., *Recent Advances in Biomedical Signal Processing*, Bentham Publishers, pp 157 – 170, (2011).

## **Journals**

A. R. Teixeira, A. M. Tomé, **E. W. Lang**  
*Unsupervised Feature Extraction via Kernel Subspace Techniques*  
*Neurocomputing*, 74, 820-830, (2011)

M. Meilinger, Ch. Schmidgunst, O. Schütz, **E. W. Lang**  
*Metal Artefact Reduction in Cone Beam Computed Tomography using Forward Projected Reconstruction Information*  
*Z. medizinische Physik*, in print, (2011)

R. Schachtner, G. Pöppel, **E. W. Lang**  
*Towards unique solutions of non-negative matrix factorization problems by a determinant criterion*  
*Digital Signal Processing*, 21(4), 528-534, (2011), DOI: 10.1016/j.dsp.2011.02.001

S. De Sanctis, W. M. Malloni, W. Kremer, A. M. Tomé, **E. W. Lang**, K.-P. Neidig and H. R. Kalbitzer  
*Singular spectrum analysis for an automated solvent artifact removal and baseline correction of 1D NMR spectra*  
*J. Magn. Reson.* 210, 177-183, (2011)

A. M. Tomé, A. R. Teixeira, A. Teixeira, G. Miguel, P. Georgieva, **E. W. Lang**  
*Linear Invariant Systems Theory for Signal Enhancement*  
*Electrónica e Telecomunicações*, 5(3), 290-294, (2011)

R. Schachtner, G. Pöppel, A. M. Tomé, **E. W. Lang**  
*Bayesian Optimality Criteria for NMF concerning Uniqueness and Model Order Selection*  
*Signal Processing*, Accepted, (2011)

R. Faltermeier, A. Zeiler, A. M. Tomé, A. Brawanski, **E. W. Lang**  
*Weighted Sliding Empirical Mode Decomposition*  
*Advances Adaptive Data Analysis*, 3, 509, (2011)

## **Conference Proceedings**

D. Salas-González, M. Schlögl, J. M. Górriz, J. Ramirez and **E. W. Lang**  
*Bayesian Segmentation of Magnetic Resonance Images Using  $\alpha$ -stable Distributions*  
LNAI 6678, 99-106, (2011)

A. Zeiler, R. Faltermeier, A. M. Tomé, C. Puntonet, A. Brawanski and **E. W. Lang**  
*Sliding Empirical Mode Decomposition for Online Analysis of Biomedical Time Series*  
LNCS 6691, 299-306, (2011)

A. Zeiler, R. Faltermeier, A. Brawanski, A. M. Tomé, C. G. Puntonet, J. M. Górriz and **E. W. Lang**  
*Brain status data analysis by sliding EMD*  
LNCS 6687, 77 – 87, (2011)

M. Meilinger, C. Schmidgunst, O. Schütz, **E. W. Lang**  
*Projective segmentation of metal implants in Cone Beam computed tomographic images*  
Proc. Image and Signal Processing and Analysis (ISPA), (2011), ISBN: 978-1-4577-0841-1

C. Muñoz-Mulas, R. Martínez-Olalla, P. Gómez Vilda, **E. W. Lang**, A. Álvarez Marquina, L. M. Mazaira-Fernández, V. Nieto Lluís  
*KPCA vs. PCA Study for an Age Classification of Speakers.*  
*Proc. NOLISP (2011)*

## **2010**

### **Books**

R. Schachtner, G. Pöppel, **E. W. Lang**  
*Nonnegative Matrix Factorization for Binary Data to Extract Elementary Failure Maps from Wafer Test Images*  
in A. Fink et al., eds., *Advances in Data Analysis, Data Handling and Business*, pp. 755 -764, ISBN 978-3-642-01045-3, Springer-Verlag Berlin Heidelberg, (2010), DOI: [10.1007/978-3-642-01044-6\\_69](https://doi.org/10.1007/978-3-642-01044-6_69)

### **Journals**

W. M. Malloni, S. De Sanctis, A. M. Tomé, **E. W. Lang**, C. E. Munte, K. P. Neidig, and H. R. Kalbitzer,  
*Automated solvent artefact removal and base plane correction of multidimensional NMR protein spectra by AUREMOL-SSA.*  
*Journal of Biomolecular NMR* 47, 101-111, (2010).

D. Lutter, C. Marr, J. Krumsiek, **E. W. Lang**, F. J. Theis,  
*Intronic microRNAs support their host genes by mediating synergistic and antagonistic regulatory effects,*  
*BMC Genomics* 11, 224, (2010)

R. Schachtner, G. Pöppel, **E. W. Lang**  
*A Non-Negative Blind Source Separation Model for Binary Test Data*  
*IEEE Trans. on Circuits and Systems I*, 57(7), 1439-1449, (2010)

A. M. Tomé, A. R. Teixeira, N. Figueiredo, I. M. Santos, P. Georgieva, **E. W. Lang**  
*SSA of biomedical signals: A linear invariant systems approach*  
*Statistics and its Interface*, 3(3), 345-356, (2010)

A. Stemme, G. Deco, **E. W. Lang**  
*Perceptual Learning with Perceptions*  
Cognitive Neurodynamics, **4**, (2010)

J. M. Górriz, J. Ramirez, F. Segovia, I. Alvarez, A. Lassl, D. Salas-Gonzalez, M. Lopez, R. Chaves, C. G. Puntonet, P. Padilla, **E. W. Lang**  
*GMM-based SPECT Image Classification for the Diagnosis of Alzheimer's Disease*  
Applied Soft Computing, ISSN:1568-4946, (2010)

