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JINYU XIE | RESUME

- Status: **University of Electronic Science and Technology of China(UESTC), Yingcai Honors College**(Elite program, **top 1%** students selected from 5000 freshmen)
- Majors: **Mathematical Basic Science**
- Skills: Python, Matlab, Latex, C, C++, Linux, 3ds Max
- Academic: GPA: 3.85/4.00, Avg. Score: 88.9/100.0

Research Interests:

I am passionate about deep learning and tensor algorithms. I specialize in analyzing high-dimensional data, particularly remote sensing imagery, using machine learning and deep learning methods, including low-rank tensor decomposition. My research focuses on enhancing tensor decomposition algorithms by integrating deep learning. I aim to use deep tensor modeling, artificial intelligence, and related techniques to solve complex real-world problems.

Publication

2023/07 **IEEE Geoscience and Remote Sensing Letters**

J. -Y. Li, J. -Y. Xie, Y. -S. Luo, X. -L. Zhao and J. -L. Wang, "**H2TF for Hyperspectral Image Denoising: Where Hierarchical Nonlinear Transform Meets Hierarchical Matrix Factorization**," in IEEE Geoscience and Remote Sensing Letters, vol. 20, pp. 1-5, 2023, Art no. 5506705, doi: 10.1109/LGRS.2023.3294933.

Honors & Awards

·**Second Prize, 14th National University Student Mathematics Competition (Mathematics Class A)**, 2023/03
·**First Prize, 23rd Mathematical Modeling Contest, University of Electronic Science and Technology of China**, 2023/05
·**Outstanding, 2021 Freshman Extracurricular Innovation Project, University of Electronic Science and Technology of China**, 2022/12
·**Outstanding, University Student Innovation and Entrepreneurship Training Program**, 2023/06
·**Exemplary Student Scholarship, University of Electronic Science and Technology of China**, 2022/12

Research Experience

2023/05 - Present **Irregular Data Recovery** Advisor: Prof. Xihe Zhao

Tensor Modeling and Computation Team, School of Mathematical Sciences, University of Electronic Science and Technology of China

- **Main Results:** I developed a reversible mapping method to transform irregular tensors into regular ones for effective recovery. This method was integrated into a tensor factorization framework. Implementation and validation using diverse datasets showed the proposed mapping improved performance on tasks like superpixel recovery, hyperspectral image classification, and gene expression completion.

2022/07 - Present **Deep Learning and Traditional Tensor Decomposition** Advisor: Prof. Xihe Zhao

Tensor Modeling and Computation Team, School of Mathematical Sciences, University of Electronic Science and Technology of China

- **Main Results:** I developed H2TF, integrating deep learning with tensor decomposition, to capture details for hyperspectral image denoising. Experiments showed combining deep learning and tensor methods was advantageous. Implementation using ADMM optimization and validation on datasets confirmed tensor-based H2TF outperformed matrix models.

2022/01 - 2022/07 **Deep Learning Algorithms Research (CNNs and SNNs)** Advisor: Assoc. Prof. Liangjian Deng

Tensor Modeling and Computation Team, School of Mathematical Sciences, University of Electronic Science and Technology of China

- **Main Results:** I studied CNN theories for super-resolution, deraining and collaborated on an orange quality classifier using CNNs, gaining coding skills. I then learned SNN theories and innovation points, cooperating to implement SNNs with memristors and mathematical modeling of the combination.