

Weijie Gan

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EDUCATION

Washington University in St. Louis , St. Louis, MO, United States <i>Ph.D. in Computer Science</i> <ul style="list-style-type: none">• Advisors: Prof. Ulugbek Kamilov and Prof. Hongyu An• Thesis: "Computational Imaging under Incomplete Information"	2020 - 2025
Washington University in St. Louis , St. Louis, MO, United States <i>M.Sc. in Computer Science</i>	2018 - 2020
South China University of Technology , Guangzhou, China <i>B.Eng. in Automation & B.Business in Administration (dual-degree)</i>	2014 - 2018

EXPERIENCE

Siemens Healthineers , Princeton, NJ, United States <i>Research Intern</i> <ul style="list-style-type: none">• Host: Dr. Mariappan Nadar and Dr. Mahmoud Mostapha	05/2024 - 08/2024
Siemens Healthineers , Knoxville, TN, United States <i>Research Intern</i> <ul style="list-style-type: none">• Host: Dr. Jorge Cabello and Dr. Maurizio Conti	05/2023 - 08/2023
Los Alamos National Laboratory , Los Alamos, NM, United States <i>Research Intern</i> <ul style="list-style-type: none">• Host: Dr. Brendt Wohlberg	05/2022 - 10/2022

AWARDS

• <i>First-place Young Investigator Award</i> , SNMMI Annual Meeting	2024
• <i>Distinguished Reviewer</i> , IEEE Transaction on Medical Imaging	2022-2023
• <i>Student Paper Award Finalist</i> , IEEE CAMSAP	2023
• <i>Best-in-Physics Award in Imaging</i> , AAPM Annual Meeting	2022
• <i>Honor PhD</i> (top 15%), Washington University in St. Louis	2021 & 2023
• <i>Tuition Scholarship</i> , Washington University in St. Louis	2019-2020
• <i>Research Fellowship</i> , Washington University in St. Louis	2019-2020
• <i>Annual Third Prize Scholarship</i> , South China University of Technology	2015-2016

PUBLICATION

(* indicates equal contribution)

Journal:

- a1. H. Xie, **W. Gan**, W. Ji, X. Chen, A. Alashi, S. L. Thorn, B. Zhou, Q. Liu, M. Xia, X. Guo, Y.H. Liu, H. An, U. S. Kamilov, G. Wang, A. J. Sinusas, and C. Liu, "A Generalizable 3D Diffusion Framework for Low-Dose and Few-View Cardiac SPECT", **Medical Image Analysis**, 2025.

