Haonan Huang, Ph.D. Candidate

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Research Interests

2021 – Now — Now he focuses on the study of Adversarial Machine Learning, Multi-view Learning, Representation Learning, Self-supervised learning, and Tensor Networks.

2018 – 2021 — He focused on Non-negative Matrix Factorization (NMF), Deep Matrix Factorization, Low-rank Models and Clustering.

Education

2021.09 – 2024.12 (Expected) — **Ph.D., Guangdong University of Technology** in Control Science and Engineering.
Supervisor: *Guoxu Zhou*

2018.09 – 2021.07 — **M.Sc., Guangdong University of Technology** in Control Science and Engineering .
Thesis title: *Investigation on deep matrix factorization and its application in image clustering*.
Supervisor: *Zuyuan Yang*

2014.09 – 2018.07 — **B.Ec., Beijing Institute of Technology, Zhuhai** in Automation.

Experience

2023.03 – Now — **Visiting Student,** Tensor Leanring Team, AIP, RIKEN, JAPAN.
Mentor: *Qibin Zhao*

2022.07 – 2023.07 — **Visiting Scholar (Remote),** P.C. ROSSIN COLLEGE of ENGINEERING & APPLIED SCIENCE, Lehigh University, U.S.
Mentor: *Lifang He*

Research Publications

Journal Articles

1. **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*, vol. 35, no. 5, pp. 5953–5967, 2024.
2. C. Xiao, Y. Huang, **H. Huang**, Q. Zhao, and G. Zhou, "Consistency and diversity induced tensorized multi-view subspace clustering," *IEEE Transactions on Emerging Topics in Computational Intelligence*, 2024.
3. D. Zhang, **H. Huang**, Q. Zhao, and G. Zhou, "Generalized latent multi-view clustering with tensorized bipartite graph," *Neural Networks*, vol. 175, p. 106 282, 2024.
4. **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*, vol. 10, no. 11, pp. 2154–2167, 2023.

5. **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.
6. J. Yu, Q. Duan, **H. Huang**, S. He, and T. Zou, "Effective incomplete multi-view clustering via low-rank graph tensor completion," *Mathematics*, vol. 11, no. 3, p. 652, 2023.
7. J. Yu, **H. Huang**, Q. Duan, Y. Wang, T. Zou, *et al.*, "Incomplete multiview clustering via low-rank tensor ring completion," *International Journal of Intelligent Systems*, vol. 2023, 2023.
8. **H. Huang**, Z. Yang, Z. Li, and W. Sun, "A converged deep graph semi-nmf algorithm for learning data representation," *Circuits, Systems, and Signal Processing*, pp. 1–20, 2022.
9. 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*, vol. 255, p. 109 694, 2022.
10. W. Han, S. Xie, Z. Yang, S. Zhou, and **H. Huang**, "Heart sound classification using the snmfnet classifier," *Physiological measurement*, vol. 40, no. 10, p. 105 003, 2019.

Conference Proceedings

1. **H. Huang**, G. Zhou, Y. Zheng, Y. Qiu, A. Wang, and Q. Zhao, "Adversarially robust deep multi-view clustering: A novel attack and defense framework," in *International Conference on Machine Learning (ICML)*, PMLR, 2024.
2. Z. Lin, **H. Huang**, Y. Yu, G. Zhou, and Q. Zhao, "Consistent anchor induced multi-view deep matrix factorization," in *2023 42nd Chinese Control Conference (CCC)*, IEEE, 2023, pp. 7633–7637.
3. **H. Huang**, Y. Luo, G. Zhou, and Q. Zhao, "Multi-view data representation via deep autoencoder-like nonnegative matrix factorization," in *ICASSP 2022-2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, 2022, pp. 3338–3342.
4. **H. Huang**, N. Liang, W. Yan, Z. Yang, Z. Li, and W. Sun, "Partially shared semi-supervised deep matrix factorization with multi-view data," in *2020 International Conference on Data Mining Workshops (ICDMW)*, IEEE, 2020, pp. 564–570.
5. **H. Huang**, Z. Yang, N. Liang, and Z. Li, "Semi-nmf network for image classification," in *2019 Chinese Control Conference (CCC)*, IEEE, 2019, pp. 8899–8903.

Skills

Languages	Reading, writing, and speaking competencies for English, and Chinese.
Coding	Python, Matlab, LaTeX

Miscellaneous Experience

Awards and Achievements

2023 **National Doctoral Scholarship**, Ministry of Education of the People's Republic of China.

2022 **Two-year Studying Abroad Scholarship**, China Scholarship Council.

2021 **Outstanding 10 graduates of the School of Automation**, Guangdong University of Technology.

2018 **Outstanding graduates**, Beijing Institute of Technology, Zhuhai.

2017 **Second Prize in 14th Challenge Cup Science and Technology Competition in Guangdong Province**, Guangdong Science and Technology Department.

Miscellaneous Experience (continued)

- **Second Prize in 18th College Physics Experiment Design Competition in Guangdong Province**, Guangdong Science and Technology Department.