# **Zhe (Peter) Zhang**

Dean, Professor, Ph.D. Supervisor, IEEE Senior Member NSFC Excellent Young Scientists Fund Program (Overseas) CAS "One Hundred" Talent

DOB: 01/31/1988

Address (Suzhou): Room B203-12, Lab 22

Suzhou Aerospace Information Research Institute

158 Dushuhu Ave, Suzhou Industrial Park, Suzhou, Jiangsu 215000, China

Address (Beijing): Room 342, Main Bldg, Lab 1

Aerospace Information Research Institute, Chinese Academy of Sciences

19 West Beisihuan Road, Haidian District, Beijing 100190, China

Address (Jinan): Room 5402, Teaching Bldg #5, School of Electronics Information

Aerospace Information Technology University

2 Daxue Road, Zhangqiu District, Jinan, Shandong 250200, China

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### **Working Experience**

2025.08- | Dean

2025.08-

Professor, Ph.D Supervisor

School of Electronics Information, Aerospace Information Technology University, Jinan, Shandong 250200, China

Interest Field: Sparse signal processing, Sparse Microwave Imaging, Synthetic aperture radar, Three-dimensional SAR imaging, Combination of signal processing and deep learning.

2023.01-

Lab Director Assistant, Academic Leader

2022.04-

Professor, Ph.D Supervisor

2021.01-2022.04

Associate Professor

Aerospace Information Research Institute, Chinese Academy of Sciences, Beijing 100190, China

National Key Laboratory of Microwave Imaging, Beijing 100190, China

Suzhou Aerospace Information Research Institute, Suzhou, Jiangsu 215000, China

Suzhou Key Laboratory of Microwave Imaging, Processing and Application Technology, Suzhou, Jiangsu 215000, China

Interest Field: Sparse signal processing, Sparse Microwave Imaging, Synthetic aperture radar, Three-dimensional SAR imaging, Combination of signal processing and deep learning.

2023.10-

Double Employed Professor

University of Chinese Academy of Sciences, Beijing 100190, China

2023.09- | Adjunct Professor

Qian Xuesen Honors College, Xi'an Jiaotong University, Xi'an, Shaanxi 710049, China

2024.10- | Adjunct Professor

Harbin Engineering University, Harbin, Heilongjiang, China

2025.05-Adjunct Professor

> Beijing University of Posts and Telecommunications, Beijing, China

2016.12-2020.06 Post-Doctoral Research Fellow

George Mason University, Fairfax, VA 22030, USA

Advisor: Tian, Zhi, Professor, IEEE Fellow

Interest Field: Sparse signal processing, Atomic norm minimization,

Combination of signal processing and deep learning.

2015.12-2016.11 Post-Doctoral Research Scientist

George Washington University, Washington, DC 20052, USA

Advisor: Tian, Zhi, Professor, IEEE Fellow

Cheng, Xiuzhen, Professor, IEEE Fellow

Interest Field: Sparse signal processing, Atomic norm minimization.

### **Education**

2009.09-2015.07 Ph.D./ Signal and Information Processing

Institute of Electronics, Chinese Academy of Sciences

University of Chinese Academy of Sciences

Beijing 100190, China

Supervisor: Wu, Yirong, Academician of CAS, Professor

Interest Field: Sparse microwave imaging, Sparse signal processing, Syn-

thetic aperture radar.

2014.01-2014.04 VISITING STUDENT

University of Connecticut, Storrs, CT 06269, USA

Supervisor: Zhou, Shengli, Professor, IEEE Fellow.

2004.09-2008.07 B. Eng. Information Engineering 2003.09-2004.07

SPECIAL CLASS FOR GIFTED YOUNG

Xi'an Jiaotong University Xi'an, Shaanxi 710049, China.

# Research Projects

2023.12-Multi-beam Spaceborne High-Resolution Wide-Swath SAR System and Technology, RMB 25,350,000

> Grant: National Key Research and Development Program of China, #2023YFB3904900

Principle Investigator.

2022.1- Sparse Signal Processing and Its Applications in Microwave Imaging, RMB 3,000,000
Grant: NSFC Excellent Young Scientists Fund Program (Overseas)
Principle Investigator.

2024.7- Development and Application of Multimodal Remote Sensing Big Data Intelligent Platform based on Ascend Technology, RMB 5,000,000

Grant: iangsu Province Frontier Technology Research and Development Program

Principle Investigator.

