

Qibin Zhao

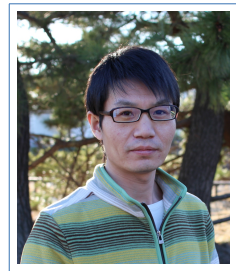
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Education

- 2004 – 2009 **Ph.D. in Computer Science and Engineering**, *Shanghai Jiao Tong University*, Shanghai, *China*.
- 2001 – 2004 **M.S. in Computer Science**, *Guangxi University*, Nanning, *China*.
- 1996 – 2000 **B.S. in Computer Science**, *Henan University of Science and Technology*, Luoyang, *China*.

Experience

Research

2009

Research Scientist, *Laboratory for Advanced Brain Signal Processing, Brain Science Institute, RIKEN*, Saitama, Japan.

2009

Visiting Researcher, *Department of Computer Science and Engineering, Shanghai Jiao Tong University*, Shanghai, *China*.

2009

2012

Visiting Research Scientist, *Noninvasive BMI Unit, BSI-TOYOTA Collaboration Center, RIKEN*, Saitama, Japan.

Miscellaneous

Oct-Nov 2008

Intern, *RIKEN Brain Science Institute*, Saitama, Japan.

Nov 2007-2008

Technical Staff, *RIKEN Brain Science Institute*, Saitama, Japan.

Jul-Sep 2007

Summer Program Intern, *RIKEN Brain Science Institute*, Saitama, Japan.

Teaching

2005

Teaching Assistant, *Artificial Intelligence*, Department of Computer Science and Engineering, *Shanghai Jiao Tong University*.

2004

Teaching Assistant, *Computer Networks, Computer Program Design*, *Guangxi University*.

Languages and Skills

Language

- Chinese – Native
- English – Fluent

Computer skills

- Matlab, Latex
- C/C++, JAVA, HTML, Javascript,
- SQL, CISCO CCNA

Research Interests

Computer Science Machine Learning, Tensor Decomposition, Kernel Machines, Bayesian Learning,
Neuroscience Brain Computer Interface, Brain Signal Processing, Neural Computation

Research Grants

2012 – 2013 **Principal Investigator**, *Multilinear Subspace Regression and Its Application in BCI*, Grant No: 24700154, JSPS KAKENHI, Japan.

Awards and Honors

- 2011 **Nomination Award**, *Annual BCI Research Award*, <http://www.bci-award.com/>.
“An affective BCI using multiple ERP components associated to facial emotion processing”
- 2010 **Best Paper Award**, *International Conference of ICONIP*, APNNA.
“A tongue-machine interface: Detection of tongue positions by glossokinetic potentials”

Professional Association Memberships

2012 – 2013 Membership of IEEE, IEEE Computer Society and IEEE Communications Society

Professional Activities

Reviewer of Journals IEEE Transactions on Neural Networks and Learning Systems (IEEE TNNLS), IEEE Transactions on Signal Processing (IEEE TSP), IEEE Transactions on Systems, Man, and Cybernetics–Part C, Neurocomputing (IEEE TSMC), Journal of Neuroscience Methods, Neural Computing & Applications, Cognitive Computation, Cognitive Neurodynamics, Computers in Biology and Medicine

Reviewer of International Conferences International Conference on Acoustics, Speech, and Signal Processing (ICASSP), International Conference on Neural Information Processing (ICONIP)

List of Publications

Journal Papers

Q. Zhao, G. Zhou, T. Adali, L. Zhang, and A. Cichocki. Kernelization of tensor-based models for multiway data analysis. *IEEE Signal Processing Magazine*, 30(4):137–148, 2013.

Q. Zhao, C.F. Caiafa, D.P. Mandic, Z.C. Chao, Y. Nagasaka, N. Fujii, L. Zhang, and A. Cichocki. Higher-order partial least squares (HOPLS): A generalized multi-linear regression method. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 35(7):1660–1673, 2013.

Y. Zhang, G. Zhou, **Q. Zhao**, J. Jin, X. Wang, and A. Cichocki. Spatial-temporal discriminant analysis for ERP-based brain-computer interface. *IEEE transactions on neural systems and rehabilitation engineering*, 21(2):233–243, 2013.

J. Li, J. Liang, **Q. Zhao**, J. Li, K. Hong, and L. Zhang. Design of assistive wheelchair system directly steered by human system. *International Journal of Neural Systems*, 23(3):1350013, 2013.

F. Cong, A. Phan, P. Astikainen, **Q. Zhao**, Q. Wu, J. Hietanen, T. Ristaniemi, and A. Cichocki. Multi-domain feature extraction for small event-related potentials through nonnegative multi-way array decomposition from low dense array EEG. *International Journal of Neural Systems*, 23(2):1350006, 2013.