- a2. **W. Gan***, C. Y. Park*, Z. Zou, Y. Hu, Z. Sun, and U. S. Kamilov, “Efficient Model-Based Deep Learning via Network Pruning and Fine-Tuning”, **Journal of Mathematical Imaging and Vision**, 2025.
- a3. X. Xu, **W. Gan**, S. V.V.N. Kothapalli, D. A. Yablonskiy, and U. S. Kamilov, “CoRECT: A Deep Unfolding Framework for Motion-Corrected Quantitative R2* Mapping”, **Journal of Mathematical Imaging and Vision**, 2025.
- a4. **W. Gan**, H. Xie, C. von Gall, G. Platsch, M.T. Jurkiewicz, A. Andrade, U.C. Anazodo, U.S. Kamilov, H. An, and J. Cabello, “Pseudo-MRI-Guided PET Image Reconstruction Method Based on a Diffusion Probabilistic Model”, **IEEE Transactions on Radiation and Plasma Medical Sciences (TRPMS)**, 2025.
- a5. **W. Gan***, Y. Hu*, C. Ying, T. Wang, C. Eldeniz, J. Liu, Y. Chen, H. An, and U. S. Kamilov, “SPICER: Self-Supervised Learning for MRI with Automatic Coil Sensitivity Estimation and Reconstruction”, **Magn. Reson. Med. (MRM)**, 2024.
- a6. **W. Gan**, Q. Zhai, M. T. McCann, C. G. Cardona, U. S. Kamilov, and B. Wohlberg. “PtychoDV: Vision Transformer-Based Deep Unrolling Network for Ptychographic Image Reconstruction”, **IEEE Open J. Signal Process. (OJSP)**, 2024.
- a7. **W. Gan**, C. Ying, P. E. Borojoni, T. Wang, C. Eldeniz, Y. Hu, J. Liu, Y. Chen, H. An, and U. S. Kamilov, “Self-Supervised Deep Equilibrium Models for Inverse Problems with Theoretical Guarantees and Applications to MRI Reconstruction”, **IEEE Trans. Comput. Imag. (TCI)**, 2023.
- a8. S. Chen, C. Eldeniz, T. J. Fraum, D. R. Ludwig, **W. Gan**, J. Liu, U. S. Kamilov, D. Yang, H. Michael Gach, and H. An, “Respiratory motion management using a single rapid MRI scan for a 0.35 T MRILinac system”, **Medical physics**, 2023.
- a9. S. Chen, T. J. Fraum, C. Eldeniz, J. Mhlanga, **W. Gan**, T. Vahle, U. B. Krishnamurthy, D. Faul, H. M. Gach, M. M. Binkley, U. S. Kamilov, R. Laforest, and H. An, “MRassisted PET respiratory motion correction using deeplearning based shortscan motion fields”, **Magn. Reson. Med. (MRM)**, 2022.
- a10. X. Xu, S. V. V. N. Kothapalli, J. Liu, S. Kahali, **W. Gan**, D. Yablonskiy, and U. S. Kamilov, “Learning-based Motion Artifact Removal Networks for Quantitative R2* Mapping”, **Magn. Reson. Med. (MRM)**, 2022.
- a11. **W. Gan**, Y. Sun, C. Eldeniz, J. Liu, H. An and U. S. Kamilov, “Deformation-compensated learning for image reconstruction without ground truth”, **IEEE Transactions on Medical Imaging (TMI)**, 2022. **[Impact factor=10.60]**
- a12. J. Liu, Y. Sun, **W. Gan**, X. Xu, B. Wohlberg, and U. S. Kamilov, “SGD-Net: Efficient Model-Based Deep Learning with Theoretical Guarantees”, **IEEE Trans. Comput. Imag. (TCI)**, 2021.
- a13. **W. Gan***, C. Eldeniz*, S. Chen, T.J. Fraum, D. R. Ludwig, Y. Yan, J. Liu, T. Vahle, U. B. Krishnamurthy, U. S. Kamilov, and H. An, “Phase2Phase: Respiratory Motion-Resolved Reconstruction of Free-Breathing MRI Using Deep Learning Without a Ground Truth for Improved Liver Imaging”, **Investig. Radiol.**, 2021. **[Impact factor=10.06]**
- a14. J. Liu, Y. Sun, C. Eldeniz, **W. Gan**, H. An, and U. S. Kamilov, “RARE: Image Reconstruction using Deep Priors Learned without Ground Truth”, **IEEE J. Sel. Top. Signal Process. (JSTSP)**, 2020.

Conference:

- b1. Y. Hu, A. Peng, **W. Gan**, P. Milanfar, M. Delbracio, and U. S. Kamilov, “Stochastic deep restoration priors for imaging inverse problems”, *Proc. Int. Conf. Mach. Learn. (ICML)*, 2025.
- b2. **W. Gan***, A. Li*, and U. S. Kamilov, “Plug-and-Play Posterior Sampling for Blind Inverse Problems”, *IEEE Statistical Signal Processing Workshop (SSP)*, 2025.
- b3. **W. Gan***, H. Gao*, Y. Hu, H. An, and U. S. Kamilov, “A Self-supervised Diffusion Bridge for MRI Reconstruction”, *Proc. Int. Symp. Biomedical Imaging (ISBI)*, 2025.
- b4. Z. Zou, J. Liu, S. Shoushtari, Y. Wang, **W. Gan**, and U. S. Kamilov, “FLAIR: A Conditional Diffusion Framework with Applications to Face Video Restoration”, *Proc. IEEE Winter Conf. Appl. Comput. Vis. (WACV)*, 2025.
- b5. **W. Gan***, J. Hu*, Z. Sun, H. An, and U. S. Kamilov. “A Plug-and-Play Image Registration Network”, *Proc. Int. Conf. Learn. Represent. (ICLR)*, 2024. **[Acceptance rate: 2250/7304=30.8%]**
- b6. Y. Hu, S. V. V. N. Kothapalli, **W. Gan**, A. L. Sukstanskii, G. F. Wu, M. Goyal, D. A. Yablonskiy, and U. S. Kamilov, “DiffGEPCI: 3D MRI Synthesis from mGRE Signals using 2.5D Diffusion Model”, *Proc. Int. Symp. Biomedical Imaging (ISBI)*, 2024.

