Ulugbek S. Kamilov **Curriculum Vitæ (nov 2025)**

University of Wisconsin–Madison
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Education

2011-2015 **École Polytechnique Fédérale de Lausanne (EPFL)**, Lausanne, Switzerland
PhD in Electrical Engineering

2005-2010 **EPFL**, Lausanne, Switzerland
Bachelor of Science (BS) and Master of Science (MS) in Communication Systems

Postgraduate academic and research appointments

2025-present **University of Wisconsin–Madison (UW-Madison),** Madison, WI, USA
Director of Computational Imaging Group (CIG)
Leon and Elizabeth Janssen Associate Professor of
Electrical and Computer Engineering (ECE
Discovery Fellow at Wisconsin Institute for Discovery (WID)

2017-2025 **Washington University in St. Louis (WashU),** St. Louis, MO, USA
Director of Computational Imaging Group (CIG)
Donald L. Snyder Associate Professor of
Electrical and Systems Engineering (ESE) and
Computer Science and Engineering (CSE)

2024 **École Normale Supérieure (ENS),** Paris, France
Visiting Professor at Data Science Center and Kastler-Brossel Laboratory

2023-2024 **Google Research**, Mountain View, CA, USA
Visiting Faculty Researcher

2015-2017 **Mitsubishi Electric Research Laboratories (MERL),** Cambridge, MA, USA
Research Scientist

Other professional and academic experience

2013 **Stanford University,** Stanford, CA, USA
Visiting Student Researcher in the Information Systems Lab (ISL)

2010-2011 **Massachusetts Institute of Technology (MIT)**, Cambridge, MA, USA
Visiting Student in the Research Lab of Electronics (RLE)

2009 **Microsoft,** Zurich, Switzerland
Intern

2007-2008 **Carnegie Mellon University (CMU)**, Pittsburgh, PA, USA
Exchange Student in Electrical and Computer Engineering (ECE)

Honors and awards

2025 Donald L. Snyder Career Development Professorship at WashU

2024 IEEE Signal Processing Society Pierre-Simon Laplace Early Career Technical Achievement

2023 Outstanding Teaching Award from the ESE department of WashU

2021 NSF CAREER Award

2021 Fellow of the Scialog Initiative on “Advancing Biomaging”

2017 IEEE Signal Processing Society Best Paper Award

2017	IEEE ICASSP Student Paper Award finalist
2016	EPFL Doctorate Award finalist
2013	Education Award from the EPFL Department of Life Sciences
2011	IEEE CAMSAP Student Paper Award finalist

Research interests and expertise

My research focuses on the development of new algorithms and mathematical tools for computational imaging. Topics of interest include score-based generative models, large-scale optimization, modern signal processing, and biomedical imaging. Research effort takes place at two complementary levels: (a) fundamental and mathematical aspects of imaging; (b) application-oriented projects in collaboration with researchers in medicine and biology.

Publications

Journal

1. E. P. Chandler, S. Shoushtari, B. Wohlberg, and U. S. Kamilov, "Closed-Form Approximation of the Total Variation Proximal Operator," *IEEE Trans. Comput. Imag.*, vol. 11, pp. 1217-1228, 2025

2. N. Yismaw, U. S. Kamilov, and M. S. Asif, "Gaussian is All You Need: A Unified Framework for Solving Inverse Problems via Diffusion Posterior Sampling," *IEEE Trans. Comput. Imag.,* vol. 11, pp. 1020-1030, 2025

3. S. Zhao, L. Chibani, E. P. Chandler, F. Liu, J. Hu, L. Valzania, U. S. Kamilov, and H. B. de Aguiar, "Computational field-resolved coherent chemical imaging," *Nat. Commun.*, vol. 16, no. 7406, 2025
   ★ High impact journal in the Nature portfolio

4. Z. Sun, J. M. Godbe, A. Zheleznyak, B. Manion, J. Hu, J. L. Prior, K. Duncan, U. S. Kamilov, and M. Shokeen, "Advanced quantification pipeline reveals new spatial and temporal tumor characteristics in preclinical multiple myeloma," *EJNMMI Res.*, vol. 15, no. 95, 2025

