



Andrzej CICHOCKI (Ph.D. Dr.Sc.)

Positions

Actual Status: Head of Laboratory for Advanced Brain Signal Processing and Team Leader of Noninvasive BMI in BSI-Toyota Cooperation Center.

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Education and Degrees

- M.Sc. in Electrical Engineering (Control and System Theory and Electronics), 1972
- Ph.D. in Electrical Engineering and Computer Science 1976
- Dr.Sc. (habilitation) in Electrical Engineering and Computer Science (Theory of nonlinear circuits and systems) 1982
- Title of Full Professor awarded by president of the state.

(All from the Warsaw University of Technology, Poland)

Employments - Professional Experience

- 2000- till now: Head of the Laboratory for Advanced Brain Signal Processing, Brain Science Institute, Riken, Japan
- 1998-2000 Head of the Laboratory for Open Information Systems, Brain Science Institute, Riken, Japan
- 1995-97 Team Leader of the Laboratory for Artificial Brain Systems, Frontier Research Program, Riken, Japan
- 1992-94 Visiting Guest Professor, at University Erlangen-Nuernberg and Principal Co-investigator of several DFG research projects, Germany
- 1992 – 1996 Full Professor, at Warsaw University of Technology
- 1986-1991 Associate Professor, Department of Electrical Engineering, Warsaw University of Technology
- 1983–1985 Alexander von Humboldt Research Fellowship, Germany
- 1972-86 Teaching Assistant and Assistant Professor, Department of Electrical Engineering Warsaw University of Technology

Honors and Awards

- M.Sc. Diploma with distinction, 1972, Ph.D. Thesis, 1976, Doctor of Science (habilitation) 1982.
- Alexander von Humboldt Research Fellowship, Germany, April 1984–Sept. 1985.
- Several Awards and Prizes by by a Minister of Higher Education and Research in Poland and a Rector of the Warsaw University of Technology for Scientific Achievements, best books, for teaching excellence in the University and best papers published in Neural Networks Journal by Neural Network Society.

Professional Activities

- Editor in Chief of Journal Computational Intelligence and Neuroscience
- Associate editor of IEEE Transaction on Neural Networks 2003-2007

Guest co-editor of special issue of the IEEE Transactions on Neural Networks on Information Theoretic Learning, March 2004 and IEEE Journal of Selected Topics in Signal Processing 2008 on the Special Issue fMRI Analysis for Human Brain Mapping, Co-editors of four special Issues Journal of Computational Intelligence and Neuroscience.

- Reviewer of many international journals and conferences
- Supervisor of 6 PhD thesis and 25 Master of Science thesis.

Member of Scientific and Program Technical Committees

- Chair- of IEEE Circuits and Systems Technical Committee for Blind Signal Processing <http://cil.ece.uic.edu/BSP/> 2007-2008.
- Member of IEEE MLSP (Machine Learning for Signal Processing) Technical Committee, 1998-2000 and since 2008.

Conference Program Committees

- Co-chairman of the International Program Committee ICA-2003, Nara, Japan, April 2003,
- Member of the International Program Committee ICASSP Conferences 1997-2008
- Member of the International Program Committee ICONIP Conferences 1998-2008
- Member of the International Program Committee NNSP and MLSP Workshops
- Member of the International Program Committee ICA Workshops 1999-2009.
- Member of the International Program Committee and International Liaison EUSIPCO 2002, 2006.

Selected List of Publications of A. Cichocki

Research Monographs

- A. Cichocki, R. Zdunek A.H Phan and S. Amari: **Nonnegative Matrix and Tensor Factorizations: Applications to Multi-way Exploratory Analysis and Blind Source Separation**, Wiley, September 2009.
- A. Cichocki and S. Amari: **Adaptive Blind Signal and Image Processing: Learning Algorithms and Applications** (extended edition), Wiley, April 2003.

• A. Cichocki and R. Unbehauen: **Neural Networks for Optimizations and Signal Processing** (Corrected and extended edition), John Wiley and Teubner, Nov. 1994.

• R. Unbehauen and A. Cichocki: **CMOS Switched-Capacitor and Continuous-Time Integrated Circuits and Systems**, Springer-Verlag, 1989.