- b7. **W. Gan**, S. Shoushtari, Y. Hu, J. Liu, H. An, and U. S. Kamilov, "Block Coordinate Plug-and-Play Methods for Blind Inverse Problems", Proc. Adv. Neural Inf. Process. Syst. (**NeurIPS**), 2023. [Acceptance rate: 3222/12343=26.1%]
- b8. **W. Gan***, H. Gao*, Z. Sun, and U. S. Kamilov, "SINCO: A Novel structural regularizer for image compression using implicit neural representations", Proc. IEEE Int. Conf. Acoustics, Speech and Signal Process (**ICASSP**), 2023.
- b9. C. Park, S. Shoustari, **W. Gan**, and U. S. Kamilov, "Convergence of Nonconvex PnP-ADMM With MMSE Denoisers", Proc. Int. Workshop on Computational Advances in Multi-Sensor Adaptive Process. (**CAMSAP**) 2023.
- b10. J. Liu, X. Xu, **W. Gan**, S. Shoushtari, and U. S. Kamilov, "Online Deep Equilibrium Learning for Regularization by Denoising", Proc. Adv. Neural Inf. Process. Syst. (**NeurIPS**), 2022.
- b11. W. Shanguan, Y. Sun, **W. Gan**, and U. S. Kamilov, "Learning Cross-Video Neural Representations for High-Quality Frame Interpolation", Proc. European Conference on Computer Vision (**ECCV**), 2022.
- b12. **W. Gan***, Y. Hu*, C. Eldeniz, J. Liu, Y. Chen, H. An, and U. S. Kamilov, "SS-JIRCS: Self-Supervised Joint Image Reconstruction and Coil Sensitivity Calibration in Parallel MRI without Ground Truth", Proc. IEEE Int. Conf. Comp. Vis. Workshops (**ICCVW**), 2021.
- b13. **W. Gan**, Y. Sun, C. Eldeniz, H. An and U. S. Kamilov, "Deep Image Reconstruction using Unregistered Measurements without Groundtruth", Proc. Int. Symp. Biomedical Imaging (**ISBI**), 2021.
- b14. M. Xie, J. Liu, Y. Sun, **W. Gan**, B. Wohlberg, and U. S. Kamilov, "Joint Reconstruction and Calibration using Regularization by Denoising", Proc. IEEE Int. Conf. Comp. Vis. Workshops (**ICCVW**), 2021.
- b15. J. Liu, Y. Sun, **W. Gan**, X. Xu, B. Wohlberg, and U. S. Kamilov, "Stochastic Deep Unfolding for Imaging Inverse Problems", Proc. IEEE Int. Conf. Acoustics, Speech and Signal Process. (**ICASSP**), 2021.
- b16. **W. Gan**, C. Eldeniz, J. Liu, H. An, and U. S. Kamilov, "Image Reconstruction for MRI using Deep CNN Priors Trained without Ground Truth", Proc. 54th Asilomar Conf. Signals, Systems, & Computers (**Asilomar**), 2020.

