

List of Publications

Tensor Learning Unit, RIKEN AIP

<https://qibinzhao.github.io>

Conference Papers

- 2020**
- [1] C. Li, M. E. Khan, Z. Sun, G. Niu, B. Han, S. Xie, and Q. Zhao. 2020, “Beyond unfolding: Exact recovery of latent convex tensor decomposition under reshuffling,” in *AAAI 2020*, (In Press).
 - [2] Q. Shi, J. Yin, J. Cai, A. Cichocki, T. Yokota, L. Chen, M. Yuan, and J. Zeng. 2020, “Block hankel tensor arima for multiple short time series forecasting,” in *AAAI 2020*, (In Press).
 - [3] A. Wang, C. Li, Z. Jin, and Q. Zhao. 2020, “Robust tensor decomposition via orientation invariant tubal nuclear norms,” in *AAAI 2020*, (In Press).
- 2019**
- [4] F. Aminmansour, A. Patterson, L. Le, Y. Peng, D. Mitchell, F. Pestilli, C. Caiafa, R. Greiner, and M. White. 2019, “Learning macroscopic brain connectomes via group-sparse factorization,” in *Advances in Neural Information Processing Systems 32 (NIPS 2019)*, pp. 8847–8857.
 - [5] Q. Chen, L. Yuan, Y. Miao, Q. Zhao, T. Tanaka, and J. Cao. 2019, “Quasi-brain-death eeg diagnosis based on tensor train decomposition,” in *International Symposium on Neural Networks (ISNN)*, Springer, pp. 501–511.
 - [6] W. He, Q. Yao, C. Li, N. Yokoya, and Q. Zhao. 2019, “Non-local meets global: An integrated paradigm for hyperspectral denoising,” in *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 6868–6877.
 - [7] W. He, L. Yuan, and N. Yokoya. 2019, “Total-variation-regularized tensor ring completion for remote sensing image reconstruction,” in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, pp. 8603–8607.
 - [8] M. Hou, J. Tang, J. Zhang, W. Kong, and Q. Zhao. 2019, “Deep multimodal multilinear fusion with high-order polynomial pooling,” in *Advances in Neural Information Processing Systems 32 (NIPS 2019)*, pp. 12 113–12 122.
 - [9] B. Li, X. Zhao, Q. Zhao, T. Tanaka, and J. Cao. 2019, “A one-dimensional convolutional neural network model for automated localization of epileptic foci,” in *APSIPA 2019 (In Press)*.
 - [10] C. Li, W. He, L. Yuan, Z. Sun, and Q. Zhao. 2019, “Guaranteed matrix completion under multiple linear transformations,” in *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 11 136–11 145.
 - [11] C. Li, Z. Sun, J. Yu, M. Hou, and Q. Zhao. 2019, “Low-rank embedding of kernels in convolutional neural networks under random shuffling,” in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, pp. 3022–3026.

