

ZHIYUAN ZHA

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👤 WORK EXPERIENCE

Jilin University, China 04/2024 -- Now

Elite Full Professor (tenured)

Nanyang Technological University, Singapore 07/2023 -- 04/2024

Senior Research Fellow at the Rapid-Rich Object Search Lab (ROSE Lab), working with Prof. Alex Chichung Kot (IEEE Life Fellow) and Prof. Bihan Wen

Nanyang Technological University, Singapore 08/2019 -- 06/2023

Research Fellow at the Rapid-Rich Object Search Lab (ROSE Lab), working with Prof. Alex Chichung Kot (IEEE Life Fellow) and Prof. Bihan Wen

University of Electronic Science and Technology of China, China 08/2018 -- 08/2020

Postdoctoral Working with Prof. Ce Zhu (IEEE/OSA Fellow)

🎓 EDUCATION

Nanjing University, Nanjing, China 08/2015 -- 06/2018

Ph.D. in Electrical and Electronic Engineering (EEE)

Kunming University of Science and Technology, Kunming, China 09/2012 -- 06/2015

M.S. in Computer Science (CS)

Jiangsu University, Zhenjiang, China 09/2006 -- 11/2010

B.S. in Computer Science (CS)

💎 RESEARCH INTERESTS

Inverse Problems in Image and Volumetric Data Processing, Sparse Signal Representation, Machine Learning, Artificial Intelligence.

🎁 HONORS AND AWARDS

- **IEEE Senior Member**
- *The 20th IEEE International Conference on Multimedia and Expo* 07/2020
Best Paper Runner Up Award **Top 0.5%**
- *The 17th IEEE International Conference on Multimedia and Expo* 07/2017
Platinum Best Paper Award **Top 0.5%**

🎵 ACADEMIC SERVICE

- IEEE Computational Imaging Technical Committee (CI TC) **Member**, 01/2024-01/2027
- **Associate Editor** of The Visual Computer, 04/2023-Present
- Area Chair of the 5th IEEE International Conference on Multimedia Information Processing and Retrieval (MIPR 2022)
- Session Chair of the 47th IEEE International Conference on Acoustics, Speech and Signal Processing (I-CASSP 2022)

\$ FUNDING

- 1) Jilin University, Tang Aoqing Young Talents Professor Start-up Fund Project, 05/2024-12/2028, 500,000 CNY, ongoing, **Principal Investigator**
- 2) Nanyang Technological University, Singapore, Nanyang Assistant Professor Start-up Fund Project, 04IN-S000698C140, Theoretically-Grounded and Robust Artificial Intelligence for Real-World Challenges, 04/2019-03/2023, 1,000,000 SGD, completed, **Major Participant**
- 3) National Natural Science Foundation of China, Joint Fund Project, U19A2052, Intelligent Joint Encoding of Multi-Source Wide-Area Surveillance Data for Airport Surface, 01/2020-12/2023, 2,460,000 CNY, completed, Participant

