List of Publications

Tensor Learning Team, RIKEN AIP https://qibinzhao.github.io

Conference Papers

- 2023 [1] C. Li, J. Zeng, C. Li, C. F. Caiafa, and Q. Zhao, "Alternating local enumeration (tnale): Solving tensor network structure search with fewer evaluations," in *International Conference on Machine Learning (ICML)*, PMLR, 2023, pp. 20384–20411.
 - [2] Z. Lin, H. Huang, Y. Yu, G. Zhou, and Q. Zhao, "Consistent anchor induced multi-view deep matrix factorization," in *The 42nd Chinese Control Conference (CCC)*, IEEE, 2023, pp. 7633–7637.
 - [3] Z. Tao, T. Tanaka, and Q. Zhao, "Undirected probabilistic model for tensor decomposition," in *Thirty-seventh Conference on Neural Information Processing Systems (NeurIPS)*, 2023.
 - [4] A. Wang, C. Li, M. Bai, Z. Jin, G. Zhou, and Q. Zhao, "Transformed low-rank parameterization can help robust generalization for tensor neural networks," in *Thirty-seventh Conference on Neural Information Processing Systems (NeurIPS)*, 2023.
 - [5] J. Zhang, Y. Hong, and Q. Zhao, "Memorization weights for instance reweighting in adversarial training," in *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI)*, vol. 37, 2023, pp. 11228–11236.
 - [6] D. Zhou, M. Bai, and Q. Zhao, "Tendiffpure: Tensorizing diffusion models for purification," in *ICML Workshop on New Frontiers in Learning, Control, and Dynamical Systems*, 2023.
- 2022 [7] M. Bai, J. Chen, Q. Zhao, C. Li, J. Zhang, and J. Gao, "Tensor neural controlled differential equations," in 2022 International Joint Conference on Neural Networks (IJCNN), IEEE, 2022, pp. 1–9.
 - [8] Y. Hong, L. Niu, and J. Zhang, "Shadow generation for composite image in real-world scenes," in *Thirty-Sixth AAAI Conference on Artificial Intelligence, AAAI 2022*, 2022, pp. 914– 922.
 - [9] H. Huang, Y. Luo, G. Zhou, and Q. Zhao, "Multi-view data representation via deep autoencoder-like nonnegative matrix factorization," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, 2022, pp. 3338–3342.
 - [10] R. J. Kobler, J.-i. Hirayama, Q. Zhao, and M. Kawanabe, "Spd domain-specific batch nor-malization to crack interpretable unsupervised domain adaptation in eeg," in *NeurIPS 2022*, 2022.
 - [11] K. Konstantinidis, Y. L. Xu, Q. Zhao, and D. P. Mandic, "Variational Bayesian tensor networks with structured posteriors," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, 2022, pp. 3638–3642.
 - [12] C. Li, J. Zeng, Z. Tao, and Q. Zhao, "Permutation search of tensor network structures via local sampling," in *International Conference on Machine Learning (ICML)*, PMLR, 2022, pp. 13106–13124.