5. A. K. Scott, D. M. Fodera, P. Yang, A. Arter, A. M. Hines, S. S. Kolluru, S. G. Zambuto, K. M. Myers, U. S. Kamilov, A. O. Odibo, and M. L. Oyen, "Bioengineering approaches for patient-specific analysis of placenta structure and function," *Placenta*, vol. 166, pp. 154-163, June 2025

6. C. Y. Park, M. T. McCann, C. Garcia-Cardona, B. Wohlberg, and U. S. Kamilov, "Random Walks with Tweedie: A Unified Framework for Diffusion Models," vol. 42, no. 3, pp. 40-51, May 2025

7. C. Y. Park, W. Gan, Z. Zou, Y. Hu, Z. Sun, and U. S. Kamilov, "Efficient Model-Based Deep Learning via Network Pruning and Fine-Tuning," *J. Math. Imaging Vis.*, vol. 67, no. 21, 2025

8. X. Xu, W. Gan, S. V. V. N. Kothapalli, D. A. Yablonskiy, and U. S. Kamilov, "CoRRECT: A Deep Unfolding Framework for Motion-Corrected Quantitative R2* Mapping," *J. Math. Imaging Vis.*, vol. 67, no. 20, 2025

9. W. Gan, H. Xie, C. von Gall, and 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 Trans. Radiat. Plasma Med. Sci.*, vol. 9, no. 4, April 2025

10. P. Goyes-Penafiel, U. S. Kamilov, and H. Arguello, "CDDIP: Constrained Diffusion-Driven Deep Image Prior for Seismic Data Reconstruction," *IEEE Geosci. Remote Sens. Lett.*, vol. 22, pp. 1-5, 2025

11. Z. Zhang, Y. Hao, X. Jin, D. Yang, U. S. Kamilov and G. D. Hugo, "Fast motion-compensated reconstruction for 4D-CBCT using deep learning-based groupwise registration," *Biomed. Phys. Eng. Express*, vol. 11, no. 1, p. 015030, 2025

12. Y. Hu, W. Gan, 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.*, vol. 92, no. 3, pp. 1048-1063, September 2024

13. 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.*, vol. 5, pp. 539-547, 2024

14. N. Yismaw, U. S. Kamilov, and M. S. Asif, "Domain Expansion via Network Adaptation for Solving Inverse Problems," *IEEE Trans. Comput. Imag.*, vol. 10, pp. 549-559, 2024

15. P. Cascarano, A. Benfenati, U. S. Kamilov, and X. Xu, "Constrained Regularization by Denoising With Automatic Parameter Selection," *IEEE Signal Process. Lett.*, vol. 31, pp. 556-560, 2024

16. S. Chen, C. Eldeniz, T. J. Fraum, D. R. Ludwig, W. Gan, J. Liu, U. S. Kamilov, D. Yang, H. M. Gach, and H. An, "Respiratory motion management using a single rapid MRI scan for a 0.35 T MRI-Linac system," *Med. Phys.*, vol. 50, no. 10, pp. 6163-6176, October 2023

17. Z. Zou, J. Liu, B. Wohlberg, and U. S. Kamilov, "Deep Equilibrium Learning of Explicit Regularizers for Imaging Inverse Problems," *IEEE Open J. Signal Process*, vol. 4, pp. 390-398, 2023

18. W. Gan, C. Ying, P. Eshraghi, 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," *IEEE Trans. Comput. Imag.*, vol. 9, pp. 796-807, 2023

19. S. Kahali, S. V. V. N. Kothapalli, X. Xu, U. S. Kamilov, and D. Yablonskiy, "Deep-Learning-Based Accelerated and Noise-Suppressed Estimation (DANSE) of quantitative Gradient Recalled Echo (qGRE) MRI metrics associated with Human Brain Neuronal Structure and Hemodynamic Properties," *NMR Biomed.*, vol. 36, no. 5, p. e4883, May 2023

20. Z. Zhang, J. Liu, D. Yang, U. S. Kamilov, and G. Hugo, "Deep learning-based motion compensation for four-dimensional cone-beam computed tomography (4D-CBCT) reconstruction," *Med. Phys.*, vol. 50, no. 2, pp. 808-820, February 2023