Workshop and Abstract:

- c1. H. Xie, **W. Gan**, W. Ji, M. Xia, J. Hou, Q. Liu, H. An, U. S. Kamilov, G. Wang, C. Liu, "Dose-aware diffusion model with representation alignment for simultaneous 3D low-dose PET-CT imaging", Journal of Nuclear Medicine 66 (supplement 1), 2025.
- c2. **W. Gan***, X. Wang*, T. Wang, C. Ying, Y. Hu, Y. Chen, H. An, U. S. Kamilov, "A Unified Diffusion Model for Multimodal Image Reconstruction and Synthesis", Proceedings of the 29th Annual Meeting of the **ISMRM**, 2025.
- c3. X. Guo, V. Shah, D. Pigg, G. Platsch, X. Chen, H. Xie, **W. Gan**, C. Liu, L. Partin, and B. Spottiswoode, "Generative uptake time correction for SUV harmonization in whole-body PET", Proceeding of Annual Meeting of the **SNMMI**, 2024.
- c4. H. Xie, **W. Gan**, B. Zhou, M.K. Chen, M. Kulon, A. Boustani, X. Chen, Q. Liu, X. Guo, M. Xia, Y. Zhou, H. Liu, L. Guo, H. An, U. S. Kamilov, H. Wang, B. Li, A. Rominger, K. Shi, G. Wang, R. D Badawi, and C. Liu. "Dose-aware diffusion model for 3D low-dose PET denoising: A multi-institutional validation with reader study and real low-dose data", Proceeding of Annual Meeting of the **SNMMI**, 2024.
- c5. H. Xie, **W. Gan**, X. Chen, B. Zhou, Q. Liu, M. Xia, X. Guo, Y.H. Liu, H. An, U. S Kamilov, G. Wang, A. J Sinusas, and C. Liu. "Dose-aware Diffusion Model for 3D Low-count Cardiac SPECT Image Denoising with Projection-domain Consistency", IEEE Nuclear Science Symposium (NSS), Medical Imaging Conference (MIC) and Room Temperature Semiconductor Detector Conference (RTSD), 2024.
- c6. C. Guo, S. Chen, W. Gan, Y. Hu, J. Liu, C. Eldeniz, Y. Chen, U. S. Kamilov, T. J Fraum, and H. An, "MOTIF-CORD: Motion Integrated Forward Model with Co-Estimated Coil Sensitivity and Regularization by Denoiser for Free Breathing Liver DCE-MRI", Proceedings of the 28th Annual Meeting of the **ISMRM**, 2024.
- c7. X. Guo, V. Shah, D. Pigg, G. Platsch, X. Chen, H. Xie, W. Gan, N. C. Dvornek, C. Liu, G. Hermosillo, L. Partin, and B. Spottiswoode, "Time-Aware GAN for Uptake Time Correction and Standard Uptake Value Harmonization in Dynamic PET Imaging", GenAI for Health: Potential, Trust and Policy Compliance, 2024.
- c8. M. David, Y. Yuan, A. Bacon, A. Movva, S. Shah, B. Lang, **W. Gan**, I. Berke, U. S. Kamilov, and S. Lake, "Machine Learning Approaches To Segment And Cluster Cells Of The Cartilage And Capsule In Rat Elbow Histology Sections." Osteoarthritis and Cartilage 31 (2023): S55-S56.

- c9. S. Chen, C. Eldeniz, T. J. Fraum, D. Ludwig, **W. Gan**, U. S. Kamilov, D. Yang, and H. An, “Respiratory Motion Detection and Reconstruction Using CAPTURE and Deep Learning Phase2Phase Network for a 0.35 T MRI-LINAC System”, Ann. Meeting American Association of Physicists in Medicine (**AAPM**), 2022. **[Best-in-Physics Award in Imaging]**
- c10. S. Chen, **W. Gan**, C. Eldeniz, U. S. Kamilov, T. J. Fraum, and H. An, “DL-MOTIF: Deep Learning Based Motion Transformation Integrated Forward-Fourier Reconstruction for Free-Breathing Liver DCE-MRI”, Proceedings of the 30th Annual Meeting of the **ISMRM**, 2022.
- c11. P. E. Boroojeni, P. Commean, C. Eldeniz, **W. Gan**, G. Skolnick, K. Patel, U. S. Kamilov, and H. An, “Rapid high-resolution cranial bone MRI using deep-learning prior image reconstruction”, Proceedings of the 30th Annual Meeting of the **ISMRM**, 2022.
- c12. S. Chen, C. Eldeniz, **W. Gan**, U. S. Kamilov, T. Fraum, and H. An, “Forward-Fourier Motion-Corrected Reconstruction for Free-Breathing Liver DCE-MRI”, Proceedings of the 29th Annual Meeting of the **ISMRM**, 2021.
- c13. S. Chen, C. Eldeniz, **W. Gan**, U. S. Kamilov, D. Yang, M. Gach, and H. An, “Respiratory Motion Detection and Reconstruction Using CAPTURE and Deep Learning for a 0.35 T MRI-LINAC System: An Initial Study”, Proceedings of the 29th Annual Meeting of the **ISMRM**, 2021.
- c14. J. Liu, C. Eldeniz, Y. Sun, **W. Gan**, S. Chen, H. An, and U. S. Kamilov, “RED-N2N: Image reconstruction for MRI using deep CNN priors trained without ground truth”, Proceedings of the 28th Annual Meeting of the **ISMRM**, 2020.
- c15. C. Eldeniz, **W. Gan**, S. Chen, J. Liu, U. S. Kamilov, and H. An, “Phase2Phase: Reconstruction of free-breathing MRI into multiple respiratory phases using deep learning without a ground truth”, Proceedings of the 28th Annual Meeting of the **ISMRM**, 2020.