- [12] P. P. Liang, Z. Liu, Y.-H. H. Tsai, Q. Zhao, R. Salakhutdinov, and L.-P. Morency. 2019, "Learning representations from imperfect time series data via tensor rank regularization," in *Proceedings of the Annual Meeting of the Association for Computational Linguistics (ACL)*, pp. 1569–1576.
- [13] L. Sui, X. Zhao, Q. Zhao, T. Tanaka, and J. Cao. 2019, "Localization of epileptic foci by using convolutional neural network based on ieeg," in *Artificial Intelligence Applications and Innovations (AIAI)*, Springer International Publishing, pp. 331–339.
- [14] A. Wang, X. Song, X. Wu, Z. Lai, and Z. Jin. 2019, "Generalized dantzig selector for low-tubal-rank tensor recovery," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, pp. 3427–3431.
- [15] A. Wang, X. Song, X. Wu, Z. Lai, and Z. Jin. 2019, "Latent Schatten TT norm for tensor completion," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, pp. 2922–2926.
- [16] A. Wang, X. Song, X. Wu, Z. Lai, and Z. Jin. 2019, "Robust low-tubal-rank tensor completion," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, pp. 3432–3436.
- [17] T. Yokota, K. Kawai, M. Sakata, Y. Kimura, and H. Hontani. 2019, "Dynamic pet image reconstruction using nonnegative matrix factorization incorporated with deep image prior," in *The IEEE International Conference on Computer Vision (ICCV)*, pp. 3126–3135.
- [18] J. Yu, C. Li, Q. Zhao, and G. Zhao. 2019, "Tensor-ring nuclear norm minimization and application for visual : Data completion," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pp. 3142–3146. DOI: 10.1109/ICASSP.2019.8683115.
- [19] L. Yuan, C. Li, J. Cao, and Q. Zhao. 2019, "Randomized tensor ring decomposition and its application to large-scale data reconstruction," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pp. 2127–2131.
- [20] L. Yuan, C. Li, D. Mandic, J. Cao, and Q. Zhao. 2019, "Tensor ring decomposition with rank minimization on latent space: An efficient approach for tensor completion," in *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI)*, vol. 33, pp. 9151–9158.
- [21] Q. Zhao, M. Sugiyama, L. Yuan, and A. Cichocki. 2019, "Learning efficient tensor representations with ring-structured networks," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, pp. 8608–8612.
- 2018 [22] X. Cao, X. Zhao, and Q. Zhao. 2018, "Tensorizing generative adversarial nets," in *The Third International Conference On Consumer Electronics (ICCE) Asia*, pp. 206–212.
- [23] M. Hou, B. Chaib-draa, C. Li, and Q. Zhao. 2018, "Generative adversarial positive-unlabeled learning," in *Proceedings of the Twenty-Seventh International Joint Conference on Artificial Intelligence (IJCAI-18)*, pp. 2255–2261.
- [24] X. Kong, W. Kong, Q. Fan, Q. Zhao, and A. Cichocki. 2018, "Task-independent EEG identification via low-rank matrix decomposition," in *The IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, pp. 412–419.

- [25] T. M. Rutkowski, Q. Zhao, M. S. Abe, and M. Otake. 2018, "AI neurotechnology for aging societies—task-load and dementia EEG digital biomarker development using information geometry machine learning methods," in *NeurIPS Workshop*.
- [26] J. Yu, G. Zhou, Q. Zhao, and K. Xie. 2018, "An effective tensor completion method based on multi-linear tensor ring decomposition," in *APSIPA-ASC 2018*, pp. 1244–1349.
- [27] L. Yuan, J. Cao, X. Zhao, Q. Wu, and Q. Zhao. 2018, "Higher-dimension tensor completion via low-rank tensor ring decomposition," in *APSIPA-ASC 2018*, pp. 1071–1076.
- [28] L. Yuan, Q. Zhao, and J. Cao. 2018, "High-order tensor completion for data recovery via sparse tensor-train optimization," in *2018 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, pp. 1258–1262.
- [29] Q. Zhao, M. Sugiyama, L. Yuan, and A. Cichocki. 2018, "Learning efficient tensor representations with ring structure networks," in *Sixth International Conference on Learning Representations (ICLR Workshop)*.
- [30] X. Zhao, T. Tanaka, W. Kong, Q. Zhao, J. Cao, H. Sugano, and N. Yoshida. 2018, "Epileptic focus localization based on iEEG by using positive unlabeled (PU) learning," in *APSIPA-ASC 2018*, pp. 493–497.
- [31] X. Zhao, Q. Zhao, T. Tanaka, J. Cao, W. Kong, H. Sugano, and N. Yoshida. 2018, "Detection of epileptic foci based on interictal iEEG by using convolutional neural network," in *The 23rd International Conference on Digital Signal Processing (DSP)*.
- [32] X. Zhao, G. Cui, L. Yuan, T. Tanaka, Q. Zhao, and J. Cao. 2018, "A hybrid brain computer interface based on audiovisual stimuli p300," in *The Third International Conference On Consumer Electronics (ICCE) Asia*, pp. 206–212.
- 2017 [33] G. Cui, L. Zhu, Q. Zhao, J. Cao, and A. Cichocki. 2017, "A graph theory analysis on distinguishing EEG-based brain death and coma," in *International Conference on Neural Information Processing (ICONIP)*, ser. Lecture Notes in Computer Science, Springer, vol. 10637, pp. 589–595.
- [34] L. Gui, Q. Zhao, and J. Cao. 2017, "Brain image completion by Bayesian tensor decomposition," in *Proceedings of 22nd International Conference on Digital Signal Processing (DSP)*, IEEE, pp. 1–4.
- [35] Q. Shi, Y.-m. Cheung, and Q. Zhao. 2017, "Feature extraction for incomplete data via low-rank Tucker decomposition," in *Joint European Conference on Machine Learning and Knowledge Discovery in Databases (ECML PKDD)*, ser. Lecture Notes in Computer Science, IEEE, vol. 10534, pp. 564–581.
- [36] Y. Xin, Q. Wu, Q. Zhao, and Q. Wu. 2017, "Semi-supervised regularized discriminant analysis for EEG-based BCI system," in *International Conference on Intelligent Data Engineering and Automated Learning (IDEAL)*, Springer, pp. 516–523.
- [37] L. Yuan, Q. Zhao, and J. Cao. 2017, "Completion of high order tensor data with missing entries via tensor-train decomposition," in *International Conference on Neural Information Processing (ICONIP)*, ser. Lecture Notes in Computer Science, Springer, vol. 10634, pp. 222–229.