21. U. S. Kamilov, C. A. Bouman, G. T. Buzzard, and B. Wohlberg, "Plug-and-Play Methods for Integrating Physical and Learned Models in Computational Imaging," *IEEE Signal Process. Mag.*, vol. 40, no. 1, pp. 85-97, January 2023

22. S. Shoushtari, J. Liu, Y. Hu, and U. S. Kamilov, "Deep Model-Based Architectures for Inverse Problems under Mismatched Priors," *IEEE J. Sel. Areas Inf. Theory*, vol. 3, no. 3, pp. 468-480, September 2022

23. R. Liu, Y. Sun, J. Zhu, L. Tian, and U. S. Kamilov, "Recovery of Continuous 3D Refractive Index Maps from Discrete Intensity-Only Measurements using Neural Fields," *Nat. Mach. Intell.*, vol. 4, pp. 781–791, September 2022
    ★ High impact journal in the Nature portfolio

24. W. Gan, Y. Sun, C. Eldeniz, J. Liu, H. An, and U. S. Kamilov, "Deformation-Compensated Learning for Image Reconstruction without Ground Truth," *IEEE Trans. Med. Imag.*, vol. 41, no. 9, pp. 2371-2384, September 2022

25. 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, "MR-Assisted PET Respiratory Motion Correction Using Deep-Learning Based Short-Scan Motion Fields," *Magn. Reson. Med.*, vol. 88, no. 2, pp. 676-690, 2022

26. 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.*, vol. 88, no. 1, pp. 106-119, July 2022

27. Z. Hou, C. A. Guertler, R. J. Okamoto, H. Chen, J. R. Garbow, U. S. Kamilov, and P. V. Bayly, "Estimation of the mechanical properties of a transversely isotropic material from shear wave fields via artificial neural networks," *J. Mech. Behav. Biomed. Mater.*, vol. 126, p. 105046, February 2022

28. Y. Sun, J. Liu, M. Xie, B. Wohlberg, and U. S. Kamilov, "CoIL: Coordinate-based Internal Learning for Tomographic Imaging," *IEEE Trans. Comput. Imag.*, vol. 7, pp. 1400-1412, November 2021

29. E. Cihat, W. Gan, 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 Magnetic Resonance Imaging Using Deep Learning Without a Ground Truth for Improved Liver Imaging," *Invest. Radiol.*, vol. 56, no. 12, pp. 809-819, December 2021

30. Y. Sun, Z. Wu, X. Xu, B. Wohlberg, and U. S. Kamilov, "Scalable Plug-and-Play ADMM with Convergence Guarantees," *IEEE Trans. Comput. Imag.*, vol. 7, pp. 849-863, July 2021

31. 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.*, vol. 7, pp. 598-610, June 2021

32. 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. Topics Signal Process.*, vol. 14, no. 6, pp. 1088-1099, October 2020

33. Z. Wu, Y. Sun, A. Matlock, J. Liu, L. Tian, and U. S. Kamilov, "SIMBA: Scalable Inversion in Optical Tomography using Deep Denoising Priors," *IEEE J. Sel. Topics Signal Process.*, vol. 14, no. 6, pp. 1163-1175, October 2020

34. X. Xu, Y. Sun, J. Liu, and U. S. Kamilov, "Provable Convergence of Plug-and-Play Priors with MMSE denoisers," *IEEE Signal Process. Lett.*, vol. 27, pp. 1280-1284, 2020

35. M. Torop, S. Kothapalli, Y. Sun, J. Liu, S. Kahali, D. A. Yablonskiy, and U. S. Kamilov, "Deep learning using a biophysical model for Robust and Accelerated Reconstruction (RoAR) of quantitative and artifact-free R2* images," *Magn. Reson. Med.*, vol. 84, pp. 2932-2942, 2020

36. Y. Sun, J. Liu, and U. S. Kamilov, "Block Coordinate Regularization by Denoising," *IEEE Trans. Comput. Imag.*, vol. 6, pp. 908-921, 2020