- 2021.1- Sparse Signal Processing and Deep Learning with Their Applications in Microwave Imaging, RMB 4,000,000
  Grant: CAS "One Hundred Talent" Project
  Principle Investigator.
- 2021.12- High Efficiency Sensing System and Technology of Threedimensional Microwave Imaging, RMB 500,000 Grant: Suzhou S&T Development Project, #ZXL2022381 Principle Investigator.
- 2021.7- Structural Signal Adaptive High Efficiency sensing Theory and Its Applications in Microwave Imaging, RMB 1,300,000 Grant: CAS Key Grant Principle Investigator.
- 2020.1- Synthetic Aperture Radar Microwave Vision Three-dimensional Imaging Theory and Application Foundations, RMB 20,000,000 Grant: NSFC Major Program, #61991421, 61991420 Co-PI.
- 2018.8–2018.11 A Gated LFMCW TDMA MIMO SAR based Hidden Chamber Detector, USD \$150,000 Grant: USSOCOM SBIR, #S173-004-0118 Participant.
- 2015.12-2020.6 Task-Cognizant Sparse Sensing for Inference, USD \$400,000 Grant: National Science Foundation (NSF) Standard Grant, #1527396 Participant.
- 2010.04-2015.07 Theory, System and Methodology of Sparse Microwave Imaging, RMB 33,000,000
  Grant: National Major Fundamental Science Research Project (973 Project), #2010CB731900
  Participant.

Grant: Chinese Academy of Sciences Participant.

### **Honors**

2022.09	Jiangsu Chief Science and Technology Communication Expert / Jiangsu Science and Technology Association
2024.11	Wiley China Excellent Author Program $/$ Wiley
2022.01	Excellent Young Scientists Fund Program (Overseas) / $NSFC$
2021.01	CAS "One Hundred Talent" / Chinese Academy of Sciences
2021.12	Suzhou "Gusu Leading Talent" / Suzhou City
2022.12	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
2022	CAS "Young Cross Teams" Member / Chinese Academy of Sciences

# **Awards**

	National Disruptive Technology Innovation Competition
	/ Ministry of Science and Technology, China
2022.03	Excellence Prize in Final Competition
2021.12	Winner Prize
2021.12	Excellence Prize
'	
2008.04	TI DSP Contest / Texas Instruments
	Winner Prize
'	
	COMAP Mathematical Modeling Contest / COMAP
2008.02	Meritorious
2007.02	Honorable Mentioned
'	
2006.09	China College Mathematical Modeling Contest / CSIAM
	Second Prize

# **Services**

Professional Society Membership and Services

Xi'an Jiaotong-Liverpool University

2022.07- | External Mentor 2021.11- | Pilotage Mentor **IEEE** 2024.01-Senior Member 2016.01-2024.01 Member2010.01-2015.12 | Student Member **CSIG** Microwave Intelligent Imaging Professional Committee 2024.06-Committee Member **CNC-ISDE** Microwave Remote Sensing Professional Committee 2024.06-Committee Member CIC 2025.05-Senior Member Space-Air-Ground Integrated Network Communication **Professional Committee** 2024.06-Committee Member CIE 2021.04-Member**JSAAI** 

### Journal Reviewers

2020.11-

- IEEE Transactions on Signal Processing Journal, SCI.
- IEEE Signal Processing Letters Journal, SCI.

Member

- IEEE Open Journal of Signal Processing Journal, SCI.
- IEEE Journal of Selected Topics in Signal Processing Journal, SCI.
- Signal Processing Journal, SCI.
- National Science Open Journal, SCI.
- IEEE Transactions on Geoscience and Remote Sensing Journal, SCI.
- IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing Journal, SCI.
- IEEE Geoscience and Remote Sensing Letters Journal, SCI.
- IEEE Transactions on Industrial Electronics Journal, SCI.
- IEEE Sensors Journal Journal, SCI.

- IET Radar, Sonar & Navigation Journal, SCI.
- IET Electronics Letters Journal, SCI.
- IET Signal Processing Journal, SCI.
- Remote Sensing Journal, SCI.
- Science China Information Science Journal, SCI.
- Cogent Engineering Journal, SCI.
- Geo-spatial Information Science Journal, SCI.
- International Journal of Microwave and Wireless Technologies Journal, SCI.
- *IEEE Access* Journal, SCI.
- Tsinghua Science and Technology Journal, SCI.
- IEEE Transactions on Circuits and Systems for Video Technology Journal, SCI.
- IEEE Wireless Communications Letters Journal, SCI.
- Journal of Communications and Networks Journal, SCI.
- IEEE Transactions on Computational Imaging Journal, SCI.
- Journal of Radars Journal, EI.

#### Vice President of Organizing Committee Member

• The 5th National Radar Earth Observation Symposium, Suzhou, China, May 23-25, 2025.

#### Organizing Committee Member and Technical Program Chair

• 2022 International Workshop on Microwave Vision and 3D SAR Imaging (MiViSAR 2022), Suzhou, China, Oct 17-19, 2022.

#### **Session Chair**

- 2022 IET International Radar Conference, Chongqing, China, Dec 3-5, 2023.
- 2024 PhotonIcs and Electromagnetics Research Symposium (PIERS), Chengdu, China, Apr 21-25, 2024.
- 2024 IEEE International Conference on Signal, Information and Data Processing (IC-SIDP), Zhuhai, China, Nov 22-24, 2024.