P. Padilla, J. M. Górriz, J. Ramirez, **E. W. Lang**, R. Chaves, F. Segovia, M. Lopez, D. Salas-González, I. Álvarez  
*Analysis of SPECT Brain Images for the Diagnosis of Alzheimer's Disease based on NMF for Feature Extraction*  
Neuroscience Letters, **479** (3), 192-196, (2010)

J. M. Górriz, J. Ramírez, **E. W. Lang**, C. G. Puntonet, I. Turias  
*Improved likelihood ratio test based voice activity detector applied to speech recognition.*  
Speech Communication **52**(7), 664—677, (2010)

### **Conference Proceedings**

R. Faltermeier, A. Zeiler, I. R. Keck, A. M. Tomé, A. Brawanski, and **E. W. Lang**,  
*Sliding Empirical Mode Decomposition*  
Proc. IEEE WCCI-IJCNN 2010, ISBN: 978-1-4244-6917-8, (2010)

A. Zeiler, R. Faltermeier, I. R. Keck, A. M. Tomé, C. G. Puntonet, and **E. W. Lang**,  
*Brain status data analyzed by empirical mode decomposition,*  
Proc. IEEE WCCI-IJCNN 2010, ISBN: 978-1-4244-6917-8, (2010)

A. Zeiler, R. Faltermeier, I. R. Keck, A. M. Tomé, C. G. Puntonet and **E. W. Lang**  
*Empirical Mode Decomposition - An Introduction*  
Proc. IEEE WCCI-IJCNN 2010, ISBN: 978-1-4244-6917-8, (2010)

A. Meyer-Baese, I. R. Keck and **E. W. Lang**  
*Robust Stability Analysis of Linsker-Type Hebbian Learning - Multi-Time Scale Neural Networks under Parametric Uncertainties*  
Proc. IEEE WCCI-IJCNN 2010, ISBN: 978-1-4244-6917-8, (2010)

A. Kodewitz, I. R. Keck, A. M. Tomé, **E. W. Lang**  
*Exploratory Matrix Factorization for PET Image Analysis*  
Proc. IEEE EMBC 2010, ISBN: 978-1-4244-4124-2, ISSN: 1557-170X, (2010)

I. R. Keck, V. Fischer, A. M. Tomé and **E. W. Lang**  
*Spatiotemporal ICA applied to retinotopic fMRI data*  
Proc. IEEE-EMBC 2010, ISBN: 978-1-4244-4124-2, ISSN: 1557-170X, (2010)

R. Schachtner, G. Pöppel, **E. W. Lang**  
*Bayesian Extensions of Non-negative Matrix Factorization*  
Proc. 2<sup>nd</sup> Int. Workshop Cognitive Information Processing, (2010)

A. Stemme, K. Rosengarth, I. Keck, G. Deco, M. Greenlee, **E. W. Lang**  
*The role of attention and feedback in perceptual learning*  
Proc. HBM 2010, (2010)



P. Padilla, J. M. Górriz, J. Ramirez, **E. W. Lang**, R. Chaves, F. Segovia, I. Álvarez, D. Salas-González, M. López  
*NMF-based analysis of SPECT Brain Images for the diagnosis of Alzheimer's disease*  
Proc. HAIS 2010, (2010)

A. Kodewitz, I. R. Keck, A. M. Tomé, P. Padilla, J. M. Górriz, C. G. Puntonet, **E. W. Lang**  
*Exploratory matrix factorization for PET image analysis*  
Proc. HAIS 2010, (2010)

## **2009**

### **Journals**

A. R. Teixeira, A. M. Tomé, M. Böhm, C. G. Puntonet, **E. W. Lang**  
*How to apply non-linear subspace techniques to Univariate biomedical time series*  
IEEE Trans Instrum. Measurement **58**, 2433-2444, (2009), ISSN: 0018-9456

D. Lutter, Th. Langmann, P. Ugocsai, C. Moehle, E. Seibold, W. D. Splettstoesser, P. Gruber, **E. W. Lang**, G. Schmitz  
*Analyzing time-dependent microarray data using independent component analysis derived expression modes from human macrophages infected with *F. tularensis holartica**  
J Biomed Inform, 42(4):605-11, (2009), doi:10.1016/j.jbi.2009.01.002

J. M. Górriz, A. Lassl, J. Ramirez, D. Salas-Gonzalez, C. G. Puntonet, **E. W. Lang**  
*Automatic selection of ROIs in functional imaging using Gaussian mixture models*  
Neuroscience Letters **460**, 108-111, (2009), doi:10.1016/j.neulet.2009.05.039

J.M. Górriz, J. Ramírez, S. Cruces-Álvarez, D. Erdogmus, C.G. Puntonet, **E.W. Lang**,  
*A Novel LMS algorithm applied to Adaptive Noise Cancelation*,  
IEEE Signal Processing Letters, accepted, Num XXX, Issue XXX (2009). pp. 470-481. ISSN:0001-4966.

### **Conference Proceedings**

R. Schachtner, G. Pöppel, A. M. Tomé, **E. W. Lang**  
*Minimum Determinant Constraint for Non-negative Matrix Factorization*  
LNCS 5441, 106-113, (2009)

R. Keck, V. Fischer, C. G. Puntonet, **E. W. Lang**  
*Eye movement quantification in functional MRI data by spatial independent component analysis*  
LNCS 5441, 435-442, (2009)

H. G. Stockmeier, H. Bäcker, W. Bäumlner, **E. W. Lang**  
*BSS-based feature extraction for skin lesion image classification*  
LNCS 5441, 467-474, (2009)

R. Schachtner, G. Pöppel, **E. W. Lang**  
*Binary nonnegative matrix factorization applied to semi-conductor wafer test sets.*  
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