♡ JOURNAL

1. **Zhiyuan Zha**, Bihan Wen, Xin Yuan, Saiprasad Ravishankar, Jiantao Zhou and Ce Zhu. "Learning Non-local Sparse and Low-Rank Models for Image Compressive Sensing", *IEEE Signal Processing Magazine (SPM)*, vol. 40, no. 1, pp. 32-44, Jan. 2023. (IF: 15.204)
2. **Zhiyuan Zha**, Bihan Wen, Xin Yuan, Joey Tianyi Zhou, Jiantao Zhou and Ce Zhu. "Triply Complementary Priors for Image Restoration", *IEEE Transactions on Image Processing (TIP)*, vol. 30, pp. 5819-5834, 2021. (IF: 10.856)
3. **Zhiyuan Zha**, Bihan Wen, Xin Yuan, Jiantao Zhou and Ce Zhu. "Image Restoration via Reconciliation of Group Sparsity and Low-Rank Models", *IEEE Transactions on Image Processing (TIP)*, vol. 30, pp. 5223-5238, 2021. (IF: 10.856)
4. **Zhiyuan Zha**, Xin Yuan, Bihan Wen, Jiantao Zhou and Ce Zhu. "Group Sparsity Residual Constraint With Non-Local Priors for Image Restoration", *IEEE Transactions on Image Processing (TIP)*, vol. 29, pp. 8960-8975, 2020. (IF: 9.340)
5. **Zhiyuan Zha**, Xin Yuan, Jiantao Zhou, Ce Zhu and Bihan Wen. "Image restoration via simultaneous nonlocal self-similarity priors", *IEEE Transactions on Image Processing (TIP)*, vol. 29, pp. 8561-8576, 2020. (IF: 9.340)
6. **Zhiyuan Zha**, Xin Yuan, Bihan Wen, Jiachao Zhang, Jiantao Zhou and Ce Zhu. "Image restoration using joint patch-group-based sparse representation", *IEEE Transactions on Image Processing (TIP)*, vol. 29, pp. 7735-7750, 2020. (IF: 9.340)
7. **Zhiyuan Zha**, Xin Yuan, Bihan Wen, Jiantao Zhou, Jiachao Zhang and Ce Zhu. "A benchmark for sparse coding: When group sparsity meets rank minimization", *IEEE Transactions on Image Processing (TIP)*, vol. 29, pp. 5094-5109, 2020. (IF: 9.340)
8. **Zhiyuan Zha**, Xin Yuan, Bihan Wen, Jiantao Zhou, Jiachao Zhang and Ce Zhu. "From rank estimation to rank approximation: Rank residual constraint for image restoration", *IEEE Transactions on Image Processing (TIP)*, vol. 29, pp. 3254-3269, 2020. (IF: 9.340)
9. **Zhiyuan Zha**, Bihan Wen, Xin Yuan, Jiantao Zhou, Ce Zhu and Alex Chichung Kot. "Low-Rankness Guided Group Sparse Representation for Image Restoration", *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, 2022. (IF: 14.255)
10. **Zhiyuan Zha**, Bihan Wen, Xin Yuan, Jiantao Zhou, Ce Zhu and Alex Chichung Kot. "A Hybrid Structural Sparsification Error Model for Image Restoration", *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, vol. 33, no. 9, pp. 4451-4465, 2022. (IF: 14.255)
11. **Zhiyuan Zha**, Bihan Wen, Xin Yuan, Jiachao Zhang, Jiantao Zhou, Xudong Jiang and Ce Zhu. "Multiple Complementary Priors for Multispectral Image Compressive Sensing Reconstruction", *IEEE Transactions on Cybernetics (TCYB)*, 2023. (IF: 19.118)
12. **Zhiyuan Zha**, Xin Yuan, Bihan Wen, Jiachao Zhang and Ce Zhu. "Non-Convex Structural Sparsity Residual Constraint for Image Restoration", *IEEE Transactions on Cybernetics (TCYB)*, vol. 52, no. 11, pp. 12440-12453, Nov. 2022. (IF: 19.118)
13. **Zhiyuan Zha**, Bihan Wen, Xin Yuan, Jiachao Zhang, Jiantao Zhou, Yilong Lu and Ce Zhu. "Nonlocal Structured Sparsity Regularization Modeling for Hyperspectral Image Denoising", *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*, vol. 61, pp. 1-16, 2023. (IF: 8.125)
14. **Zhiyuan Zha**, Bihan Wen, Xin Yuan, Jiachao Zhang, Jiantao Zhou and Ce Zhu. "Structured residual sparsity for video compressive sensing reconstruction", *Signal Processing*, 109513, 2024. (IF: 4.4)
15. **Zhiyuan Zha**, Xinggan Zhang, Yu Wu, Qiong Wang, Xin Liu, Lan Tang and Xin Yuan. "Non-convex weighted Lp nuclear norm based ADMM framework for image restoration", *Neurocomputing*, vol. 311,