#### TPC Member / Reviewer

2024 PIERS 2024, ICC 2024, CoSeRa 2024, EECSI 2024, Globecom2024, IJEECS 2024, EEET 2024, ICSIDP 2024, AIT 2024.

2023 | EECSI 2023, iSemantic 2023, Globlecom 2023, SIRS 2023,

IJCDS 2023, IJEECS 2023, IET Radar 2023.

2022 | EEET 2022, EECSI 2022, IJCDS, IJECE 2021-22, FSDM 2022.

2021 | IJEECS 2021, BEEI 2020-21, ICITech 2021, FSDM 2021, TELKOMNIKA 2021.

2020 | CITEI 2020, SIRS 2020, FSDM 2020.

2019 | SIRS 2019, DISP 2019

2018 | CoSeRa 2018, SIRS 2018, EECSI 2018, ICW-TELKOMNIKA 2018, FSDM 2018.

2017 | ICITech 2017, EECSI 2017, SIRS 2017, FSDM 2017.

2016 | CoSeRa 2016.

2015 | CoSeRa 2015, ISSPIT 2015, ICSPDM 2015.

### Languages

ENGLISH: Professional (Reside in US for 5 years, CET-6/PETS-5/WSK pass, TOEFL 96)

Japanese: Fair

# **Open Source Projects and Services**

2006.04-2015.11 BMY BBS (http://bbs.xjtu.edu.cn/, http://bmybbs.com/)

Host: https://github.com/bmybbs?type=source

Technical Leader

2010.06-2019.04 | KYXK BBS (http://bbs.ucas.ac.cn/, http://kyxk.net/)

Technical Leader

2018.09- | hCNN (https://github.com/pzhg/hCNN)

Principle Developer

# **Publications (Bold for Corresponding / First Authorship)**

Journal Articles

- 1. 王骜巍, 商明样, and <u>张柘\*</u>, "一种改进 DBF 方法用于多通道 SAR 非均匀采样重构," 河南科技大学学报, vol. 46, no. 3, pp. 1–10, 2025.
- 2. 海那尔·哈那提, 张柘, 朱利鲁, and 吴一戎\*, "基于区块链的多模态遥感大数据治理方法与系统,"河南科技大学学报, vol. 46, no. 2, pp. 1–11, 2025, doi: 10.15926/j.cnki.issn1672-6871.2025.02.001.

- 3. C. Wang, Q. Yan, X. Qiu, Y. Luo, L. Peng, and Z. Zhang, "A Geometric Semantic Enhanced TomoSAR Reconstruction Algorithm in an Urban Area: Analysis and Application," J. Remote Sens., vol. 5, Jan. 2025, doi: 10.34133/remotesensing.0583.
- 4. Z. Jin, Z. Pan, Z. Zhang\*, and X. Qiu, "SAAS-Net: Self-Supervised Sparse Synthetic Aperture Radar Imaging Network with Azimuth Ambiguity Suppression," Remote Sens., vol. 17, no. 6, p. 1069, Mar. 2025, doi: 10.3390/rs17061069.
- 5. D. Zhao, Z. Zhang\*, D. Lu, X. Qiu, W. Li, H. Li, and Y. Wu, "CV-YOLO: A Complex-Valued Convolutional Neural Network for Oriented Ship Detection in Single-Polarization Single-Look Complex SAR Images," Remote Sens., vol. 17, no. 8, p. 1478, Apr. 2025, doi: 10.3390/rs17081478.
- S. Song, X. Qiu\*, S. Shangguan, Y. Luo, Z. Li, and Z. Zhang, "A polarization-power-maximum-based 3D imaging method for Ku-band UAV-borne fully-polarimetric array In-SAR," IEEE J. Sel. Top. Appl. Earth Obs. Remote Sens., vol. 18, pp. 10320–10336, 2025, doi: 10.1109/JSTARS.2025.3555662.
- 7. Z. Wang, Z. Wang, X. Qiu, and Z. Zhang\*, "Fine classification of multi-frequency PolSAR images using an adaptive fusion network," Remote Sens. Lett., vol. 16, no. 5, pp. 461–471, May 2025, doi: 10.1080/2150704X.2025.2470884.
- 8. Y. Huang, H. Li, D. Lu, Z. Zhang, and W. Tie\*, "Intelligence Evaluating Computational Power: A Multi-Factor Method," IEEE Access, vol. 13, pp. 27398–27415, 2025, doi: 10.1109/ACCESS.2025.3538977.
- 9. D. Wang, D. Lu, J. Zhao, W. Li, H. Li, J. Xu, J. Huang, and Z. Zhang\*, "Multiscale Pillars Fusion for 4-D Radar Object Detection With Radar Data Enhancement," IEEE Sens. J., vol. 25, no. 3, pp. 5102–5115, Feb. 2025, doi: 10.1109/JSEN.2024.3516786.
- 10. R. Shi, Y. Luo, Z. Zhang, X. Qiu\*, and C. Ding, "A Three-Dimensional Imaging Method for Unmanned Aerial Vehicle-Borne SAR Based on Nested Difference Co-Arrays and Azimuth Multi-Snapshots," Remote Sens., vol. 17, no. 3, p. 516, Feb. 2025, doi: 10.3390/rs17030516.
- 11. G. Zhou\*, Y. Zuo, Z. Zhang, B. Zhang, and Y. Wu, "CR-DEQ-SAR: A Deep Equilibrium Sparse SAR Imaging Method for Compound Regularization," IEEE J. Sel. Top. Appl. Earth Obs. Remote Sens., vol. 18, pp. 4680–4695, 2025, doi: 10.1109/JSTARS.2025.3533082.
- M. Shao\*, Y. Fan, Y. Zhang, Z. Zhang, J. Zhao, and B. Zhang, "A Novel Gridless Non-Uniform Linear Array Direction of Arrival Estimation Approach Based on the Improved Alternating Descent Conditional Gradient Algorithm for Automotive Radar System," Remote Sens., vol. 17, no. 2, p. 303, Jan. 2025, doi: 10.3390/RS17020303.
- 13. P. Jiang, S. Gao, J. Zhao, Z. Zhang\*, and B. Zhang, "Gridless DOA Estimation with Extended Array Aperture in Automotive Radar Applications," Remote Sens., vol. 17, no. 1, p. 33, Dec. 2024, doi: 10.3390/rs17010033.
- 14. G. Zhou, Z. Zhang\*, B. Zhang, and Y. Wu, "An innovative semantically guided SAR imaging and target enhancement method," Electron. Lett., vol. 60, no. 24, p. e70123, Dec. 2024, doi: 10.1049/ell2.70123.
- 15. M. Wang, S. Gao, X. Qiu\*, and Z. Zhang, "A Novel Phase Error Estimation Method for TomoSAR Imaging Based on Adaptive Momentum Optimizer and Joint Criterion," IEEE J. Sel. Top. Appl. Earth Obs. Remote Sens., vol. 18, pp. 2042–2051, 2025, doi: 10.1109/JSTARS.2024.3506852.