Patent:

- d1. H. An, U. S. Kamilov, C. Sihao, C. Eldeniz, **W. Gan**, J. Liu, and T. Fraum. “Free breathing dynamic contrast enhanced (DCE) liver MR imaging”. US Patent 12,201,413, 2025.
- d2. H. An, U. S. Kamilov, **W. Gan**, C. Eldeniz, and J. Liu. “Systems and Methods of Reconstructing Magnetic Resonance Images using Deep Learning,” US Patent 12,000,918, 2024.
- d3. U. S. Kamilov, H. An, Y. Hu, J. Liu, C. Eldeniz, **W. Gan**, and Y. Chen. “Self-supervised joint image reconstruction and coil sensitivity calibration in parallel mri without ground truth.” US. Patent App. 17/968,541, 2023
- d4. H. An, U. S. Kamilov, P. E. Boroojeni, **W. Gan**, J. Liu, and Y. Hu. “Self-supervised deep learning reconstruction with weighted training loss.” US Patent App. 18/483,258, 2024.

Preprinted:

- e1. H. Xie, **W. Gan**, B. Zhou, M.-K. Chen, M. Kulon, A. Boustani, B. A. Spencer, R. Bayerlein, W. Ji, X. Chen, Q. Liu, X. Guo, M. Xia, Y. Zhou, H. Liu, L. Guo, H. An, U. S. Kamilov, H. Wang, B. Li, A. Rominger, K. Shi, G. Wang, R. D Badawi, and C. Liu. “Dose-aware Diffusion Model for 3D Low-dose PET: Multi-institutional Validation with Reader Study and Real Low-dose Data”, [arXiv:2405.12996].
- e2. Y. Hu, A. Peng, **W. Gan**, and U. S Kamilov. “ADOBI: Adaptive Diffusion Bridge For Blind Inverse Problems with Application to MRI Reconstruction”, [arXiv:2411.16535].
- e3. **W. Gan**^{*}, H. Xie^{*}, B. Zhou, X. Chen, Q. Liu, X. Guo, L. Guo, H. An, U. S. Kamilov, G. Wang, and C. Liu. “Dose-aware Diffusion Model for 3D Ultra Low-dose PET Imaging”, [arXiv:2311.04248].

PRESENTATION & TALK

- p1. “Learning under Inexact Data and Model for Computational Imaging”, Stanford Computational Imaging Lab, April 2025, Online.
- p2. “Advancing Computational Imaging via Model-based Deep Learning”, Stanford Laboratory of Artificial Intelligence in Medicine and Biomedical Physics, Feb 2025, Online.