Y. Zhang, **Q. Zhao**, J. Jin, X. Wang, and A. Cichocki. A novel BCI based on ERP components sensitive to configural processing of human faces. *Journal of Neural Engineering*, 9(2):026018, 2012.

Y. Nam, **Q. Zhao**, A. Cichocki, and S. Choi. Tongue-rudder: A glossokinetic-potential-based tongue-machine interface. *IEEE Transactions on Biomedical Engineering*, 59(1):290–299, 2012.

F Cong, AH Phan, **Q Zhao**, T Huttunen-Scott, J Kaartinen, T Ristaniemi, H Lyytinen, and A Cichocki. Benefits of multi-domain feature of mismatch negativity extracted by nonnegative tensor factorization from low-density array EEG. *International Journal of Neural Systems*, 22(4):1250025, 2012.

F. Cong, A. H. Phan, **Q. Zhao**, Q. Wu, T. Ristaniemi, and A. Cichocki. Feature extraction by nonnegative Tucker decomposition from EEG data including testing and training observations. *Lecture Notes in Computer Science*, 7665:166–173, 2012.

F. Cong, A. Phan, P. Astikainen, **Q. Zhao**, J. Hietanen, T. Ristaniemi, and A. Cichocki. Multi-domain feature of event-related potential extracted by nonnegative tensor factorization: 5 vs. 14 electrodes EEG data. *Lecture Notes in Computer Science*, 7191:502–510, 2012.

Q. Zhao, A. Onishi, Y. Zhang, J. Cao, L. Zhang, and A. Cichocki. A novel oddball paradigm for affective BCIs using emotional faces as stimuli. *Lecture Notes in Computer Science*, 7062:279–286, 2011.

Y. Zhang, G. Zhou, **Q. Zhao**, A. Onishi, J. Jin, X. Wang, and A. Cichocki. Multiway canonical correlation analysis for frequency components recognition in SSVEP-based BCIs. *Lecture Notes in Computer Science*, 7062:287–295, 2011.

Q. Zhao, T.M. Rutkowski, L. Zhang, and A. Cichocki. Generalized optimal spatial filtering using a kernel approach with application to EEG classification. *Cognitive neurodynamics*, 4(4):355–358, 2010.

Y. Nam, **Q. Zhao**, A. Cichocki, and S. Choi. A tongue-machine interface: detection of tongue positions by glossokinetic potentials. *Lecture Notes in Computer Science*, 6444:34–41, 2010.

Y. Nam, H. Kang, **Q. Zhao**, A. Cichocki, and S. Choi. Mind flipper: An EEG-based brain computer interface for page-turning during presentation. *Australian Journal of Intelligent Information Processing Systems*, 11(3):1–6, 2010.

Q. Zhao, L. Zhang, and A. Cichocki. EEG-based asynchronous BCI control of a car in 3d virtual reality environments. *Chinese Science Bulletin*, 54(1):78–87, 2009.

Q. Zhao, C. Caiafa, A. Cichocki, L. Zhang, and A. Phan. Slice oriented tensor decomposition of EEG data for feature extraction in space, frequency and time domains. *Lecture Notes in computer Science*, 5863:221–228, 2009.

J. Li, L. Zhang, D. Tao, H. Sun, and **Q. Zhao**. A prior neurophysiologic knowledge free tensor-based scheme for single trial EEG classification. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 17(2):107–115, 2009.

A. Cichocki, Y. Washizawa, T. Rutkowski, H. Bakardjian, A.H. Phan, S. Choi, H. Lee, **Q. Zhao**, L. Zhang, and Y. Li. Noninvasive BCIs: Multiway signal-processing array decompositions. *Computer*, 41(10):34–42, 2008.

Q. Zhao and L. Zhang. Temporal and spatial features of single-trial EEG for brain-computer interface. *Computational intelligence and neuroscience*, 2007:1–14, 2007.

Z.L. Zhang, L. Zhang, X.L. Wu, J. Li, and **Q. Zhao**. Two-stage temporally correlated source extraction algorithm with its application in extraction of event-related potentials. *Lecture Notes in Computer Science*, 4233:523–532, 2006.

Conference Proceedings/Book chapters

Q. Zhao, G. Zhou, T. Adali, L. Zhang, and A. Cichocki. Kernel-based tensor partial least squares for reconstruction of limb movements. In *IEEE International Conference on Acoustics, Speech and Signal Processing. ICASSP 2013.*, pages 3577–3581, 2013.

Q. Zhao, L. Zhang, and A. Cichocki. A tensor-variate Gaussian process for classification of multidimensional structured data. In *Proceedings of the Twenty-Seventh AAAI Conference on Artificial Intelligence*, 2013.