- 16. X. Qiu\*, Z. Jiao, Z. Zhang, Q. Yan, and C. Ding\*, "Advances and prospects in SAR microwave vision three-dimensional imaging," Natl. Sci. Open, vol. 3, no. 5, p. 20240009, Sep. 2024, doi: 10.1360/nso/20240009.
- 17. Y. Zhao, D. Xiao, Z. Pan, B. W. K. Ling, Y. Tian, and Z. Zhang\*, "Sparse SAR Imaging Based on Non-Local Asymmetric Pixel-Shuffle Blind Spot Network," Remote Sens., vol. 16, no. 13, p. 2367, Jun. 2024, doi: 10.3390/rs16132367.
- 18. 仇晓兰, 罗一通, 宋舒洁, 彭凌霄, 程遥, 颜千程, 上官松涛, 焦泽坤, <u>张柘</u>, 丁赤飚, "微波视觉三维 SAR 实验系统及其全极化数据处理方法," 雷达学报, vol. 13, no. 5, pp. 941–954, Sep. 2024, doi: 10.12000/JR24137.
- 19. S. Gao, M. Wang, Z. Zhang\*, B. Zhang, and Y. Wu, "Efficient Gridless DOA Estimation for Nonuniformly Spaced Linear Arrays in Automotive Radar Sensors," IEEE Sens. J., vol. 24, no. 17, pp. 27737–27749, Sep. 2024, doi: 10.1109/JSEN.2024.342
- 20. M. Wang, X. Qiu\*, Z. Zhang, and S. Gao, "A domain adaptation framework for cross-modality SAR 3D reconstruction point clouds segmentation utilizing LiDAR data", Int. J. Appl. Earth Obs. Geoinf., vol. 133, p. 104103, Sep. 2024, doi: 10.1016/j.jag.2024.104103.
- 21. Y. Wu, R. Song, Z. Zhang\*, X. Qiu, and W. Yu, "GSAT-Net: An Azimuth Ambiguity Suppression Network Based on Group Sparsity and Adaptive Threshold for Undersampling SAR Imaging," IEEE Geosci. Remote Sens. Lett., vol. 21, pp. 1–5, 2024, doi: 10.1109/LGRS.2024.3452796.
- 22. S. Gao, M. Wang, Z. Zhang\*, B. Zhang, and Y. Wu, "Efficient gridless 2D DOA estimation based on generalized matrix-form atomic norm minimization," Electron. Lett., vol. 60, no. 10, p. e13212, May 2024, doi: 10.1049/ell2.13212...
- 23. Y. Zhao, C. Ou, H. Tian, B. W.-K. Ling, Y. Tian, and Z. Zhang\*, "Sparse SAR Imaging Algorithm in Marine Environments Based on Memory-Augmented Deep Unfolding Network," Remote Sens., vol. 16, no. 7, p. 1289, Apr. 2024, doi: 10.3390/rs16071289.
- 24. S. Gao, W. Wang, M. Wang, Z. Zhang\*, Z. Yang, X. Qiu, B. Zhang, and Y. Wu, "A Robust Super-resolution Gridless Imaging Framework for UAV-borne SAR Tomography," IEEE Trans. Geosci. Remote Sens., vol. 62, pp. 1–17, 2024, doi: 10.1109/TGRS.2024.3393972...
- 25. Z. Wang, Z. Wang, X. Qiu, and Z. Zhang\*, "Global Polarimetric Synthetic Aperture Radar Image Segmentation with Data Augmentation and Hybrid Architecture Model," Remote Sens., vol. 16, no. 2, p. 380, Jan. 2024, doi: 10.3390/rs16020380.
- 26. Y. Zhao, Q. Liu, H. Tian, B. W.-K. Ling, and Z. Zhang\*, "DeepRED Based Sparse SAR Imaging," Remote Sens., vol. 16, no. 2, p. 212, Jan. 2024, doi: 10.3390/rs16020212.
- 27. Y. Zhao, Q. Liu, H. Tian, M. Luo, B. W.-K. Ling, and Z. Zhang\*, "New convex approaches to general MVDR robust adaptive beamforming problems," Electron. Lett., vol. 59, no. 18, p. e12957, Sep. 2023, doi: 10.1049/ell2.12957.
- 28. Y. Bai, J. Kang, X. Ding, A. Zhang, Z. Zhang, and N. Yokoya, "LaMIE: Large-Dimensional Multipass InSAR Phase Estimation for Distributed Scatterers," IEEE Trans. Geosci. Remote Sens., vol. 61, pp. 1–15, Nov. 2023, doi: 10.1109/TGRS.2023.3330971.

