Jingjing Zheng

CONTACT INFORMATION

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ERDÖS NUMBER

≤ 4

RESEARCH INTERESTS

Low-rank recovery, sparse representation learning, optimization, explainable deep neural networks, and computer vision-based robot hand control.

EDUCATION

University of British Columbia, Vancouver BC, Canada 09/2023 - Current

Ph.D. Student, Mathematics
Advisor: Yankai Cao

Memorial University of Newfoundland, St.john's NL, Canada 09/2020 - 07/2023

D.E., Computer Science
Dissertation: Effective Tensor-Tensor Product-Based Tensor Recovery and Its Efficient Non-Convex Optimization Framework
Advisors: Xianta Jiang, Xiaoqin Zhang, and Yuanzhu Chen

Wenzhou University, Zhejiang, P. R. China 09/2017 - 06/2020

M.S., Applied Mathematics
Dissertation: Low rank recovery based on L_0 norm non-convex surrogate methods and its application
Advisor: Xiaoqin Zhang

AWARDS AND HONORS

- The Borealis AI 2023 Fellowship (awarded to ten AI researchers from across Canada), 2023
- Chinese Government Award for Outstanding Self-financed Students Abroad (2022), 2023
- Fellow of the School of Graduate Studies, 2023.05
- Mitacs Accelerate Award with Verafin, 2022.05
- MUN Outstanding Research Award, 2022.03
- National Scholarship, China, 2019
- Outstanding Graduates of Zhejiang Province, China, 2019
- National Post-Graduate Mathematical Contest in Modeling, China (Second Prize, Team Leader), 2017
- National Post-Graduate Mathematical Contest in Modeling, China (Third Prize, Team Leader), 2018
- CISC Outstanding Paper Award, China, 2018
- Wenzhou Academic Scholarship, China (First Prize), 2019
- Wenzhou Academic Scholarship, China (First Prize), 2018

REVIEWING EXPERIENCE

- PC Member, Canadian AI 2023
- Reviewer, IEEE Access
- Reviewer, Scientific Reports
- Reviewer, Computers in Biology and Medicine
- Abstract Reviewer, the 2021 Aldrich conference

TEACHING EXPERIENCE

Teaching Assistant:

- Computer Science 2002: Data Structures and Algorithms, Winter 2022, Memorial University of Newfoundland
- Math Learning Center, Winter Term 1, University of British Columbia
- Matrix Algebra, Winter Term 1, University of British Columbia

Mentee

- Mengqing Sun, College of Mathematics and Physics, Wenzhou University, Zhejiang, P. R. China
- Wenzhe Wang, College of Computer Science and Artificial Intelligence, Wenzhou University, Zhejiang, P. R. China
- Zhiwei Huan, College of Computer Science and Artificial Intelligence, Wenzhou University, Zhejiang, P. R. China
- Xixiang Chen, College of Computer Science and Artificial Intelligence, Wenzhou University, Zhejiang, P. R. China

Professional Activities

Conference Talks:

- Handling Slice Permutations Variability in Tensor Recovery, AAAI Conference on Artificial Intelligence, 2022
- Handling Slice Permutations Variability in Tensor Recovery, the First Annual SEA Conference, 2022
- Handling Slice Permutations and Transpose Variability in Tensor Recovery, AARMS CRG workshop, June 2, 2022
- Unsupervised Financial Fraud Detection Using Low-rank Recovery, Canadian Conference on Artificial Intelligence, 2023

Publications

In Preparation:

1. Jingjing Zheng, Xiaoqin Zhang*, Xianta Jiang. Handling Slice Permutations Variability in Tensor-Tensor Product for Tensor Recovery, *IEEE Transactions on Pattern Analysis and Machine Intelligence*. (in preparation)

Under Review:

1. Jingjing Zheng, Wenzhe Wang, Xiaoqin Zhang, Yankai Cao, Xianta Jiang. Higher Order Tensor Recovery with A Sparsity-Based Tensor U-Rank, *NeurIPS*. (under review)
2. Xiaoqin Zhang, Ziwei Huang, Jingjing Zheng*, Shuo Wang, Xianta Jiang. DcnnGrasp: Towards Accurate Grasp Pattern Recognition with Adaptive Regularizer Learning, *Science China Information Sciences*. (under review)
3. Xixiang Chen, Jingjing Zheng, Li Zhao, Wei Jinag, Xiaoqin Zhang. Orthogonal Tensor Recovery Based on Non-Convex Regularization and Rank Estimation, *Neurocomputing*. (under review)

Journal Publications:

1. Zhiwei Huang, Jingjing Zheng, Li Zhao*, Huiling Chen, Xianta Jiang, Xiaoqin Zhang. DL-Net: Sparsity Prior Learning for Grasp Pattern Recognition, *IEEE Access*, 2023.
2. Xiaoqin Zhang*, Jingjing Zheng, Di Wang, Guiying Tang, Zhengyuan Zhou, and Zhouchen Lin. Structured Sparsity Optimization with Non-Convex Surrogates of $\ell_{2,0}$-Norm: A Unified Algorithmic Framework. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2022.
3. Xiaoqin Zhang*, Jingjing Zheng, Li Zhao, Zhengyuan Zhou, Zhouchen Lin. Tensor Recovery With Weighted Tensor Average Rank. *IEEE Transactions on Neural Networks and Learning Systems*, 2022.