- pp. 209-224, 2018. (IF: 3.241)
16. **Zhiyuan Zha**, Xinggan Zhang, Qiong Wang, Lan Tang and Xin Liu. "Group-based sparse representation for image compressive sensing reconstruction with non-convex regularization", *Neurocomputing*, vol. 296, pp. 55-63, 2018. (IF: 3.241)
 17. **Zhiyuan Zha**, Xinggan Zhang, Qiong Wang, Yechao Bai, Yang Chen, Lan Tang and Xin Liu. "Group sparsity residual constraint for image denoising with external nonlocal self-similarity prior", *Neurocomputing*, vol. 275, pp. 2294-2306, 2018. (IF: 3.241)
 18. **Zhiyuan Zha**, Xin Liu, Xinggan Zhang, Yang Chen, Lan Tang, Yechao Bai, Qiong Wang and Zhenhong Shang. "Compressed sensing image reconstruction via adaptive sparse nonlocal regularization", *The Visual Computer*, vol. 34, pp. 117-137, 2018. (IF: 1.036)
 19. Qiong Wang, Xinggan Zhang, Yu Wu, Lan Tang and **Zhiyuan Zha***. "Nonconvex Weighted Lp Minimization Based Group Sparse Representation Framework for Image Denoising", *IEEE Signal Processing Letters (SPL)*, vol. 24, pp. 1686-1690, Nov. 2017. (IF: 2.528)
 20. Lanqing Guo, **Zhiyuan Zha**, Saiprasad Ravishankar, and Bihan Wen. "Exploiting Non-Local Priors via Self-Convolution for Highly-Efficient Image Restoration", *IEEE Transactions on Image Processing (TIP)*, vol. 31, pp. 1311-1324, 2022. (IF: 11.041)

♥ CONFERENCE

1. **Zhiyuan Zha**, Bihan Wen, Xin Yuan, Jiantao Zhou and Ce Zhu. "Hyperspectral Image Denoising via Nonlocal Rank Residual Modeling", in *48th IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Greece, pp. 1-5, 2023. (Poster)
2. **Zhiyuan Zha**, Bihan Wen, Xin Yuan, Jiantao Zhou and Ce Zhu. "Simultaneous Nonlocal Low-Rank and Deep Priors for Poisson Denoising", in *47th IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Singapore, pp. 2320-2324, 2022. (Oral)
3. **Zhiyuan Zha**, Bihan Wen, Xin Yuan, Jiantao Zhou and Ce Zhu. "Low-Rank Regularized Joint Sparsity for Image Denoising", in *28th IEEE International Conference on Image Processing (ICIP)*, Anchorage, Alaska, USA, pp. 1644-1648, 2021. (Oral)
4. **Zhiyuan Zha**, Bihan Wen, Xin Yuan, Jiantao Zhou and Ce Zhu. "Reconciliation of Group Sparsity and Low-Rank Models for Image Restoration", in *20th IEEE International Conference on Multimedia and Expo(ICME)*, London, United Kingdom, pp. 1-6, 2020. (**Best Paper Runner Up Award, Top 0.5%, Total 834**, Oral)
5. **Zhiyuan Zha**, Xin Yuan, Jiantao Zhou, Ce Zhu and Bihan Wen. "A Hybrid Structural Sparse Error Model for Image Deblocking", in *45th IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Barcelona, Spain, pp. 2493-2497, 2020. (Oral)
6. **Zhiyuan Zha**, Xin Yuan, Jiantao Zhou, Joey Tianyi Zhou, Bihan Wen and Ce Zhu. "The Power Of Triply Complementary Priors For Image Compressive Sensing", in *27th IEEE International Conference on Image Processing (ICIP)*, Abu Dhabi, United Arab Emirates, pp. 983-987, 2020. (Oral)
7. **Zhiyuan Zha**, Bihan Wen, Jiachao Zhang, Jiantao Zhou and Ce Zhu. "A Comparative Study for the Nuclear Norms Minimization Methods", in *26th IEEE International Conference on Image Processing (ICIP)*, Taipei, Taiwan, China, pp. 2050-2054, 2019. (Poster)
8. **Zhiyuan Zha**, Xin Yuan, Bihan Wen, Jiachao Zhang, Jiantao Zhou and Ce Zhu. "Simultaneous Nonlocal Self-Similarity Prior for Image Denoising", in *26th IEEE International Conference on Image Processing (ICIP)*, Taipei, Taiwan, China, pp. 1119-1123, 2019. (Poster)
9. **Zhiyuan Zha**, Xinggan Zhang, Qiong Wang, Yechao Bai, Lan Tang and Xin Yuan. "Group sparsity residual with non-local samples for image denoising", in *43th IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Calgary, AB, Canada, pp. 1353-1357, 2018. (Oral)
10. **Zhiyuan Zha**, Xin Yuan, Bihan Wen, Jiantao Zhou and Ce Zhu. "Joint patch-group based sparse representation for image inpainting", in *10th Asian Conference on Machine Learning (ACML)*, Beijing, China, pp. 145-160. 2018. (Oral)
11. **Zhiyuan Zha**, Xin Liu, Xiaohua Huang, Henglin Shi, Yingyue Xu, Qiong Wang, Lan Tang and Xinggan Zhang, "Analyzing the Group Sparsity based on the Rank Minimization Methods". in *17th IEEE International Conference on Multimedia and Expo (ICME)*, Hong Kong, China, pp. 883-888, 2017. (**Platinum Best Paper Award, Top 0.5%, Total 850**, Oral)
12. **Zhiyuan Zha**, Xin Liu, Ziheng Zhou, Xiaohua Huang, Jingang Shi, Zhenhong Shang, Lan Tang, Yechao Bai, Qiong Wang and Xinggan Zhang. "Image denoising via group sparsity residual constraint", in *42th*

IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), New Orleans, LA, USA, pp. 1787-1791, 2017. (Poster)

13. **Zhiyuan Zha**, Xinggan Zhang, Qiong Wang, Yechao Bai and Lan Tang. "Image denoising using group sparsity residual and external nonlocal self-similarity prior", in *24th IEEE International Conference on Image Processing (ICIP)*, Beijing, China, pp. 2956-2960. IEEE, 2017. (Poster)
14. Lanqing Guo, **Zhiyuan Zha**, Saiprasad Ravishankar, and Bihan Wen. "Self-convolution: A highly-efficient operator for non-local image restoration", in *46th IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Toronto, Ontario, Canada, pp. 1860-1864, 2021. (Oral)

PROGRAM COMMITTEE OR REVIEWER

- AAI Conference on Artificial Intelligence (AAAI), 2022-2024
- IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2020-2024
- IEEE International Conference on Image Processing (ICIP), 2019-2024
- IEEE International Conference on Multimedia and Expo (ICME), 2021-2024
- IEEE International Symposium on Biomedical Imaging (ISBI), 2023-2024
- IEEE International Symposium on Circuits & Systems (ISCAS), 2023

JOURNAL REVIEWER

- IEEE Signal Processing Magazine
- IEEE Transactions on Pattern Analysis and Machine Intelligence
- International Journal of Computer Vision
- IEEE Transactions on Image Processing
- IEEE Transactions on Signal Processing
- IEEE Transactions on Neural Networks and Learning Systems
- IEEE Transactions on Multimedia
- IEEE Transactions on Circuits and Systems for Video Technology
- IEEE Transactions on Medical Imaging
- IEEE Transactions on Geoscience and Remote Sensing
- IEEE Transactions on Computational Imaging
- IEEE Transactions on Intelligent Transportation Systems
- IEEE Transactions on Broadcasting
- IEEE Signal Processing Letters
- ACM Transactions on Multimedia Computing, Communications, and Applications
- SIAM Journal on Imaging Sciences
- Inverse Problems
- Pattern Recognition
- Information Fusion
- Neurocomputing
- Signal Processing
- Signal Processing: Image Communication
- Digital Signal Processing
- Journal of Visual Communication and Image Representation
- The Visual Computer
- IET Image Processing
- CAAI Transactions on Intelligence Technology