- 29. D. Zhao, Z. Zhang\*, D. Lu, J. Kang, X. Qiu, and Y. Wu, "CVGG-Net: Ship Recognition for SAR Images Based on Complex-Valued Convolutional Neural Network," IEEE Geosci. Remote Sens. Lett., vol. 20, pp. 1–5, 2023, doi: 10.1109/LGRS.2023.3316133.
- 30. M. Shao, Z. Zhang\*, J. Li, J. Kang, and B. Zhang, "TADCG: A Novel Gridless Tomographic SAR Imaging Approach Based on the Alternate Descent Conditional Gradient Algorithm With Robustness and Efficiency," IEEE Trans. Geosci. Remote Sens., vol. 62, pp. 1–13, 2024, doi: 10.1109/TGRS.2023.3345454.
- 31. Y. Wu, Z. Zhang\*, X. Qiu, Y. Zhao, and W. Yu, "MF-JMoDL-Net: A Sparse SAR Imaging Network for Undersampling Pattern Design towards Suppressed Azimuth Ambiguity," IEEE Trans. Geosci. Remote Sens., vol. 62, pp. 1–18, 2024, doi: 10.1109/TGRS.2024.3397826..
- 32. G. Zhou, Z. Xu, Y. Fan, Z. Zhang, X. Qiu, B. Zhang, K. Fu\* and Y. Wu, "HPHR-SAR-Net: Hyper-pixel High-resolution SAR Imaging Network Based on Nonlocal Total Variation," IEEE J. Sel. Top. Appl. Earth Obs. Remote Sens., vol. 16, pp. 8595–8608, 2023, doi: 10.1109/JSTARS.2023.3295728.
- 33. M. Wang, Z. Zhang\*, X. Qiu, S. Gao, and Y. Wang, "ATASI-Net: An Efficient Sparse Reconstruction Network for Tomographic SAR Imaging with Adaptive Threshold," IEEE Trans. Geosci. Remote Sens., vol. 61, pp. 1–18, 2023, doi: 10.1109/TGRS.2023.3268132.
- 34. R. Shi, Z. Zhang\*, X. Qiu, and C. Ding, "A Novel Gradient Descent Least-Squares (GDLSs) Algorithm for Efficient Gridless Line Spectrum Estimation With Applications in Tomographic SAR Imaging," IEEE Trans. Geosci. Remote Sens., vol. 61, pp. 1–13, 2023, doi: 10.1109/TGRS.2023.3273568.
- 35. J. Li, Z. Xu, Z. Li, Z. Zhang\*, B. Zhang, and Y. Wu, "An Unsupervised CNN-Based Multichannel Interferometric Phase Denoising Method Applied to TomoSAR Imaging," IEEE J. Sel. Top. Appl. Earth Obs. Remote Sens., vol. 16, pp. 3784–3796, Jul. 2023, doi: 10.1109/JSTARS.2023.3263964.
- 36. Y. Zhao, Y. Chen, H. Tian, X. Quan, B. W.-K. Ling, and Z. Zhang\*, "Wide angle SAR imaging method based on hybrid representation," Electron. Lett., vol. 59, no. 15, p. e12897, Aug. 2023, doi: 10.1049/ell2.12897.
- 37. P. Jiang, Z. Zhang\*, B. Zhang, and Z. Xu, "A novel TomoSAR imaging method with few observations based on nested array," IET Radar, Sonar Navig., vol. 17, no. 6, pp. 925–938, Jun. 2023, doi: 10.1049/rsn2.12388.
- 38. J. Kang\*, T. Ji, Z. Zhang, and R. Fernandez-Beltran, "SAR Time Series Despeckling via Nonlocal Matrix Decomposition in Logarithm Domain," Signal Processing, vol. 209, p. 109040, Aug. 2023, doi: 10.1016/j.sigpro.2023.109040.
- 39. 康健 \*, 童风雨, 白雨松, 丁翔, 冀腾宇, and <u>张柘 \*</u>, "基于对数域加性信号分解的时序 SAR 图像相干斑抑制方法," 雷达学报, vol. 12, no. 5, pp. 1031–1043, Mar. 2023, doi: 10.12000/JR22242.
- 40. X. Ding, J. Kang\*, Z. Zhang, Y. Huang, J. Liu, and N. Yokoya, "Coherence-Guided Complex Convolutional Sparse Coding for Interferometric Phase Restoration," IEEE Trans. Geosci. Remote Sens., vol. 60, pp. 1–14, 2022, doi: 10.1109/TGRS.2022.3228279.