- [13] Y. Li, Z. Sun, and C. Li, "Are we pruning the correct channels in image-to-image translation models," in *The 33rd British Machine Vision Conference (BMVC) Proceedings*, 2022.
- [14] S. Mo, Z. Sun, and C. Li, "Rethinking prototypical contrastive learning through alignment, uniformity and correlation," in *The 33rd British Machine Vision Conference (BMVC) Proceedings*, 2022.
- [15] H. Takayama and T. Yokota, "Fast signal completion algorithm with cyclic convolutional smoothing," in 2022 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC), IEEE, 2022, pp. 364–371.
- [16] J. Tang, K. Li, M. Hou, X. Jin, W. Kong, Y. Ding, and Q. Zhao, "Mmt: Multi-way multi-modal transformer for multimodal learning," in *IJCAI*, 2022.
- [17] W. Wang, L. Niu, J. Zhang, X. Yang, and L. Zhang, "Dual-path image inpainting with auxiliary GAN inversion," in *IEEE/CVF Conference on Computer Vision and Pattern Recognition CVPR 2022*, 2022, pp. 11411–11420.
- [18] R. Yamamoto, H. Hontani, A. Imakura, and T. Yokota, "Consistent mdt-tucker: A hankel structure constrained tucker decomposition in delay embedded space," in 2022 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC), IEEE, 2022, pp. 137–142.
- [19] R. Yamamoto, H. Hontani, A. Imakura, and T. Yokota, "Fast algorithm for low-rank tensor completion in delay-embedded space," in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022, pp. 2058–2066.
- 2021 [20] M. Bai, Q. Zhao, and J. Gao, "Tensorial time series prediction via tensor neural ordinary differential equations," in 2021 International Joint Conference on Neural Networks (IJCNN), IEEE, 2021, pp. 1–8.
 - [21] C. F. Caiafa, Z. Wang, J. Sole-Casals, and Q. Zhao, "Learning from incomplete features by simultaneous training of neural networks and sparse coding," in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, 2021, pp. 2621–2630.
 - [22] Z. Huang, Y. Qiu, Q. Zhao, and G. Zhou, "Bayesian robust Tucker decomposition for multiway data analysis," in 2021 China Automation Congress (CAC), IEEE, 2021, pp. 5559–5564.
 - [23] Z. Huang, C. Li, F. Duan, and Q. Zhao, "Multi-distorted image restoration with tensor 1 x 1 convolutional layer," in *2021 International Joint Conference on Neural Networks (IJCNN)*, IEEE, 2021, pp. 1–8.
 - [24] Q. Jiang, Y. Yu, Q. Zhao, and W. Sun, "Semi-supervised robust dual-graph concept factorization via $L_{2,1}$ norm," in 2021 Chinese Automation Congress (CAC), 2021.
 - [25] H. Qiu, C. Li, Y. Weng, Z. Sun, X. He, and Q. Zhao, "On the memory mechanism of tensor-power recurrent models," in *International Conference on Artificial Intelligence and Statistics* (AISTATS'21), PMLR, 2021, pp. 3682–3690.

- [26] Z. Sun, C. Li, and Q. Zhao, "Hide chopin in the music: Efficient information steganography via random shuffling," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, 2021, pp. 2370–2374.
- [27] J. Tang, K. Li, X. Jin, A. Cichocki, Q. Zhao, and W. Kong, "CTFN: Hierarchical learning for multimodal sentiment analysis using coupled-translation fusion network," in *Proceedings* of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (Volume 1: Long Papers), 2021, pp. 5301–5311.
- [28] Z. Tao, X. Zhao, T. Tanaka, and Q. Zhao, "Bayesian latent factor model for higher-order data," in *Proceedings of The 13th Asian Conference on Machine Learning (ACML)*, ser. Proceedings of Machine Learning Research, vol. 157, PMLR, 2021, pp. 1285–1300.
- [29] W. Wang, J. Zhang, L. Niu, H. Ling, X. Yang, and L. Zhang, "Parallel multi-resolution fusion network for image inpainting," in *IEEE/CVF International Conference on Computer Vision*, *ICCV 2021*, IEEE, 2021, pp. 14539–14548.
- [30] J. Zhang, Z. Tao, L. Zhang, and Q. Zhao, "Tensor decomposition via core tensor networks," in *ICASSP 2021-2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, 2021, pp. 2130–2134.
- [31] X. Zhao, J. Solé-Casals, Q. Zhao, J. Cao, and T. Tanaka, "Multi-feature fusion for epileptic focus localization based on tensor representation," in 2021 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC), IEEE, 2021, pp. 1323–1327.
- [32] X. Zhao, S. Takata, K. Fukumori, and T. Tanaka, "Infant posture assessment based on rotational keypoint detection," in *2021 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC)*, IEEE, 2021, pp. 1546–1550.
- [33] Y.-B. Zheng, T.-Z. Huang, X.-L. Zhao, Q. Zhao, and T.-X. Jiang, "Fully-connected tensor network decomposition and its application to higher-order tensor completion," in *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI'21)*, vol. 35, 2021, pp. 11 071–11 078.
- 2020 [34] B. Li, C. Li, F. Duan, N. Zheng, and Q. Zhao, "TPFN: Applying outer product along time to multimodal sentiment analysis fusion on incomplete data," in *The 2020 European Conference on Computer Vision (ECCV-20)*, 2020.
 - [35] C. Li, M. E. Khan, Z. Sun, G. Niu, B. Han, S. Xie, and Q. Zhao, "Beyond unfolding: Exact recovery of latent convex tensor decomposition under reshuffling," in *Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI-20)*, 2020, pp. 4602–4609.
 - [36] C. Li and Z. Sun, "Evolutionary topology search for tensor network decomposition," in *International Conference on Machine Learning (ICML)*, PMLR, 2020, pp. 5947–5957.
 - [37] Q. Shi, J. Yin, J. Cai, A. Cichocki, T. Yokota, L. Chen, M. Yuan, and J. Zeng, "Block hankel tensor arima for multiple short time series forecasting.," in *Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI-20)*, 2020, pp. 5758–5766.