37. G. Song, Y. Sun, J. Liu, Z. Wang, and U. S. Kamilov, "A New Recurrent Plug-and-Play Prior Based on the Multiple Self-Similarity Network," *IEEE Signal Process. Lett.*, vol. 27, pp. 451-455, December 2020

38. Y. Sun, B. Wohlberg, and U. S. Kamilov, "An Online Plug-and-Play Algorithm for Regularized Image Reconstruction," *IEEE Trans. Comput. Imaging*, vol. 5, no. 3, pp. 395-408, September 2019

39. W. Tahir, U. S. Kamilov, and L. Tian, "Holographic Particle Localization under Multiple Scattering," *SPIE Adv. Photon.*, vol. 1, no. 3, p. 036003, May/June 2019

40. H. Mansour, D. Liu, U. S. Kamilov, and P. T. Boufounos, "Sparse Blind Deconvolution for Distributed Radar Autofocus Imaging," *IEEE Trans. Comput. Imaging*, vol. 4, no. 4, pp. 537-551, December 2018

41. E. Bostan, U. S. Kamilov, and L. Waller, "Learning-based Image Reconstruction via Parallel Proximal Algorithm," *IEEE Signal Process. Lett.*, vol. 25, no. 7, pp. 989-993, July 2018

42. Y. Sun, Z. Xia, and U. S. Kamilov, "Efficient and accurate inversion of multiple scattering with deep learning," *Opt. Express*, vol. 26, no. 11, pp. 14678-14688, May 2018

43. H.-Y. Liu, D. Liu, H. Mansour, P. T. Boufounos, L. Waller, and U. S. Kamilov, "SEAGLE: Sparsity-Driven Image Reconstruction under Multiple Scattering," *IEEE Trans. Comput. Imag.*, vol. 4, no. 1, pp. 73-86, March 2018

44. U. S. Kamilov, H. Mansour, and B. Wohlberg, "A Plug-and-Play Priors Approach for Solving Nonlinear Imaging Inverse Problems," *IEEE Signal Process. Lett.*, vol. 24, no. 12, pp. 1872-1876, December 2017

45. U. S. Kamilov and P. T. Boufounos, "Motion-Adaptive Depth Superresolution," *IEEE Trans. Image Process.*, vol. 26, no. 4, pp. 1723-1731, April 2017

46. U. S. Kamilov, "A Parallel Proximal Algorithm for Anisotropic Total Variation Minimization," *IEEE Trans. Image Process.*, vol. 26, no. 2, pp. 539–548, February 2017

47. S. Rangan, A. K. Fletcher, P. Schniter, and U. S. Kamilov, "Inference for Generalized Linear Models via Alternating Directions and Bethe Free Energy Minimization," *IEEE Trans. Inf. Theory*, vol. 63, no. 1, pp. 676-697, January 2017

48. U. S. Kamilov, D. Liu, H. Mansour, and P. T. Boufounos, "A Recursive Born Approach to Nonlinear Inverse Scattering," *IEEE Signal Process. Lett.*, vol. 23, no. 8, pp. 1052-1056, August 2016

49. U. S. Kamilov and H. Mansour, "Learning optimal nonlinearities for iterative thresholding algorithms," *IEEE Signal Process. Lett.*, vol. 23, no. 5, pp. 747–751, May 2016

50. U. S. Kamilov, I. N. Papadopoulos, M. H. Shoreh, A. Goy, C. Vonesch, M. Unser, and D. Psaltis, "Optical tomographic image reconstruction based on beam propagation and sparse regularization," *IEEE Trans. Comput. Imag.*, vol. 2, no. 1, pp. 59–70, March 2016

51. U. S. Kamilov, I. N. Papadopoulos, M. H. Shoreh, A. Goy, C. Vonesch, M. Unser, and D. Psaltis, "Learning Approach to Optical Tomography," *Optica*, vol. 2, no. 6, pp. 517–522, June 2015
    ★ Covered in Nature "News & Views" article "Computational imaging: Machine learning for 3D microscopy" in July 2015 (Nature, Vol. 523, Iss. 7561, p. 416, 2015)