- 41. Z. Zhu, J. Kang\*, T. Ji, Z. Zhang, and R. Fernandez-Beltran, "SAR Time-Series Despeckling via Nonlocal Total Variation Regularized Robust PCA," IEEE Geosci. Remote Sens. Lett., vol. 19, pp. 1–5, 2022, doi: 10.1109/LGRS.2022.3227187.
- 42. Y. Zhao, W. Huang, X. Quan, W.-K. Ling, and Z. Zhang\*, "Data-driven sampling pattern design for sparse spotlight SAR imaging," Electron. Lett., vol. 58, no. 24, pp. 920–923, Nov. 2022, doi: 10.1049/ELL2.12650.
- 43. Z. Xu, B. Zhang, Z. Zhang\*, M. Wang, and Y. Wu, "Nonconvex-Nonlocal Total Variation Regularization Based Joint Feature-Enhanced Sparse SAR Imaging," IEEE Geosci. Remote Sens. Lett., vol. 19, pp. 1–1, 2022, doi: 10.1109/lgrs.2022.3222185.
- 44. 吕泽鑫, 仇晓兰\*, <u>张柘</u>, and 丁赤飚, "极化干涉 SAR 面向城区不同处理模式的误差影响分析,", 雷达学报, 2022, doi: 10.12000/JR22059.
- 45. Z. Xu, G. Zhou, B. Zhang, Z. Zhang\* and Y. Wu, "Sparse Regularization Method Combining SVA for Feature Enhancement of SAR Images," Electronics Letters, Jun. 2022, doi: 10.1049/ell2.12509.
- 46. 赵曜, 许俊聪, 全相印, 崔莉, and <u>张柘\*</u>, "基于稀疏和低秩结构的层析 SAR 成像方法," 雷达学报, vol. 11, no. 1, pp. 52-61, 2022.
- 47. 杜邦, 仇晓兰, 张柘, 雷斌, and 丁赤飚, "基于扰动的结合 Off-grid 目标的层析 SAR 三维成像方法," 雷达学报, vol. 11, no. 1, pp. 62-70, 2022.
- 48. Z. Zhang\*, B. Zhang, C. Jiang, X. Liang, L. Chen, W. Hong and Y. Wu, "The First Airborne Experiment of Sparse Microwave Imaging: Prototype System Design and Result Analysis," Available: http://arxiv.org/abs/2110.10675.
- 49. Z. Zhang\*, Y. Wang, and Z. Tian, "Efficient Two-Dimensional Line Spectrum Estimation Based on Decoupled Atomic Norm Minimization," Signal Processing, Vol. 163, pp. 95-106, 2019.
- 50. <u>张柘\*</u>, 张冰尘, 洪文, and 吴一戎, "结合 MD 自聚焦算法与回波模拟算子的快速稀疏微波成像误差补偿算法," 雷达学报, vol. 5, no. 1, pp. 25-34, 2016.
- 51. B. Zhang, Z. Zhang\*, C. Jiang, Y. Zhao, W. Hong and Y. Wu, "System Design and First Airborne Experiment of Sparse Microwave Imaging Radar: Initial Results," Science China Information Sciences (Series F), vol. 58, no. 6, 2015.
- 52. 蒋成龙, 赵曜, 张柘, 张冰尘, and 洪文, "基于相关系数的稀疏微波成像方位向采样优化方法," 电子与信息学报, vol. 37, no. 3, 2015.
- 53. 吴一戎, 洪文, 张冰尘, 蒋成龙, <u>张柘</u>, and 赵曜, "稀疏微波成像研究进展 (科普类)," 雷达学报, vol.3, no. 4, pp. 383–395, 2014.
- 54. C. Jiang\*, B. Zhang, J. Fang, Z. Zhang, W. Hong, Y. Wu and Z. Xu, "An efficient Lq regularization algorithm with range-azimuth decoupled for SAR imaging," Electronics Letters, vol. 50, no. 3, pp. 204–205, 2014.
- 55. Z. Zhang\*, B. Zhang, C. Jiang, Y. Xiang, W. Hong, and Y. Wu, "Influence factors of sparse microwave imaging radar system performance: approaches to waveform design and platform motion analysis," Science China Information Sciences (Series F), vol. 55, no. 10, pp. 2301–2317, 2012.
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#### KEYNOTES / INVITED TALKS