- [38] A. Wang, C. Li, Z. Jin, and Q. Zhao, "Robust tensor decomposition via orientation invariant tubal nuclear norms," in *Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI-20)*, 2020, pp. 6102–6109.
- [39] X. Zhao, J. Solé-Casals, B. Li, Z. Huang, A. Wang, J. Cao, T. Tanaka, and Q. Zhao, "Classification of epileptic iEEG signals by CNN and data augmentation," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2020, pp. 926–930.
- [40] X. Zhao, L. Sui, T. Tanaka, J. Cao, and Q. Zhao, "Epileptic focus localization based on iEEG plot images by using convolutional neural network," in *Proceedings of the 12th International Conference on Bioinformatics and Computational Biology*, vol. 70, 2020, pp. 173–181.
- 2019 [41] F. Aminmansour, A. Patterson, L. Le, Y. Peng, D. Mitchell, F. Pestilli, C. Caiafa, R. Greiner, and M. White, "Learning macroscopic brain connectomes via group-sparse factorization," in Advances in Neural Information Processing Systems 32 (NeurIPS 2019), 2019, pp. 8847–8857.
 - [42] Q. Chen, L. Yuan, Y. Miao, Q. Zhao, T. Tanaka, and J. Cao, "Quasi-brain-death eeg diagnosis based on tensor train decomposition," in *International Symposium on Neural Networks* (ISNN), Springer, 2019, pp. 501–511.
 - [43] W. He, Q. Yao, C. Li, N. Yokoya, and Q. Zhao, "Non-local meets global: An integrated paradigm for hyperspectral denoising," in *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019, pp. 6868–6877.
 - [44] W. He, L. Yuan, and N. Yokoya, "Total-variation-regularized tensor ring completion for remote sensing image reconstruction," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, 2019, pp. 8603–8607.
 - [45] M. Hou, J. Tang, J. Zhang, W. Kong, and Q. Zhao, "Deep multimodal multilinear fusion with high-order polynomial pooling," in *Advances in Neural Information Processing Systems* 32 (NeurIPS 2019), 2019, pp. 12113–12122.
 - [46] B. Li, X. Zhao, Q. Zhao, T. Tanaka, and J. Cao, "A one-dimensional convolutional neural network model for automated localization of epileptic foci," in 2019 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC), IEEE, 2019, pp. 741–744.
 - [47] C. Li, W. He, L. Yuan, Z. Sun, and Q. Zhao, "Guaranteed matrix completion under multiple linear transformations," in *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019, pp. 11136–11145.
 - [48] C. Li, Z. Sun, J. Yu, M. Hou, and Q. Zhao, "Low-rank embedding of kernels in convolutional neural networks under random shuffling," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, 2019, pp. 3022–3026.
 - [49] P. P. Liang, Z. Liu, Y.-H. H. Tsai, Q. Zhao, R. Salakhutdinov, and L.-P. Morency, "Learning representations from imperfect time series data via tensor rank regularization," in *Proceedings of the Annual Meeting of the Association for Computational Linguistics (ACL)*, 2019, pp. 1569–1576.

