

# 张 柘 (Zhe Zhang)

研究员, 博士生导师, IEEE Senior Member  
国家 “海外优青”  
中科院 “百人计划”, 江苏省 “双创人才”, 苏州市 “姑苏领军人才”  
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## Working Experience (工作经历)

2023.01–	Lab Vice Director (副主任), Academic Leader (学术带头人)
2022.04–	Professor (研究员), Ph.D Supervisor (博士生导师)
2021.01–2022.04	Associate Professor (副研究员, “百人计划” 创新研究员), 硕士生导师 <b>Aerospace Information Research Institute, CAS</b> <b>中国科学院空天信息创新研究院</b> , Beijing 100190, China <b>National Key Laboratory of Microwave Imaging</b> <b>微波成像全国重点实验室</b> , Beijing 100190, China <b>Suzhou Aerospace Information Research Institute</b> <b>苏州空天信息研究院</b> , Suzhou, Jiangsu 215000, China <b>Suzhou Key Laboratory of Microwave Imaging, Processing and Application Technology</b> <b>苏州市微波成像处理及应用技术重点实验室</b> , Suzhou, Jiangsu 215000, China 研究方向: 稀疏信号处理, 稀疏微波成像, 合成孔径雷达, 三维成像, 深度学习与信号处理的结合, 机器学习.
2023.10–	Double Employed Professor (双聘教授) <b>University of Chinese Academy of Sciences</b> <b>中国科学院大学</b> , Beijing 100190, China
2023.09–	Adjunct Professor (兼职教授) <b>Qian Xuesen Honors College, Xi'an Jiaotong University</b> <b>西安交通大学, 钱学森学院</b> , Xi'an, Shaanxi 710049, China
2024.10–	Adjunct Professor (兼职教授) <b>Harbin Engineering University</b> <b>哈尔滨工程大学</b> , Harbin, Heilongjiang, China

2025.05–	Adjunct Professor (兼职教授) <b>Beijing University of Posts and Telecommunications</b> 北京邮电大学, Beijing, China
2016.12–2020.06	Post-Doctoral Research Fellow (博士后研究员) <b>George Mason University</b> , Fairfax, VA 22030, USA Advisor: Tian, Zhi (田智), Professor, IEEE Fellow 研究方向: 稀疏信号处理, 原子范数优化, 深度学习与信号处理的结合.
2015.12–2016.11	Post-Doctoral Research Scientist (博士后研究员) <b>George Washington University</b> , Washington, DC 20052, USA Advisor: Tian, Zhi (田智), Professor, IEEE Fellow Cheng, Xiuzhen (成秀珍), Professor, IEEE Fellow 研究方向: 稀疏信号处理, 原子范数优化.

## Education (教育经历)

2009.09–2015.07	PH.D. (工学博士) / 信号与信息处理 <b>Institute of Electronics, Chinese Academy of Sciences</b> <b>University of Chinese Academy of Sciences</b> 中国科学院电子学研究所 / 中国科学院大学, Beijing 100190, China Supervisor: 吴一戎, 中国科学院院士, 研究员 研究方向: 稀疏微波成像, 稀疏信号处理, 合成孔径雷达.
2014.01–2014.04	VISITING STUDENT (访问学生) <b>University of Connecticut</b> , Storrs, CT 06269, USA Supervisor: Zhou, Shengli (周胜利), Professor, IEEE Fellow.
2004.09–2008.07 2003.09–2004.07	B. ENG. (工学学士) / 信息工程, 电子与信息工程学院 SPECIAL CLASS FOR GIFTED YOUNG (少年班) <b>Xi'an Jiaotong University</b> 西安交通大学, Xi'an, Shaanxi 710049, China.

## Research Projects (研究项目)

2023.12–	多波束星载高分宽幅 SAR 系统技术, 2535 万元 资助: 国家重点研发计划, #2023YFB3904900 项目主持人 (首席科学家).
2023.1–	稀疏信号处理及其在微波成像中的应用研究, 300 万元 资助: 国家自然科学基金 (NSFC) 优秀青年科学基金 (海外) 项目主持人.
2024.7–	基于昇腾底座的多模态遥感大数据智能平台技术研发及其应用, 500 万元 资助: 江苏省前沿技术研发计划项目

