

Education

2021 – Present 📖 **B.S., UESTC** in Mathematics-Physics Fundamental Science
 Yingcai Honors College (Elite program, top 102 students selected from 5000 freshmen).
 GPA: 3.89/4.00; Avg. Score: 89.23/100.00.

Research Publications

- 1 J.-Y. Xie, H. Zhang, X. Zhao, and Y. Luo, "IRTF: A new tensor factorization for irregular multidimensional data recovery," *Knowledge-Based Systems*, under review.
- 2 J.-Y. Xie*, J.-Y. Li *, Y.-S. Luo, X.-L. Zhao, and J.-L. Wang, "H₂TF for hyperspectral image denoising: Where hierarchical nonlinear transform meets hierarchical matrix factorization," *IEEE Geoscience and Remote Sensing Letters*, vol. 20, 2023. 📄 DOI: 10.1109/LGRS.2023.3294933.
- 3 Y.-Y. Liu, X.-L. Zhao, J.-Y. Xie, Z. Xu, and G. Vivone, "Bi-level tensor decomposition for hyperspectral image restoration," in *IEEE International Geoscience and Remote Sensing Symposium*, 2024. 📄 DOI: 10.1109/IGARSS53475.2024.10640494.
- 4 H. Zhang, T.-Z. Huang, X.-L. Zhao, S. Zhang, J.-Y. Xie, T.-X. Jiang, and M. K. Ng, "Learnable transform-assisted tensor decomposition for spatio-irregular multidimensional data recovery," *ACM Transactions on Knowledge Discovery from Data*, 2024. 📄 DOI: 10.1145/3701235.

Research Experience

- 2023/07 – present 📖 **Topic: Tensor Decomposition for Irregular Data.** Supervised by Prof. Xile Zhao.
 I studied irregular data algorithms and developed a novel tensor decomposition method for irregular data (e.g., spatial transcriptomics data) reconstruction. A paper is submitted based on this work.
- 2022/07 – present 📖 **Topic: Advanced Tensor Decomposition.** Supervised by Prof. Xile Zhao.
 I have studied tensor decomposition algorithms for various data modeling and, in collaboration with others, have developed a novel tensor decomposition method that integrates deep learning techniques. Based on this work, I have published a journal article.
- 2022/01 – 2022/07 📖 **Topic: Deep Learning Algorithms Research.** Supervised by Assoc. Prof. Liangjian Deng.
 I studied convolutional neural network (CNN) algorithms for super-resolution and deraining and collaborated on an orange quality classifier using CNNs. I then learned spiking neural network (SNN) theories and worked on implementing SNNs with memristors and mathematical modeling of the combination.

Patents

- 2024/04 📖 H. Zhang, T.-Z. Huang, X.-L. Zhao, S. Zhang, J.-Y. Xie, T.-X. Jiang, and M. K. Ng. "Irregular high-dimensional data restoration method and system based on transform domain tensor decomposition". CN117911802A, filed January 17, 2024, and issued April 19, 2024.

Awards

- 2023/03 📖 **Second Prize**, 14th Mathematics Competition of Chinese College Students (Mathematics Class A).
- 2023/12 📖 **Excellent**, University Student Innovation and Entrepreneurship Competition ([continuous funding](#)).
- 2023/05 📖 **First Prize**, 23rd Mathematical Modeling Contest, UESTC.
- 2022/12 📖 **Outstanding**, 2021 Freshman Extracurricular Innovation Project, UESTC.
- 2023/06 📖 **Outstanding**, University Student Innovation and Entrepreneurship Training Program, UESTC.
- 2024/06 📖 **Exemplary Student Scholarship**, Exemplary Student Scholarship, UESTC (three times).

Skills

Coding 📖 Python, Matlab, \LaTeX , Markdown.