- [50] L. Sui, X. Zhao, Q. Zhao, T. Tanaka, and J. Cao, "Localization of epileptic foci by using convolutional neural network based on ieeg," in *Artificial Intelligence Applications and Innovations (AIAI)*, Springer International Publishing, 2019, pp. 331–339.
- [51] A. Wang, X. Song, X. Wu, Z. Lai, and Z. Jin, "Generalized dantzig selector for low-tubal-rank tensor recovery," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, 2019, pp. 3427–3431.
- [52] A. Wang, X. Song, X. Wu, Z. Lai, and Z. Jin, "Latent schatten TT norm for tensor completion," in *IEEE International Conference on Acoustics, Speech and Signal Process*ing (ICASSP), IEEE, 2019, pp. 2922–2926.
- [53] A. Wang, X. Song, X. Wu, Z. Lai, and Z. Jin, "Robust low-tubal-rank tensor completion," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, 2019, pp. 3432–3436.
- [54] T. Yokota, K. Kawai, M. Sakata, Y. Kimura, and H. Hontani, "Dynamic pet image reconstruction using nonnegative matrix factorization incorporated with deep image prior," in *The IEEE International Conference on Computer Vision (ICCV)*, 2019, pp. 3126–3135.
- [55] J. Yu, C. Li, Q. Zhao, and G. Zhao, "Tensor-ring nuclear norm minimization and application for visual: Data completion," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2019, pp. 3142–3146. DOI: 10.1109/ICASSP.2019.8683115.
- [56] L. Yuan, C. Li, J. Cao, and Q. Zhao, "Randomized tensor ring decomposition and its application to large-scale data reconstruction," in *IEEE International Conference on Acoustics*, Speech and Signal Processing (ICASSP), 2019, pp. 2127–2131.
- [57] L. Yuan, C. Li, D. Mandic, J. Cao, and Q. Zhao, "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, 2019, pp. 9151–9158.
- [58] Q. Zhao, M. Sugiyama, L. Yuan, and A. Cichocki, "Learning efficient tensor representations with ring-structured networks," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, 2019, pp. 8608–8612.
- 2018 [59] X. Cao, X. Zhao, and Q. Zhao, "Tensorizing generative adversarial nets," in *The Third International Conference On Consumer Electronics (ICCE) Asia*, 2018, pp. 206–212.
 - [60] M. Hou, B. Chaib-draa, C. Li, and Q. Zhao, "Generative adversarial positive-unlabeled learning," in Proceedings of the Twenty-Seventh International Joint Conference on Artificial Intelligence (IJCAI-18), 2018, pp. 2255–2261.
 - [61] X. Kong, W. Kong, Q. Fan, Q. Zhao, and A. Cichocki, "Task-independent EEG identification via low-rank matrix decomposition," in *The IEEE International Conference on Bioinformatics* and Biomedicine (BIBM), 2018, pp. 412–419.
 - [62] T. M. Rutkowski, Q. Zhao, M. S. Abe, and M. Otake, "Al neurotechnology for aging societies-task-load and dementia EEG digital biomarker development using information geometry machine learning methods," in *NeurIPS Workshop*, 2018.
 - [63] J. Yu, G. Zhou, Q. Zhao, and K. Xie, "An effective tensor completion method based on multi-linear tensor ring decomposition," in APSIPA-ASC 2018, 2018, pp. 1244–1349.

- [64] L. Yuan, J. Cao, X. Zhao, Q. Wu, and Q. Zhao, "Higher-dimension tensor completion via low-rank tensor ring decomposition," in *APSIPA-ASC 2018*, 2018, pp. 1071–1076.
- [65] L. Yuan, Q. Zhao, and J. Cao, "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, 2018, pp. 1258–1262.
- [66] Q. Zhao, M. Sugiyama, L. Yuan, and A. Cichocki, "Learning efficient tensor representations with ring structure networks," in *Sixth International Conference on Learning Representations* (ICLR Workshop), 2018.
- [67] X. Zhao, T. Tanaka, W. Kong, Q. Zhao, J. Cao, H. Sugano, and N. Yoshida, "Epileptic focus localization based on iEEG by using positive unlabeled (PU) learning," in APSIPA-ASC 2018, 2018, pp. 493–497.
- [68] X. Zhao, Q. Zhao, T. Tanaka, J. Cao, W. Kong, H. Sugano, and N. Yoshida, "Detection of epileptic foci based on interictal iEEG by using convolutional neural network," in *The 23rd International Conference on Digital Signal Processing (DSP)*, 2018.
- [69] X. Zhao, G. Cui, L. Yuan, T. Tanaka, Q. Zhao, and J. Cao, "A hybrid brain computer interface based on audiovisual stimuli p300," in *The Third International Conference On Consumer Electronics (ICCE) Asia*, 2018, pp. 206–212.
- 2017 [70] G. Cui, L. Zhu, Q. Zhao, J. Cao, and A. Cichocki, "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, 2017, pp. 589–595.
 - [71] L. Gui, Q. Zhao, and J. Cao, "Brain image completion by Bayesian tensor decomposition," in *Proceedings of 22nd International Conference on Digital Signal Processing (DSP)*, IEEE, 2017, pp. 1–4.
 - [72] Q. Shi, Y.-m. Cheung, and Q. Zhao, "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, 2017, pp. 564–581.
 - [73] Y. Xin, Q. Wu, Q. Zhao, and Q. Wu, "Semi-supervised regularized discriminant analysis for EEG-based BCI system," in *International Conference on Intelligent Data Engineering and Automated Learning (IDEAL)*, Springer, 2017, pp. 516–523.
 - [74] L. Yuan, Q. Zhao, and J. Cao, "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, 2017, pp. 222–229.