4. Shuo Wang, Jingjing Zheng, Bin Zheng, Xianta Jiang*. Phase-Based Grasp Classification for Prosthetic Hand Control Using sEMG. *Biosensors*, 2022.
5. Shuo Wang, Jingjing Zheng, Ziwei Huang, Xiaoqin Zhang, Vinicius Prado, Bin Zheng and Xianta Jian*. Integrating computer vision to prosthetic hand control with sEMG: Preliminary results in grasp classification, *Frontiers in Robotics and AI*, 2022.
6. Wenzhe Wang, Jingjing Zheng, Li Zhao*, Huiling Chen, Xiaoqin Zhang. A Non-Local Tensor Completion Algorithm Based on Weighted Tensor Nuclear Norm, *Electronics*, 2022.
7. Xiaoqin Zhang*, Jingjing Zheng, Di Wang and Li Zhao. Exemplar-Based Denoising: A Unified Low-rank Recovery Framework. *IEEE Transactions on Circuits and Systems for Video Technology*, 2019,(99):1-1.
8. Xiaoqin Zhang, Jingjing Zheng, Yufang Yan, Li Zhao*, Runhua Jiang. Joint Weighted Tensor Schatten p-Norm and Tensor l_p-norm Minimization for Image Denoising. *IEEE Access*, 2019.

Conference Publications:

1. Jingjing Zheng*, John Hawkin, Charles Robertson, Alexander Howse, Yuanzhu Chen, Xianta Jiang. Unsupervised Financial Fraud Detection Using Low-rank Recovery, *Canadian Conference on Artificial Intelligence*, 2023.
2. Xianta Jiang, Ziang Wu, Jingjing Zheng, Bin Zheng, M. Stella Atkins. Index Pupil Activity Echoing with Task Difficulty in Fitts' Law Setting, *Eyes4ICU workshop at ETRA*, 2023.
3. Jingjing Zheng, Xiaoqin Zhang*, Wenzhe Wang, Xianta Jiang. Handling Slice Permutations Variability in Tensor Recovery. *AAAI Conference on Artificial Intelligence*, 2022.
4. Mengqing Sun, Li Zhao*, Jingjing Zheng and Jiawei Xu. A Nonlocal Denoising Framework Based on Tensor Robust Principal Component Analysis with ℓ_p norm. *IEEE Conference on Big Data*, 2020.
5. Xiaoju Lu, Guiying Tang, Di Wang, Xiaoqin Zhang and Jingjing Zheng*. Structural Dictionary Learning based on Non-convex Surrogate of $\ell_{2,1}$ Norm for Classification. *IEEE Conference on Big Data*, 2019:5056-5061.
6. Yufang Yan, Xiaoqin Zhang*, Jingjing Zheng and Li Zhao. Weighted Tensor Schatten p-norm Minimization for Image Denoising. *China Intelligent System Conference*, 2019:163-172. **2018 Outstanding Paper Award**

Preprint Paper:

1. Jingjing Zheng, Wenzhe Wang, Xiaoqin Zhang, Xianta Jiang. A Novel Tensor Factorization-Based Method with Robustness to Inaccurate Rank Estimation. *arXiv:2305.11458*, 2023.
2. Xiaoqin Zhang, Ziwei Huang, Jingjing Zheng*, Shuo Wang, Xianta Jiang. DcnnGrasp: Towards Accurate Grasp Pattern Recognition with Adaptive Regularizer Learning. *arXiv: 2205.05218*, 2022.

Dissertations:

1. Jingjing Zheng. Effective Tensor-Tensor Product-Based Tensor Recovery and Its Efficient Non-Convex Optimization Framework. Memorial University of Newfoundland, 2023.
2. Jingjing Zheng. Low rank recovery based on L_0 norm non-convex surrogate methods and its application. Wenzhou University, 2020.
3. Jingjing Zheng. Portable design of residential unit is analysed. Wuchang Institute of Technology, 2015.

Submitted Patents:

1. Xiaoqin Zhang, Jingjing Zheng, Yufang Yan, Image Denoising Method Based on Novel Norm, Patent Number: 201810233460.7, Date of Application: 2018.03.21
2. Li Zhao, Xiaoqin Zhang, Jingjing Zheng, Wenzhe Wang, A Nonlocal Denosing Framework Based on Generalized Non-convex Tensor Robust Principal Component Analysis for Color Image and Video, Patent Number: CN202110010629.4, Date of Application: 2021.01.06

Grants

1. Science and Technology Innovation Program for College Students in Zhejiang Province, Image Classification Based on New Norm and Its Generalization, Jingjing Zheng (Principal Investigator), Xiaoju Lu, Guiying Tang, 2018-2020, fund: RMB ¥ 10,000.
2. Mitacs Accelerate Award with Verafin, Unsupervised Financial Fraud Detection Using Low-rank Recovery, $15000, 2022.5-2022.9