52. U. S. Kamilov, I. N. Papadopoulos, M. H. Shoreh, D. Psaltis, and M. Unser, "Isotropic inverse-problem approach for two-dimensional phase unwrapping," *J. Opt. Soc. Am. A*, vol. 32, no. 6, pp. 1092–1100, June 2015

53. U. S. Kamilov, E. Bostan, and M. Unser, "Variational Justification of Cycle Spinning for Wavelet-Based Solutions of Inverse Problems," *IEEE Signal Process. Lett.*, vol. 21, no. 11, pp. 1326–1330, November 2014

54. U. S. Kamilov, S. Rangan, A. K. Fletcher, and M. Unser, "Approximate Message Passing with Consistent Parameter Estimation and Application to Sparse Learning," *IEEE Trans. Inf. Theory*, vol. 60, no. 5, pp. 2969–2985, May 2014

55. E. Bostan, U. S. Kamilov, M. Nilchian, and M. Unser, "Sparse Stochastic Processes and Discretization of Linear Inverse Problems," *IEEE Trans. Image Process.*, vol. 22, no. 7, pp. 2699–2710, July 2013

56. A. Kazerouni, U. S. Kamilov, E. Bostan, and M. Unser, "Bayesian Denoising: From MAP to MMSE Using Consistent Cycle Spinning," *IEEE Signal Process. Lett.*, vol. 20, no. 3, pp. 249–252, March 2013

57. A. Amini, U. S. Kamilov, E. Bostan, and M. Unser, "Bayesian Estimation for Continuous-Time Sparse Stochastic Processes," *IEEE Trans. Signal Process.*, vol. 61, no. 4, pp. 907–920, February 2013

58. U. S. Kamilov, P. Pad, A. Amini, and M. Unser, "MMSE Estimation of Sparse Lévy Processes," *IEEE Trans. Signal Process.*, vol. 61, no. 10, pp. 137–147, January 2013

59. U. S. Kamilov, V. K. Goyal, and S. Rangan, "Message-Passing De-Quantization with Applications to Compressed Sensing," *IEEE Trans. Signal Process.*,vol. 60, no. 12, pp. 6270–6281, December 2012.
    ★ IEEE Signal Processing Society Best Paper Award 2017

60. U. S. Kamilov, A. Bourquard, A. Amini, and M. Unser, "One-Bit Measurements with Adaptive Thresholds," *IEEE Signal Process. Lett.*, vol. 19, no. 10., pp. 607–610, October 2012

61. U. S. Kamilov, E. Bostan, and M. Unser, "Wavelet Shrinkage with Consistent Cycle Spinning Generalizes Total Variation Denoising," *IEEE Signal Process. Lett.*, vol. 19, no. 4, pp. 187–190, April 2012

Conference, symposium, and workshop papers

1. C. Y. Park, Y. Hu, M. T. McCann, C. Garcia-Cardona, B. Wohlberg, and U. S. Kamilov, "Plug-and-Play Priors as a Score-Based Method," Proc. IEEE Int. Conf. Image Proc. (ICIP 2025) (Anchorage, AK, USA, September 14-17), pp. 49-54

2. 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) (Vancouver, Canada, July 13-19), pp. 24621-24652
    ★ Selective Machine Learning conference

3. M. Terris, U. S. Kamilov, and T. Moreau, “FiRe: Fixed-points of Restoration Priors for Solving Inverse Problems,” Proc. IEEE/CVF Conf. Comput. Vis. Pattern Recognit. (CVPR 2025) (Nashville, TN, USA, June 11-15), pp. 23185-23194
   ★ Selective Computer Vision conference

4. A. Li, W. Gan, and U. S. Kamilov, “Plug-and-Play Posterior Sampling for Blind Inverse Problems,” Proc. IEEE Stat. Signal Process. Workshop (SSP 2025) (Edinburgh, UK, June 8-11), pp. 81-85

5. P. Goyes-Penafiel, H. Arguello, and U. S. Kamilov, “Enhancing Seismic Post-stack Reconstruction with Diffusion Models: Addressing Uncertainty and Structural Complexity,” Proc. IEEE Stat. Signal Process. Workshop (SSP 2025) (Edinburgh, UK, June 8-11), pp. 86-90