Journal Papers

2023 [75] H. Huang, G. Zhou, Q. Zhao, L. He, and S. Xie, "Comprehensive multiview representation learning via deep autoencoder-like nonnegative matrix factorization," *IEEE Transactions on Neural Networks and Learning Systems*, 2023.

- [76] H. Huang, G. Zhou, Y. Zheng, Z. Yang, and Q. Zhao, "Exclusivity and consistency induced nmf for multi-view representation learning," *Knowledge-Based Systems*, vol. 281, p. 111 020, 2023.
- [77] J. Tang, M. Hou, X. Jin, J. Zhang, Q. Zhao, and W. Kong, "Tree-based mix-order polynomial fusion network for multimodal sentiment analysis," *Systems*, vol. 11, no. 1, p. 44, 2023.
- [78] J. Tang, D. Liu, X. Jin, Y. Peng, Q. Zhao, Y. Ding, and W. Kong, "BAFN: Bi-direction attention based fusion network for multimodal sentiment analysis," *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 33, no. 4, pp. 1966–1978, Apr. 2023.
- [79] Z. Tao, T. Tanaka, and Q. Zhao, "Nonparametric tensor ring decomposition with scalable amortized inference," *Neural Networks*, vol. 169, pp. 431–441, 2023.
- [80] A. Wang, G. Zhou, Z. Jin, and Q. Zhao, "Noisy tensor completion via orientation invariant tubal nuclear norm," *Pacific Journal of Optimization*, vol. 19, no. 2, pp. 273–313, 2023.
- [81] H. Wang, J. Peng, X. Cao, J. Wang, Q. Zhao, and D. Meng, "Hyperspectral image denoising via nonlocal spectral sparse subspace representation," *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 16, pp. 5189–5203, 2023.
- [82] J. Wang, A. Qu, Q. Wang, Q. Zhao, J. Liu, and Q. Wu, "Tt-net: Tensorized transformer network for 3d medical image segmentation," *Computerized Medical Imaging and Graphics*, p. 102 234, 2023.
- [83] Y. Yu, G. Zhou, N. Zheng, Y. Qiu, S. Xie, and Q. Zhao, "Graph-regularized non-negative tensor-ring decomposition for multiway representation learning," *IEEE Transactions on Cybernetics*, vol. 53, no. 5, pp. 3114 –3127, 2023.
- [84] X. Zhao, Q. Zhao, T. Tanaka, J. Solé-Casals, G. Zhou, T. Mitsuhashi, H. Sugano, N. Yoshida, and J. Cao, "Classification of the epileptic seizure onset zone based on partial annotation," *Cognitive Neurodynamics*, vol. 17, no. 3, pp. 703–713, 2023.
- 2022 [85] X. Chen, G. Zhou, Y. Wang, M. Hou, Q. Zhao, and S. Xie, "Accommodating multiple tasks' disparities with distributed knowledge-sharing mechanism," *IEEE Transactions on Cybernetics*, vol. 52, no. 4, pp. 2440–2452, 2022.
 - [86] W. He, Y. Chen, N. Yokoya, C. Li, and Q. Zhao, "Hyperspectral super-resolution via coupled tensor ring factorization," *Pattern Recognition*, vol. 122, p. 108 280, 2022.
 - [87] W. He, Q. Yao, C. Li, N. Yokoya, Q. Zhao, H. Zhang, and L. Zhang, "Non-local meets global: An iterative paradigm for hyperspectral image restoration," *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, vol. 44, no. 4, pp. 2089–2107, 2022.
 - [88] H. Huang, G. Zhou, N. Liang, Q. Zhao, and S. Xie, "Diverse deep matrix factorization with hypergraph regularization for multiview data representation," *IEEE/CAA Journal of Automatica Sinica*, 2022.
 - [89] T. Li, G. Zhou, Y. Qiu, and Q. Zhao, "Toward understanding convolutional neural networks from volterra convolution perspective," *Journal of Machine Learning Research (JMLR)*, vol. 23, no. 311, pp. 1–50, 2022.