- 1. 张柘 \*, "无网格稀疏信号处理及其在微波成像中的应用", in 当稀疏信号处理技术遇见雷达研讨会, Nanjing, 2021, *invited*.
- 2. <u>张柘\*</u>, "基于深度神经网络隐式约束的 SAR 微波视觉三维成像方法", in 第四届雷达未来大会雷达与微波视觉分论坛暨第四期雷达学报大讲堂, Xi'an, 2024, *invited*.
- 3. <u>张柘\*</u>, "基于微波视觉与多径利用的低空 SAR 城市三位建筑布局重构研究", in 第二届 雷达与信号处理技术及应用大会, Nanjing, 2024, *invited*.
- 4. Z. Zhang\*, "SAR Imaging Methods based on Microwave Vision", in 2024 IEEE International Conference on Signal, Information and Data Processing (ICSIDP), Zhuhai, 2024, *invited*.
- 5. <u>张柘\*</u>, "基于微波视觉的微波智能三维成像理论与方法", in 第一届微波成像技术学术会议, Sanya, 2025, *invited*.
- 6. <u>张柘\*</u>, "星载合成孔径雷达智能成像新体制: 认知成像与智能感知一体化", in CCF 普适计算专委会"泛在中国行"系列活动——苏州独墅湖数据智能论坛与战略研讨, Suzhou, 2025, *invited*.
- 7. <u>张柘\*</u>, "穿越空间的微波之眼", in "科学与中国——千名院士·千场科普"格致论道, Changsha, 2025, *invited*.

#### Invited Peer-reviewed Conference Papers

- 1. Z. Zhang\*, M. Jian, Z. Lu, H. Chen, S. James, C. Wang. and R. Gentile, "Embedded Micro Radar for Pedestrian Detection in Clutter", in IEEE International Radar Conference (RADAR 2020), 2020, invited.
- 2. Z. Zhang\*, B. Zhang, W. Hong, H. Bi and Y. Wu, "SAR Imaging of Moving Target in a Sparse Scene Based on Sparse Constraints: Preliminary Experiment Results," in 2015 IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2015), *invited*.
- 3. W. Hong, B. Zhang, Z. Zhang\*, C. Jiang, Y. Zhao and Y. Wu, "Radar Imaging with Sparse Constraint: Principle and Initial Experiment," in 10th European Conference on Synthetic Aperture Radar (EuSAR 2014), invited.