Journal Papers

- 2020 [38] G. Cui, L. Zhu, L. Gui, Q. Zhao, J. Zhang, and J. Cao. 2020, "Multidimensional clinical data denoising via Bayesian CP factorization," *Science China Technological Sciences*, vol. 63, no. 2, p. 2,
- [39] X. Song, W. Xu, K. Hayami, and N. Zheng. 2020, "Secant variable projection method for solving nonnegative separable least squares problems," *Numerical Algorithms*, (In Press),
- 2019 [40] S. Al-Baddai, P. Marti-Puig, E. Gallego-Jutglà, K. Al-Subari, A. M. Tomé, B. Ludwig, E. W. Lang, and J. Solé-Casals. 2019, "A recognition–verification system for noisy faces based on an empirical mode decomposition with green's functions," *Soft Computing*, pp. 1–19,
- [41] W. He, N. Yokoya, L. Yuan, and Q. Zhao. 2019, "Remote sensing image reconstruction using tensor ring completion and total variation," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 57, no. 11, pp. 8998–9009,
- [42] M. Iwata, L. Yuan, Q. Zhao, Y. Tabei, F. Berenger, R. Sawada, S. Akiyoshi, M. Hamano, and Y. Yamanishi. 2019, "Predicting drug-induced transcriptome responses of a wide range of human cell lines by a novel tensor-train decomposition algorithm," *Bioinformatics*, vol. 35, no. 14, pp. i191–i199,
- [43] W. Kong, X. Kong, Q. Fan, Q. Zhao, and A. Cichocki. 2019, "Task-free brainprint recognition based on low-rank and sparse decomposition model," *International Journal of Data Mining and Bioinformatics (IJDMB)*, vol. 22, no. 3, pp. 280–300,
- [44] Q. Shi, Y. Cheung, Q. Zhao, and H. Lu. 2019, "Feature extraction for incomplete data via low-rank tensor decomposition with feature regularization," *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, vol. 30, no. 6, pp. 1803 –1817,
- [45] L. A. Suad, C. F. Caiafa, S. Cichowolski, and E. M. Arnal. 2019, "Galactic hi supershells: Kinetic energies and possible origin," *Astronomy and Astrophysics*, vol. 624, no. A&A, pp. 1–11,
- [46] L. Sui, X. Zhao, J. Cao, and Q. Zhao. 2019, "Localization of epileptic foci from ieeg via mixed convolutional neural network," *International Journal of Latest Trends in Engineering and Technology*, vol. 14, no. 4, pp. 8–13,
- [47] L. Yuan, J. Cao, and Q. Zhao. 2019, "Tensor ring decomposition for visual data denoising via tensor random projection," *International Journal of Latest Trends in Engineering and Technology*, vol. 13, no. 2, pp. 102–107,
- [48] L. Yuan, C. Li, J. Cao, and Q. Zhao. 2019, "Rank minimization on tensor ring: An efficient approach for tensor decomposition and completion," *Machine Learning*, pp. 1–20,
- [49] L. Yuan, Q. Zhao, L. Gui, and J. Cao. 2019, "High-order tensor completion via gradient-based optimization under tensor train format," *Signal Processing: Image Communication*, vol. 73, pp. 53–61,
- [50] X. Zhao, L. Gui, J. Cao, and Q. Zhao. 2019, "Epileptic focus localization based on entropy and convolutional neural network," *International Journal of Latest Trends in Engineering and Technology*, vol. 14, no. 4, pp. 14–17,