- [90] S. Liu, J. Zhang, A. Wang, H. Wu, Q. Zhao, and J. Long, "Subject adaptation convolutional neural network for eeg-based motor imagery classification," *Journal of Neural Engineering*, 2022.
- [91] Y.-S. Luo, X.-L. Zhao, T.-X. Jiang, Y. Chang, M. K. Ng, and C. Li, "Self-supervised nonlinear transform-based tensor nuclear norm for multi-dimensional image recovery," *IEEE Transactions on Image Processing*, 2022.
- [92] Y. Luo, A. Wang, G. Zhou, and Q. Zhao, "A hybrid norm for guaranteed tensor recovery," *Frontiers in Physics*, p. 447, 2022.
- [93] Y.-C. Miao, X.-L. Zhao, X. Fu, J.-L. Wang, and Y.-B. Zheng, "Hyperspectral denoising using unsupervised disentangled spatiospectral deep priors," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 60, pp. 1–16, 2022.
- [94] Y. Qiu, G. Zhou, Z. Huang, Q. Zhao, and S. Xie, "Efficient tensor robust PCA under hybrid model of tucker and tensor train," *IEEE Signal Processing Letters*, vol. 29, pp. 627–631, 2022.
- [95] Y. Qiu, G. Zhou, J. Zeng, Q. Zhao, and S. Xie, "Imbalanced low-rank tensor completion via latent matrix factorization," *Neural Networks*, 2022.
- [96] Y. Qiu, G. Zhou, Q. Zhao, and S. Xie, "Noisy tensor completion via low-rank tensor ring," *IEEE Transactions on Neural Networks and Learning Systems*, pp. 1–15, 2022. DOI: 10.1109/TNNLS.2022.3181378.
- [97] K. Takahashi, Z. Sun, J. Solé-Casals, A. Cichocki, A. H. Phan, Q. Zhao, H.-H. Zhao, S. Deng, and R. Micheletto, "Data augmentation for convolutional LSTM based brain computer interface system," *Applied Soft Computing*, p. 108811, 2022.
- [98] H. Takayama, Q. Zhao, H. Hontani, and T. Yokota, "Bayesian tensor completion and decomposition with automatic cp rank determination using mgp shrinkage prior," *SN Computer Science*, vol. 3, no. 3, pp. 1–17, 2022.
- [99] A. Wang, Q. Zhao, Z. Jin, C. Li, and G. Zhou, "Robust tensor decomposition via orientation invariant tubal nuclear norms," *Science China Technological Sciences*, pp. 1–18, 2022.
- [100] T. Yokota, H. Hontani, Q. Zhao, and A. Cichocki, "Manifold modeling in embedded space: An interpretable alternative to deep image prior," *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, vol. 33, no. 3, pp. 1022–1036, 2022.
- [101] Y. Yu, G. Zhou, H. Huang, S. Xie, and Q. Zhao, "A semi-supervised label-driven auto-weighted strategy for multi-view data classification," *Knowledge-Based Systems*, p. 109 694, 2022.
- [102] D. Zhang, Y. Luo, Y. Yu, Q. Zhao, and G. Zhou, "Semi-supervised multi-view clustering with dual hypergraph regularized partially shared non-negative matrix factorization," *SCIENCE CHINA: Technological Sciences*, 2022.
- [103] X. Zhao, Y. Yu, G. Zhou, Q. Zhao, and W. Sun, "Fast hypergraph regularized nonnegative tensor ring decomposition based on low-rank approximation," *Applied Intelligence*, pp. 1–24, 2022.