6. N. T. Yismaw, U. S. Kamilov, and M. S. Asif, “Covariance-Corrected Diffusion Models for Solving Inverse Problems,” Proc. IEEE Stat. Signal Process. Workshop (SSP 2025) (Edinburgh, UK, June 8-11), pp. 26-30

7. H. Gao, W. Gan, Y. Hu, H. An, and U. S. Kamilov, “A Self-Supervised Diffusion Bridge for MRI Reconstruction,” Proc. IEEE Int. Symp. Biomed. Imaging (ISBI 2025) (Houston, TX, USA, February 28-March 4), pp. 1-4

8. 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 Wint. Conf. on Appli. of Comp. Vis. (WACV 2025) (Tucson, AZ, USA, February 28-March 4), pp. 5228-5238

9. S. Shoushtari, J. Liu, E. P. Chandler, M. S. Asif, and U. S. Kamilov, “Prior Mismatch and Adaptation in PnP-ADMM with a Nonconvex Convergence Analysis,” Proc. Int. Conf. Mach. Learn. (ICML 2024) (Vienna, Austria, July 21-27), pp. 45154-45182
   ★ Selective Machine Learning conference

10. Y. Hu, S. V. V. N. Kothapalli, W. Gan, A. L. Sukstanskii, G. F. Wu, M. Goyal, D. A. Yablonskiy, U. S. Kamilov, “DiffGEPCI: 3D MRI Synthesis from mGRE Signals using 2.5D Diffusion Model,” Proc. IEEE Int. Symp. Biomed. Imaging (ISBI 2024) (Athens, Greece, May 27-30)

11. Y. Hu, M. Delbracio, P. Milanfar, and U. S. Kamilov, “A Restoration Network as an Implicit Prior,” Proc. Int. Conf. Learn. Represent. (ICLR 2024) (Vienna, Austria, May 7-11)
   ★ Selective Machine Learning conference

12. J. Hu, W. Gan, Z. Sun, H. An, and U. S. Kamilov, “A Plug-and-Play Image Registration Network,” Proc. Int. Conf. Learn. Represent. (ICLR 2024) (Vienna, Austria, May 7-11)
   ★ Selective Machine Learning conference

13. M. Renaud, J. Liu, V. de Bortoli, A. Almansa, and U. S. Kamilov, “Plug-and-Play Posterior Sampling under Mismatched Measurement and Prior Models,” Proc. Int. Conf. Learn. Represent. (ICLR 2024) (Vienna, Austria, May 7-11)
   ★ Selective Machine Learning conference

14. 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. Ann. Conf. Neural Information Processing Systems (NeurIPS 2023) (New Orleans, LA, USA, December 10-December 16), pp. 78607-78620
   ★ Selective Machine Learning conference

15. S. Hurault, U. S. Kamilov, A. Leclaire, and N. Papadakis, “Convergent Bregman Plug-and-Play Image Restoration for Poisson Inverse Problems,” Proc. Ann. Conf. Neural Information Processing Systems (NeurIPS 2023) (New Orleans, LA, USA, December 10-December 16), 27251-27280
   ★ Selective Machine Learning conference

16. 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) (Los Suenos, Costa Rica, December 10-13), pp. 511-515
   ★ Student Paper Award finalist

17. E. P. Chandler, S. Shoustari, J. Liu, M. S. Asif, and U. S. Kamilov, "Overcoming Distribution Shifts in Plug-And-Play Methods With Test-Time Training," Proc. Int. Workshop on Computational Advances in Multi-Sensor Adaptive Process. (CAMSAP 2023) (Los Suenos, Costa Rica, December 10-13), pp. 186-190

18. J. Liu, R. Anirudh, J. J. Thiagarajan, S. He, K. A. Mohan, H. Kim, and U. S. Kamilov, "DOLCE: A Model-Based Probabilistic Diffusion Framework for Limited-Angle CT Reconstruction," Proc. IEEE Int. Conf. Comp. Vis. (ICCV 2023) (Paris, France, October 2–6), pp. 10498-10508
    ★ Selective Computer Vision conference