	项目主持人.
2021.1–2023.12	<p><b>稀疏信号处理与深度学习及其在微波成像中的应用</b>, 400 万元</p> <p>资助: 中国科学院 “百人计划”</p> <p>项目主持人.</p>
2021.12–	<p><b>微波三维成像的高效感知系统与技术的研发</b>, 50 万元</p> <p>资助: 苏州市科技发展项目, #ZXL2022381</p> <p>项目主持人.</p>
2023.1–	<p><b>基于稀疏信号处理与微波视觉理论的微波三维成像雷达系统</b>, 50 万元</p> <p>资助: 江苏省 “双创人才”</p> <p>项目负责人.</p>
2023.1–	<p><b>智能边缘系统算力评估与协同部署研究</b>, 200 万元</p> <p>资助: <i>KJW</i> * * * * 协同创新中心课题</p> <p>课题负责人.</p>
2023.1–	<p><b>* * * * * SAR 成像处理与信息提取</b>, 200 万元</p> <p>资助: 中国科学院 * * * * * 重点部署项目</p> <p>课题负责人.</p>
2021.7–	<p><b>结构信号的自适应高效感知理论及在微波成像中的应用</b>, 130 万元</p> <p>资助: 中科院空天院前沿科学与颠覆性先导专项</p> <p>项目主持人.</p>
2023.1–	<p><b>* * * * * 星载 SAR 系统技术</b>, 8500 万元</p> <p>资助: <i>KJW</i> * * * * 创新特区重点项目</p> <p>项目核心参与人, 处理系统负责人.</p>
2023.1–	<p><b>街角盲区建筑布局重建机理与方法</b>, 500 万元</p> <p>资助: <i>KJW</i> * * * * 基础加强课题</p> <p>子课题负责人.</p>
2020.1–	<p><b>合成孔径雷达微波视觉三维成像理论与应用基础研究</b>, 2000 万元</p> <p>资助: 国家自然科学基金 (<i>NSFC</i>) 重大项目, #61991421, 61991420</p> <p>子课题负责人.</p>
2018.8–2018.11	<p><b>A Gated LFMCW TDMA MIMO SAR based Hidden Chamber Detector</b>, 15 万美元</p> <p>资助: <i>USSOCOM SBIR</i>, #S173-004-0118</p> <p>信号处理及仿真负责人.</p>
2015.12–2020.6	<p><b>Task-Cognizant Sparse Sensing for Inference</b>, 40 万美元</p> <p>资助: <i>National Science Foundation (NSF) Standard Grant</i>, #1527396</p> <p>参与.</p>
2010.04–2015.07	<p><b>稀疏微波成像的理论、体制和方法研究</b>, 3300 万元</p> <p>资助: 国家重大基础科学研究计划 (<i>973</i> 计划), #2010CB731900</p> <p>机载部分负责人.</p>

2012.04–2015.07	先进微波探测与信息处理, 430 万元 资助: 中国科学院 / 国家外国专家局 “创新团队” 合作伙伴计划 核心参与者.
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## Honors (荣誉)

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2024.09	江苏省首席科技传播专家 / 江苏省科协
2024.11	Wiley 威立中国高贡献作者 (Wiley China Excellent Author Program) / Wiley
2022.01	国家优秀青年基金 (海外) / 国家自然科学基金委员会 (NSFC)
2021.01	中国科学院 “百人计划” / 中国科学院
2021.12	苏州市 “姑苏领军人才” / 苏州市
2022.12	江苏省 “双创人才” / 江苏省
2022	中国科学院 “青年交叉团队” 成员 / 中国科学院

## Awards (获奖)

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2022.03	全国颠覆性技术创新大赛 / 中华人民共和国科技部 总决赛优秀奖
2021.12	优胜奖
2021.12	优秀奖
2008.04	德州仪器 (TI) DSP 大奖赛 / Texas Instruments 优胜奖
2008.02	美国大学生数学建模竞赛 / COMAP Meritorious (一等奖)
2007.02	Honorable Mentioned (二等奖)
2006.09	中国大学生数学建模竞赛 / 中国工业与应用数学学会 (CSIAM) 二等奖

## Services (学术服务)

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### Professional Society Membership and Services (学术组织与服务)

2021.07–	Xi'an Jiaotong-Liverpool University (西交利物浦大学) External Mentor (校外导师)
2021.11–	Pilotage Mentor (领航导师)