- 1. H. Huang, W. Li, H. Li, Y. Zhu, D. Lu, and Z. Zhang, "SARRSD: large-scale microwave radar remote sensing mapping-type and recognition-type object detection dataset," in Second Conference of Young Scientists of the Chinese Society of Optical Engineering, L. Cao, Q. Zhang, P. Hu, and L. Liu, Eds., SPIE, Sep. 2025, p. 105. doi: 10.1117/12.3073531.
- 2. Y. Zhao, K. Liu, D. Lu, and Z. Zhang, "A multimodal remote sensing image fusion method for object detection based on tensor decomposition," in Second Conference of Young Scientists of the Chinese Society of Optical Engineering, L. Cao, Q. Zhang, P. Hu, and L. Liu, Eds., SPIE, Sep. 2025, p. 100. doi: 10.1117/12.3073498.
- 3. F. Gong, C. Wang, D. Lu, H. Li, and Z. Zhang\*, "Research on precise positioning method of low-altitude targets based on DOA estimation," in Second Conference of Young Scientists of the Chinese Society of Optical Engineering, L. Cao, Q. Zhang, P. Hu, and L. Liu, Eds., SPIE, Sep. 2025, p. 211. doi: 10.1117/12.3075320.
- 4. Y. Wu, Z. Zhang\*, R. Song, X. Qiu, and W. Yu, "Azimuth Ambiguity Suppression for Sparse SAR Imaging Based on Unfolded Deep Network," Proc. Eur. Conf. Synth. Aperture Radar, EUSAR, pp. 526–530, 2024.
- 5. A. Wang, M. Shang, X. Qiu, and Z. Zhang\*, "L2 Regularized Reconstruction Matched Filter for Azimuth Multichannel SAR," in IGARSS 2024 2024 IEEE International Geoscience and Remote Sensing Symposium, IEEE, Jul. 2024, pp. 1173–11176. doi: 10.1109/igarss53475.2024.10641476.
- M. Wang, X. Qiu, S. Gao, and Z. Zhang, "LiDAR-to-SAR Point Cloud Segmentation via Unsupervised Domain Adaptation Network," in IGARSS 2024 2024 IEEE International Geoscience and Remote Sensing Symposium, IEEE, Jul. 2025, pp. 10808–10812. doi: 10.1109/igarss53475.2024.10641953.
- H. Yang, Z. Huang, and Z. Zhang, "Interpretable Attributed Scattering Center Extracted via Deep Unfolding," in IGARSS 2024 - 2024 IEEE International Geoscience and Remote Sensing Symposium, IEEE, Jul. 2024, pp. 2004–2008. doi: 10.1109/igarss53475.2024.10641709.
- 8. Y. Wu, Z. Zhang\*, X. Qiu, Y. Zhao, W. Yu, and R. Song, "An efficient azimuth sampling design network for sparse SAR imaging," in IET International Radar Conference (IRC 2023), Institution of Engineering and Technology, 2023, pp. 2994–2998. doi: 10.1049/icp.2024.1570.
- 9. G. Zhou, Z. Xu, Y. Fan, Z. Zhang, B. Zhang\*, and Y. Wu, "Deep unfolding network for sparse SAR imaging based on compound regularization," in IET International Radar Conference (IRC 2023), Institution of Engineering and Technology, 2023, pp. 3536–3540. doi: 10.1049/icp.2024.1673.
- 10. Z. Wang, Z. Wang, X. Qiu, and Z. Zhang\*, "End-to-end global segmentation of PolSAR images with data augmentation," in IET International Radar Conference (IRC 2023), Institution of Engineering and Technology, 2023, pp. 1816–1820. doi: 10.1049/icp.2024.1359.
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- 14. M. Wang, S. Gao, Z. Zhang\*, and X. Qiu, "A Novel Multi-Channel Phase Error Estimation Method Based On Stochastic Optimization For Tomographic SAR Autofocusing," in IGARSS 2023 2023 IEEE International Geoscience and Remote Sensing Symposium, Jul. 2023, pp. 7953–7956. doi: 10.1109/IGARSS52108.2023.102829
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- 18. M. Wang, Z. Zhang\*, Y. Wang, S. Gao, and X. Qiu, "TomoSAR-ALISTA: Efficient TomoSAR imaging via deep unfolded network," in International Conference on Radar Systems (RADAR 2022), 2022, pp. 528–533. doi: 10.1049/icp.2023.1289.
- 19. Z. Xu, G. Zhou, B. Zhang, Z. Zhang, and Y. Wu, "An Accurate Sparse SAR Imaging Method for Joint Feature Enhancement Based on Nonconvex-Nonlocal Total Variation Regularization," in 14th European Conference on Synthetic Aperture Radar (EUSAR 2022), 2022, pp. 576–581. [Online]. Available: https://ieeexplore.ieee.org/document/9944320.
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- 25. Z. Zhang and Z. Tian\*, "ANM-PhaseLift: Structured Line Spectrum Estimation from Quadratic Measurements", in 7th IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP 2017), 2017.
- 26. Z. Tian, Z. Zhang\* and Y. Wang, "Low-complexity optimization for Two-Dimensional Direction-of-arrival Estimation via Decoupled Atomic Norm Minimizationg", in 42th International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2017), 2017.
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- 35. Z. Zhang\*, B. Zhang, W. Hong, and Y. Wu, "Waveform Design for Lq Regularization Based Radar Imaging and An Approach to Radar Imaging with Non-moving Platform," in 9th European Conference on Synthetic Aperture Radar (EuSAR 2012), 2012.

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- 2. <u>张柘</u>, 余佳童, 马梓瑞, 傅世平, 陈宇凡, 王纯一, and 吕旖旎, "一种基于深度展开网络的SAR 稀疏成像方法与系统," CN202510486386.X.
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- 5. 马梓瑞, 张冰尘, 吕旖旎, and <u>张柘</u>, "稀疏合成孔径雷达成像方法、装置、设备、介质及产品," CN202510516768.2.
- 6. 铁雯婕, 卢东东, 李杭, 张柘, and 李臣, "一种面向运动模糊和雾霾影响的光学图像质量盲评价方法及系统," CN202411939598.0.
- 7. 仇晓兰, 王沐涵, 高四琳, 罗一通, <u>张柘</u>, and 焦泽坤, "一种基于微波视觉的阵列干涉 SAR 误差估计方法与装置," ZL202411777220.5.
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