- [51] L. Zhu, G. Cui, J. Cao, A. Cichocki, J. Zhang, and C. Zhou. 2019, "A hybrid system for distinguishing between brain death and coma using diverse eeg features," *Sensors*, vol. 19, no. 6, p. 1342,
- 2018 [52] L. Gui, X. Zhao, Q. Zhao, and J. Cao. 2018, "Image and video completion by using Bayesian tensor decomposition," *International Journal of Computer Science Issues (IJCSI)*, vol. 15, no. 5, pp. 1–8,
- [53] L. Gui, X. Zhao, Q. Zhao, and J. Cao. 2018, "Non-local image denoising by using Bayesian low-rank tensor factorization on high-order patches," *International Journal of Computer Science Issues (IJCSI)*, vol. 15, no. 5, pp. 16–25,
- [54] W. Kong, L. Wang, J. Zhang, Q. Zhao, and J. Sun. 2018, "The dynamic EEG microstates in mental rotation," *Sensors*, vol. 18, no. 9, p. 2920,
- [55] Y. Kumagai, R. Matsui, and T. Tanaka. 2018, "Music familiarity affects EEG entrainment when little attention is paid," *Frontiers in Human Neuroscience*, vol. 12, p. 444,
- [56] J. Lin, W. Chen, C. Shen, M. Chiu, Y. Kao, F. Lai, Q. Zhao, and A. Cichocki. 2018, "Visualization and sonification of long-term epilepsy electroencephalogram monitoring," *Journal of Medical and Biological Engineering*, vol. 38, no. 6, 943—952,
- [57] Y. Qiu, G. Zhou, Q. Zhao, and A. Cichocki. 2018, "Comparative study on the classification methods for breast cancer diagnosis," *Bulletin of the Polish Academy of Sciences. Technical Sciences*, vol. 66, no. 6, pp. 841–848,
- [58] J. Solé-Casals, C. F. Caiafa, Q. Zhao, and A. Cichocki. 2018, "Brain-computer interface with corrupted EEG data: A tensor completion approach," *Cognitive Computation*, vol. 10, no. 6, 1062—1074,
- [59] Y. Zhang, D. Guo, and F. Li, *et al.* 2018, "Correction to "correlated component analysis for enhancing the performance of SSVEP-based brain-computer interface",," *IEEE Transactions on Neural Systems and Rehabilitation Engineering (TNSRE)*, vol. 26, no. 8, pp. 1645–1646,
- [60] Y. Zhang, E. Yin, F. Li, Y. Zhang, T. Tanaka, Q. Zhao, Y. Cui, P. Xu, D. Yao, and D. Guo. 2018, "Two-stage frequency recognition method based on correlated component analysis for SSVEP-based BCI," *IEEE Transactions on Neural Systems and Rehabilitation Engineering (TNSRE)*, vol. 26, no. 7, pp. 1314–1323,
- [61] Y. Zhang, D. Guo, F. Li, E. Yin, Y. Zhang, P. Li, Q. Zhao, T. Tanaka, D. Yao, and P. Xu. 2018, "Correlated component analysis for enhancing the performance of SSVEP-based brain-computer interface.," *IEEE Transactions on Neural Systems and Rehabilitation Engineering (TNSRE)*, vol. 26, no. 5, pp. 948–956,

Book

- 2017 [62] A. Cichocki, A.-H. Phan, Q. Zhao, N. Lee, I. Oseledets, M. Sugiyama, and D. P. Mandic, *et al.* 2017, *Tensor networks for dimensionality reduction and large-scale optimization: Part 2 applications and future perspectives*, ser. Foundations and Trends® in Machine Learning 6. Now Publishers, Inc., vol. 9, pp. 431–673.