- [104] W.-J. Zheng, X.-L. Zhao, Y.-B. Zheng, and Z.-F. Pang, "Nonlocal patch-based fully connected tensor network decomposition for multispectral image inpainting," *IEEE Geoscience and Remote Sensing Letters*, vol. 19, pp. 1–5, 2022.
- [105] Y. Zheng, T. Huang, X. Zhao, and Q. Zhao, "Tensor completion via fully-connected tensor network decomposition with regularized factors," *Journal of Scientific Computing*, vol. 92, no. 8, pp. 1–35, 2022.
- 2021 [106] Z. Chen, G. Zhou, and Q. Zhao, "Hierarchical factorization strategy for high-order tensor and application for data completion," *IEEE Signal Processing Letters*, vol. 28, pp. 1255–1259, 2021.
 - [107] X. Jin, J. Tang, X. Kong, Y. Peng, J. Cao, Q. Zhao, and W. Kong, "CTNN: A convolutional tensor-train neural network for multi-task brainprint recognition," *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, vol. 29, pp. 103–112, 2021.
 - [108] B. Li, Z. Zhang, F. Duan, Z. Yang, Q. Zhao, Z. Sun, and J. Solé-Casals, "Component-mixing strategy: A decomposition-based data augmentation algorithm for motor imagery signals," *Neurocomputing*, vol. 465, pp. 325–335, 2021.
 - [109] Y. Qiu, G. Zhou, X. Chen, D. Zhang, X. Zhao, and Q. Zhao, "Semi-supervised non-negative tucker decomposition for tensor data representation," *Science China Technological Sciences*, vol. 64, no. 9, pp. 1881–1892, 2021.
 - [110] L. Sui, X. Zhao, Q. Zhao, T. Tanaka, and J. Cao, "Hybrid convolutional neural network for localization of epileptic focus based on iEEG," *Neural Plasticity*, vol. 2021, 2021.
 - [111] A. Wang, G. Zhou, Z. Jin, and Q. Zhao, "Tensor recovery via *_l-spectral k-support norm," *IEEE Journal of Selected Topics in Signal Processing*, vol. 15, no. 3, pp. 522–534, 2021. DOI: 10.1109/JSTSP.2021.3058763.
 - [112] A. Wang, G. Zhou, and Q. Zhao, "Guaranteed robust tensor completion via L-SVD with applications to remote sensing data," *Remote Sensing*, vol. 13, no. 18, p. 3671, 2021.
 - [113] J. Yu, G. Zhou, C. Li, Q. Zhao, and S. Xie, "Low tensor-ring rank completion by parallel matrix factorization," *IEEE transactions on neural networks and learning systems (TNNLS)*, vol. 32, no. 7, pp. 3020–3033, 2021.
- 2020 [114] C. Caiafa, J. Solé-Casals, P. Marti-Puig, S. Zhe, and T. Tanaka, "Decomposition methods for machine learning with small, incomplete or noisy datasets," *Applied Sciences*, vol. 10, no. 23, p. 8481, 2020.
 - [115] G. Cui, L. Zhu, L. Gui, Q. Zhao, J. Zhang, and J. Cao, "Multidimensional clinical data denoising via Bayesian CP factorization," *Science China Technological Sciences*, vol. 63, no. 2, pp. 249–254, 2020.
 - [116] F. Duan, Z. Huang, Z. Sun, Y. Zhang, Q. Zhao, A. Cichocki, Z. Yang, and J. Solé-Casals, "Topological network analysis of early alzheimer's disease based on resting-state eeg," *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, vol. 28, no. 10, pp. 2164–2172, 2020.