	<b>IEEE</b>
2024.01–	<i>Senior Member</i>
2016.01–2024.01	<i>Member</i>
2010.01–2015.12	<i>Student Member</i>
	<b>CSIG (中国图象图形学学会)</b>
	<b>微波智能成像专业委员会 (筹)</b>
2024.06–	专委会委员
	<b>CNC-ISDE (国际数字地球学会中国国家委员会)</b>
	<b>微波对地观测专业委员会</b>
2024.06–	专委会委员
	<b>CIC (中国通信学会)</b>
2025.05–	高级会员
	<b>空天地融合通信网络专业委员会</b>
2025.05–	专委会委员
	<b>苏州市青年科技工作者协会</b>
2024.11–	理事
	<b>CIE (中国电子学会)</b>
2021.04–	<i>Member (会员)</i>
	<b>JSAAI (江苏省人工智能学会)</b>
2020.11–	<i>Member (会员)</i>

### Journal Reviewers (期刊审稿人)

- *IEEE Transactions on Signal Processing* Journal, SCI.
- *IEEE Signal Processing Letters* Journal, SCI.
- *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.
- 雷达学报 Journal, EI.

#### **Vice President of Organizing Committee Member (学术会议组委会副主席)**

- 第五届全国雷达对地观测大会, Suzhou, China, May 23-25, 2025.

#### **Organizing Committee Member and Technical Program Chair (学术会议组委会成员及学术主席)**

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

#### **Session Chair (学术会议分会场主席)**

- 2023 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 (学术会议学术委员会成员 / 审稿人)**

2024 | PIERS 2024, ICC 2024, CoSeRa 2024, EECSE 2024, Globecom2024, IJEECS 2024, EET 2024, ICSIDP 2024, AIT 2024.

2023 | EECSE 2023, iSemantic 2023, Globecom 2023, SIRS 2023, IJCDS 2023, IJEECS 2023, IET Radar 2023.

2022 | EET 2022, EECSE 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.

## Professional Skills (专业技能)

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专业方向: 深度学习/AI, 机器学习与信号处理方法的结合, 稀疏信号处理与低秩优化, 合成孔径雷达.

专业技能: 大型在线社区开发、运营与维护, Linux 运维, GNU 工具链,  $\LaTeX$ .  
MATLAB, C/C++/Python/JavaScript.

## Languages (语言)

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

## Hobbies (兴趣)

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IT, 开源, 编程, Linux, 数码, 互联网.  
音乐, 动漫, 历史, 常旅客.

## Open Source Projects and Services (主持开源项目)

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2006.04–2015.11	兵马俑 BBS ( <a href="http://bbs.xjtu.edu.cn/">http://bbs.xjtu.edu.cn/</a> , <a href="http://bmybbs.com/">http://bmybbs.com/</a> ) Host: <a href="https://github.com/bmybbs?type=source">https://github.com/bmybbs?type=source</a> <i>Technical Leader</i> 兵马俑 BBS 是中国教育网最大的 BBS 站点之一, 属于西安交通大学. 兵马俑 BBS 服务 50000 多名用户, 同时在线数最高 5000. 项目代码超过 10 万行.
2010.06–2019.04	科苑星空 BBS ( <a href="http://bbsucas.ac.cn/">http://bbsucas.ac.cn/</a> , <a href="http://kyxk.net/">http://kyxk.net/</a> ) <i>Technical Leader</i> 科苑星空 BBS 是中国科学院的官方社区. 科苑星空 BBS 服务 30000 多名用户, 同时在线数最高 1500. 项目代码超过 12 万行.

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

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### JOURNAL ARTICLES

1. 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.
2. 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.
3. 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 InSAR,” *IEEE J. Sel. Top. Appl. Earth Obs. Remote Sens.*, vol. 18, pp. 10320–10336, 2025, doi: 10.1109/JSTARS.2025.3555662.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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.



11. 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.
12. 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.
13. 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.
14. 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.
15. X. Qiu, Y. Luo, S. Song, L. Peng, Y. Cheng, Q. Yan, S. Shangguan, Z. Jiao, Z. Zhang, and C. Ding, "Microwave Vision Three-dimensional SAR Experimental System and Full-polarimetric Data Processing Method," *Journal of Radars*, vol. 13, no. 5, pp. 941–954, Sep. 2024, doi: 10.12000/JR24137, in Chinese.
16. 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
17. 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.
18. 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.
19. 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..
20. 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.
21. 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..
22. 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.
23. 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.

24. 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.
25. 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.
26. 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.
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#### KEYNOTES / INVITED TALKS

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