- Q. Zhao**, A. Onishi, Y. Zhang, and A. Cichocki. An affective BCI using multiple ERP components associated to facial emotion processing. In *Brain-Computer Interface Research*, volume 7, pages 61–72. Springer Berlin Heidelberg, 2013.
- G. Zhou, Z. He, Y. Zhang, **Q. Zhao**, and A. Cichocki. Canonical polyadic decomposition: From 3-way to N-way. In *International Conference on Computational Intelligence and Security (CIS)*, pages 391–395. IEEE, 2012.
- Q. Zhao**, L. Zhang, J. Cao, and A. Cichocki. Higher-order PLS for classification of ERPs with application to BCIs. In *Proceedings of the 2012 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC)*, pages 1–5. IEEE, 2012.
- Y. Zhang, **Q. Zhao**, G. Zhou, X. Wang, and A. Cichocki. Regularized CSP with Fisher’s criterion to improve classification of single-trial ERPs for BCI. In *International Conference on Fuzzy Systems and Knowledge Discovery (FSKD)*, pages 891–895. IEEE, 2012.
- F. Cong, G. Zhou, **Q. Zhao**, Q. Wu, A.K. Nandi, T. Ristaniemi, and A. Cichocki. Sequential nonnegative Tucker decomposition on multi-way array of time-frequency transformed event-related potentials. In *IEEE International Workshop on Machine Learning for Signal Processing (MLSP)*, pages 1–6, 2012.
- F. Cong, A.H. Phan, **Q. Zhao**, A.K. Nandi, V. Alluri, P. Toivainen, H. Poikonen, M. Huottilainen, A. Cichocki, and T. Ristaniemi. Analysis of ongoing EEG elicited by natural music stimuli using nonnegative tensor factorization. In *Proceedings of the 20th European Signal Processing Conference (EUSIPCO)*, pages 494–498. IEEE, 2012.
- Q. Zhao**, T. M Rutkowski, A. Cichocki, and L. Zhang. High resolution common spatial frequency filters for classifying multi-class EEG. In *Advances in Cognitive Neurodynamics (II)*, pages 683–688. Springer, 2011.
- Q. Zhao**, C. F Caiafa, D. P Mandic, L. Zhang, T. Ball, A. Schulze-Bonhage, and A. Cichocki. Multilinear subspace regression: An orthogonal tensor decomposition approach. In *Advances in Neural Information Processing systems 24 (NIPS)*, pages 1269–1277, 2011.
- H. Sun, L. Zhang, J. Li, and **Q. Zhao**. EEG based brain-computer interface system for remote vehicle controlling. In *Advances in Cognitive Neurodynamics (II)*, pages 695–699. Springer, 2011.
- T. M Rutkowski, **Q. Zhao**, A. Cichocki, and D. P Tanaka, T. and Mandic. Towards affective BCI/BMI paradigms—analysis of fEEG and fNIRS brain responses to emotional speech and facial videos. In *Advances in Cognitive Neurodynamics (II)*, pages 671–675. Springer, 2011.
- A. Onishi, Y. Zhang, **Q. Zhao**, and A. Cichocki. Fast and reliable P300-based BCI with facial images. In *Proceedings of the 5th International Brain-Computer Interface Conference*, 2011.

T.M. Rutkowski, T. Tanaka, **Q. Zhao**, and A. Cichocki. Spatial auditory BCI/BMI paradigm-multichannel EMD approach to brain responses estimation. In *Proceedings of the Second APSIPA Annual Summit and Conference*, pages 197–202, 2010.

Q. Zhao, L. Zhang, and A. Cichocki. Multilinear generalization of common spatial pattern. In *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pages 525–528. IEEE, 2009.

Q. Zhao, L. Zhang, and A. Cichocki. Common tensor discriminative analysis for EEG classification. In *Proceedings of the 2009 International Symposium on Nonlinear Theory and its Applications (NOLTA)*, pages 443–446, 2009.

Q. Zhao, L. Zhang, and J. Li. Multi-task BCI for online game control. In *Autonomous Systems - Self-Organization, Management, and Control*, pages 29–37. Springer, 2008.

Q. Zhao, L. Zhang, A. Cichocki, and J. Li. Incremental common spatial pattern algorithm for BCI. In *IEEE International Joint Conference on Neural Networks (IJCNN)*, pages 2656–2659. IEEE, 2008.

J. Li, L. Zhang, and **Q. Zhao**. Pattern classification of visual evoked potentials based on parallel factor analysis. In *International Conference on Neural Networks (ICNN)*, pages 571–575. Springer, 2008.

X. Jiang, L. Zhang, **Q. Zhao**, and S. Albayrak. ECG arrhythmias recognition system based on independent component analysis feature extraction. In *IEEE Region 10 Conference TENCN*, pages 1–4. IEEE, 2006.

Q. Zhao and L. Zhang. ECG feature extraction and classification using wavelet transform and support vector machines. In *International Conference on Neural Networks and Brain, 2005. ICNN&B'05*, volume 2, pages 1089–1092. IEEE, 2005.