- p3. “Learning under Inexact Data and Model for Computational Imaging”, Grundfest Memorial Lecture Series in Graphics and Imaging, May 2024, Online.
- p4. “SINCO: A Novel structural regularizer for image compression using implicit neural representations”, Asilomar 2023, Pacific Grove, CA, USA.
- p5. “Deep Learning Method for Accelerated Magnetic Resonance Imaging (MRI) without Groundtruth”, WashU Imaging Sciences Pathway (ISP) Retreats 2021, Virtual.
- p6. “Deep Image Reconstruction using Unregistered Measurements without Groundtruth”, Proc. Int. Symp. Biomedical Imaging (ISBI), 2021, Virtual.
- p7. “Image reconstruction for MRI using deep CNN priors trained without ground truth”, Proc. 54th Asilomar Conf. Signals, Systems, & Computers (Asilomar), 2020, Virtual.

PROFESSIONAL SERVICES

Professional Societies:

- IEEE Student Member and IEEE Signal Processing Society Student Member (2020 - present).
- The International Society for Magnetic Resonance in Medicine (ISMRM), Graduate Trainee (2020 - present).

Journal Reviewer:

- IEEE Transaction on Medical Imaging (**TMI**)
- IEEE Transaction on Computational Imaging (**TCI**)
- IEEE Transaction on Image Processing (**TIP**)
- IEEE Transactions on Circuits and Systems for Video Technology (**TCSVT**)
- IEEE Transactions on Radiation and Plasma Medical Sciences (**TRPMS**)
- BMC Medical Imaging
- Scientific Report
- Visual Computer
- Journal of Mathematical Imaging and Vision

Conference Reviewer:

- International Conference on Learning Representations (**ICLR**) 2024/2025/2026
- Conference on Neural Information Processing Systems (**NeurIPS**) 2023/2025/2026
- IEEE CVF Computer Vision and Pattern Recognition Conference (**CVPR**) 2023/2024/2025/2026
- European Conference on Computer Vision (**ECCV**) 2024
- Asian Conference on Computer Vision (**ACCV**) 2024
- IEEE CVF International Conference on Computer Vision (**ICCV**) 2023/2025
- IEEE CVF International Conference on Computer Vision Workshop (**ICCVW**) 2021
- IEEE International Symposium on Biomedical Imaging (**ISBI**) 2021/2022/2023/2024/2025
- IEEE International Conference on Acoustics, Speech and Signal Processing (**ICASSP**) 2022/2023/2024/2025
- International Conference on Machine Learning (**ICML**) 2022
- IEEE International Conference on Image Processing (**ICIP**) 2022/2023/2024
- International Symposium on Computational Sensing (**ISCS**) 2023
- Winter Conference on Applications of Computer Vision (**WACV**) 2026

TEACHING SERVICE

As Course Teaching Assistant:

- ESE 415 Optimization, WashU. 2021 Spring & 2022 Spring & 2023 Spring
- ESE 513/CSE 534A Large-Scale Optimization for Data Science, WashU. 2021 Fall & 2022 Fall & 2023 Fall

STUDENT SUPERVISION

Co-advised with Prof. Ulugbek Kamilov at WashU:

- Yangpeng Yuan (B.S. CSE, 2020-2021), achievement: [c8.] *Now at Hive*
- Yuyang Hu (M.S. ESE, 2020-2022), achievement: [a5., b12., d3.] *Now Ph.D. at WashU*
- Ian Hudson (M.S. CSE, 2021-2022) *Now at Microsoft*
- Tillman H. James (M.S. ESE, 2021-2022) *Now at FTI Consulting*
- Nan Huang (M.S. CSE, 2021-2022) *Now at Aivres*
- Dian Jing (M.S. CSE, 2021-2022)
- Vincent Siu (B.S. and M.S. CSE, 2021-2023) *Now Ph.D. at WashU*
- Harry Gao (B.S. CSE, 2021-2024), achievement: [b8., b3.] *Now at Paraform*
- Chicago Park (B.S. CSE, 2022-2024), achievement: [a2.] *Now Ph.D. at WashU*
- Junhao Hu (M.S. ESE, 2022-2023), achievement: [b5.] *Now Ph.D. at WashU*
- David Wang (B.S. CSE, 2023-2025), achievement: [c2.] *Now M.S. at Harvard*
- Haoyu Zhang (M.S. ESE, 2023-2025) *Now at Marvell*
- Anqi Li (M.S. CSE, 2024-2025), achievement: [b2.]