Peer-reviewed journals

2009

- [1] C. Caiafa, and A. Cichocki. "Estimation of Sparse Non-negative Sources from Noisy Overcomplete Mixtures using MAP", *Neural Computation* (in press 2009).
- [2] A. Cichocki, and A-H Phan. "Fast Local Algorithms for Large Scale Nonnegative Matrix and Tensor Factorizations" *IEICE Trans. Fundamentals*, E92-A(3), 708-721, (invited paper) (2009).
- [3] J. Dauwels, F. Vialatte, T. Weber, and A. Cichocki. "Quantifying Statistical Interdependence by Message Passing on Graphs, PART I: Algorithms and Applications to Neural Signals", *Neural Computation* (in press 2009)
- [4] J. Dauwels, F. Vialatte, T. Weber, and A. Cichocki. "Quantifying Statistical Interdependence by Message Passing on Graphs, PART II: Multi-Dimensional Point Processes", *Neural Computation* (in press 2009).
- [5] Z. He, A. Cichocki, R. Zdunek, and SL. Xie. "Improved FOCUSS Methods with Conjugate Gradient Iterations", *IEEE Trans. Signal Processing*, 57(1), 399-404 (2009).
- [6] Z. He, A. Cichocki, YQ. Li, SL. Xie, and S. Sanei. "K-hyperline Clustering Learning for Sparse Component Analysis", *Signal Processing*, 89, 1011-1022 (2009).
- [7] I. Kopriva, I. Jeric, and A. Cichocki. "Blind Decomposition of Infrared Spectra Using Flexible Component Analysis", *Chemometrics and Intelligent Laboratory Systems*, 97, 170-178 (2009).
- [8] T. Rutkowski, A. Cichocki, T. Tanaka, A. Ralescu, and D. Mandic. "Clustering of Spectral Patterns Based on EMD Components of EEG Channels with Applications to Neurophysiological Signals Separation", *Lectures Notes in Computer Science*, Springer LNCS-5506, 452-259 (2009).
- [9] B. Swiderski, S. Osowski, A. Cichocki A, and A. Rysz. "Single-class SVM and Directed Transfer Function Approach to the Localization of the Region Containing Epileptic Focus", *Neurocomputing*, 72, 1575-1583 (2009).
- [10] F. Vialatte, H. Bakardjian, R. Prasad, and A. Cichocki. "EEG Paroxysmal Gamma Waves during Bhramari Pranayama: a Yoga Breathing Technique", *Consciousness and Cognition* (in press 2009).
- [11] F. Vialatte, J. Sole-Casals, J. Dauwels, M. Maurice, and A. Cichocki. "Bump Time-Frequency Toolbox: a Toolbox for Time-Frequency Oscillatory Bursts Extraction in Electrophysiological Signals", *BMC Neuroscience* (in press 2009).
- [12] F. Vialatte, J. Dauwels, M. Maurice, Y. Yamaguchi, and A. Cichocki. "On the Synchrony of Steady State Visual Evoked Potentials and Oscillatory Burst Events", *Cognitive Neurodynamics* (in press 2009).
- [13] Q. Zhao, L. Zhang L, and A. Cichocki. "EEG-based Asynchronous BCI Control of a Car in 3D Virtual Reality Environments", *Chinese Science Bulletin*, 54, 78-87 (2009).

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- [14] Z. Chen, J. Cao, Y. Cao, Y. Zhang, F. Gu, G. Zhu, Z. Hong, B. Wang, and A. Cichocki. "An Empirical EEG Analysis in Brain Death Diagnosis for Adults", *Cognitive Neurodynamics*, 2, 257-271 (2008).

- [15] A. Cichocki, M. Jankovic, R. Zdunek, and S. Amari. "Sparse Super Symmetric Tensor Factorization", Lecture Notes in Computer Science, Neural Information Processing, Springer LNCS-4984, 781-790 (2008).
- [16] A. Cichocki, A-H. Phan, R. Zdunek, and L.Q. Zhang. "Flexible Component Analysis for Sparse, Smooth, Nonnegative Coding or Representation", Lecture Notes in Computer Science, Neural Information Processing, Springer, LNCS-4984, 811-820 (2008).
- [17] A. Cichocki, R. Zdunek, and S. Amari. "Nonnegative Matrix and Tensor Factorization", IEEE Signal Processing Magazine, January, 142-145 (2008).
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- [19] A. Cichocki, Y. Washizawa, T. Rutkowski, H. Bakardjian, A-H. Phan, S. Choi, H. Lee, Q. Zhao, Z. Liqing, and Y. Li. "Noninvasive BCIs: Multiway Signal-processing Array Decompositions", Computer, (invited paper), 41 (10), 34-42 (2008).
- [20] J. Dauwels, F. Vialatte, and A. Cichocki. "A Comparative Study of Synchrony Measures for the Early Detection of Alzheimer's Disease Based on EEG", Lecture Notes in Computer Science, Neural Information Processing, Springer, LNCS-4984, 112-125 (2008).
- [21] Z. He, S. Xie, L. Zhang, and A. Cichocki. "A note on Lewicki-Sejnowski Gradient for Learning Overcomplete Representations", Neural Computation, 20(3), 636-643 (2008).
- [22] Z. He, A. Cichocki, R. Zdunek, and J. Cao. "CG-M-FOCUSS and Its Application to Distributed Compressed Sensing", Lecture Notes in Computer Science, Advances in Neural Networks, Springer LNCS-5263, 237-245 (2008).
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