- [117] R. Li, Q. Wu, J. Liu, Q. Wu, C. Li, and Q. Zhao, "Monitoring depth of anesthesia based on hybrid features and recurrent neural network," *Frontiers in neuroscience*, vol. 14, p. 26, 2020.
- [118] Z. Sun, B. Li, F. Duan, H. Jia, S. Wang, Y. Liu, A. Cichocki, C. F. Caiafa, and J. Sole-Casals, "Winet: Towards an approach for robust workload estimation based on shallow neural networks," *IEEE Access*, vol. 9, pp. 3165–3173, 2020.
- 2019 [119] S. Al-Baddai, P. Marti-Puig, E. Gallego-Jutglà, K. Al-Subari, A. M. Tomé, B. Ludwig, E. W. Lang, and J. Solé-Casals, "A recognition-verification system for noisy faces based on an empirical mode decomposition with green's functions," Soft Computing, pp. 1–19, 2019.
 - [120] W. He, N. Yokoya, L. Yuan, and Q. Zhao, "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, 2019.
 - [121] M. Iwata, L. Yuan, Q. Zhao, Y. Tabei, F. Berenger, R. Sawada, S. Akiyoshi, M. Hamano, and Y. Yamanishi, "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, 2019.
 - [122] W. Kong, X. Kong, Q. Fan, Q. Zhao, and A. Cichocki, "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, 2019.
 - [123] Q. Shi, Y. Cheung, Q. Zhao, and H. Lu, "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, 2019.
 - [124] L. A. Suad, C. F. Caiafa, S. Cichowolski, and E. M. Arnal, "Galactic hi supershells: Kinetic energies and possible origin," *Astronomy and Astrophysics*, vol. 624, no. A&A, pp. 1–11, 2019.
 - [125] L. Sui, X. Zhao, J. Cao, and Q. Zhao, "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, 2019.
 - [126] L. Yuan, J. Cao, and Q. Zhao, "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, 2019.
 - [127] L. Yuan, C. Li, J. Cao, and Q. Zhao, "Rank minimization on tensor ring: An efficient approach for tensor decomposition and completion," *Machine Learning*, pp. 1–20, 2019.
 - [128] L. Yuan, Q. Zhao, L. Gui, and J. Cao, "High-order tensor completion via gradient-based optimization under tensor train format," *Signal Processing: Image Communication*, vol. 73, pp. 53–61, 2019.
 - [129] X. Zhao, L. Gui, J. Cao, and Q. Zhao, "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, 2019.

- [130] L. Zhu, G. Cui, J. Cao, A. Cichocki, J. Zhang, and C. Zhou, "A hybrid system for distinguishing between brain death and coma using diverse eeg features," *Sensors*, vol. 19, no. 6, p. 1342, 2019.
- 2018 [131] L. Gui, X. Zhao, Q. Zhao, and J. Cao, "Image and video completion by using Bayesian tensor decomposition," *International Journal of Computer Science Issues (IJCSI)*, vol. 15, no. 5, pp. 1–8, 2018.
 - [132] L. Gui, X. Zhao, Q. Zhao, and J. Cao, "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, 2018.
 - [133] W. Kong, L. Wang, J. Zhang, Q. Zhao, and J. Sun, "The dynamic EEG microstates in mental rotation," *Sensors*, vol. 18, no. 9, p. 2920, 2018.
 - [134] Y. Kumagai, R. Matsui, and T. Tanaka, "Music familiarity affects EEG entrainment when little attention is paid," *Frontiers in Human Neuroscience*, vol. 12, p. 444, 2018.
 - [135] J. Lin, W. Chen, C. Shen, M. Chiu, Y. Kao, F. Lai, Q. Zhao, and A. Cichocki, "Visualization and sonification of long-term epilepsy electroencephalogram monitoring," *Journal of Medical and Biological Engineering*, vol. 38, no. 6, 943—952, 2018.
 - [136] Y. Qiu, G. Zhou, Q. Zhao, and A. Cichocki, "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, 2018.
 - [137] J. Solé-Casals, C. F. Caiafa, Q. Zhao, and A. Cichocki, "Brain-computer interface with corrupted EEG data: A tensor completion approach," *Cognitive Computation*, vol. 10, no. 6, 1062—1074, 2018.
 - [138] Y. Zhang, D. Guo, F. Li, et al., "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, 2018.
 - [139] Y. Zhang, E. Yin, F. Li, et al., "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, 2018.
 - [140] Y. Zhang, D. Guo, F. Li, et al., "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, 2018.

Book Chapter

2022 [141] T. Yokota, C. F. Caiafa, and Q. Zhao, "Tensor methods for low-level vision," in *Tensors for Data Processing*. Elsevier, 2022, pp. 371–425.

Book

- 2017 [142] A. Cichocki, A. Phan, Q. Zhao, N. Lee, I. Oseledets, M. Sugiyama, and D. Mandic, *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., 2017, vol. 9, pp. 431–673.
- 2016 [143] A. Cichocki, N. Lee, I. Oseledets, A. Phan, Q. Zhao, and D. Mandic, *Tensor networks for dimensionality reduction and large-scale optimization: Part 1 low-rank tensor decompositions*, ser. Foundations and Trends® in Machine Learning 4-5. Now Publishers, Inc., 2016, vol. 9, pp. 249–429.