19. S. Shoushtari, J. Liu, and U. S. Kamilov, "Diffusion Models for Phase Retrieval in Computational Imaging," Proc. 57th Asilomar Conf. Signals, Systems, & Computers 2023, (Pacific Grove, CA, USA, October 29-November 1), pp. 779-783

20. T. Kerepecky, J. Liu, X. W. Ng, D. W. Piston, U. S. Kamilov, "Dual-Cycle: Self-Supervised Dual-View Fluorescence Microscopy Image Reconstruction using CycleGAN," Proc. IEEE Int. Conf. Acoustics, Speech and Signal Process. (ICASSP 2023) (Rhodes Island, Greece, June 4–10), pp. 1-5

21. 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) (Rhodes Island, Greece, June 4–10), pp. 1-5

22. J. Hu, S. Shoushtari, Z. Zou, J. Liu, Z. Sun, and U. S. Kamilov, "Robustness of Deep Equilibrium Architectures to Changes in the Measurement Model," Proc. IEEE Int. Conf. Acoustics, Speech and Signal Process. (ICASSP 2023) (Rhodes Island, Greece, June 4–10), pp. 1-5

23. P. E. Boroojeni, W. Gan, J. Liu, Y. Hu, Y. Chen, P. Commean, C. Eldeniz, T. Wang, G. Skolnick, C. Merrill, K. Patel, Hongyu An, and U. S. Kamilov, "Deep Unfolding MR reconstruction - weighting the k-space sampling Density in training Loss (wkDeLo)," Proc. Int. Soc. of Magnetic Resonance in Medicine (ISMRM 2023) (Toronto, Canada, 3-8 June)

24. J. Liu, X. Xu, W. Gan, S. Shoushtari, and U. S. Kamilov, "Online Deep Equilibrium Learning for Regularization by Denoising," Proc. Ann. Conf. Neural Information Processing Systems (NeurIPS 2022) (New Orleans, LA, USA, November 28-December 9), pp. 25363-25376
    ★ Selective Machine Learning conference

25. W. Shangguan, 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) (Tel-Aviv, Israel, October 23-27), pp. 511-528
    ★ Selective Computer Vision conference

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27. A. H. Al-Shabili, X. Xu, I. Selesnick, and U. S. Kamilov, "Bregman Plug-and-Play Priors," Proc. IEEE Int. Conf. Image Proc. (ICIP 2022) (Bordeaux, France, October 16-19), pp. 241-245

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    ★ Best-in-Physics Award (Imaging)

2. 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) (Washington, DC, 10-14 July), #66527
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Thesis

1. U. S. Kamilov, "Sparsity-Driven Statistical Inference for Inverse Problems," Swiss Federal Institute of Technology Lausanne, EPFL Thesis no. 6545 (2015), 198 p., March 27, 2015
    ★ EPFL Doctorate Award finalist 2016

2. U. S. Kamilov, "Optimal Quantization for Compressive Sensing with Relaxed Belief Propagation," Master's Thesis EPFL/MIT, April 2011

Book chapters

1. J. Liu, R. Hyder, S. Asif, and U. S. Kamilov, “Optimization Algorithms for MR Reconstruction,” in Magnetic Resonance Image Reconstruction, M. Akcakaya, M. Doneva, C. Prieto, Eds. Elsevier, 2022, ch. 3, pp. 59–72

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2. Y. Ma, H. Mansour, D. Liu, P. T. Boufounos, and U. S. Kamilov, "Accelerated Image Reconstruction for Nonlinear Diffractive Imaging,” arXiv:1708.01663

3. S. Shoushtari, E. P. Chandler, J. Zhang, M. Senanayake, S. V. Pingali, M. Foston, and U. S. Kamilov, “PnP Restoration with Domain Adaptation for SANS,” arXiv:2403.10495

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Patents

1. “Self-supervised deep learning image reconstruction with weighted training loss” with H. An, W. Gan, P. E. Boroojeni, W. Gan, J. Liu, and Y. Hu (US Patent Application 20240135604)

2. “Self-supervised joint image reconstruction and coil sensitivity calibration in parallel MRI without ground truth” with H. An, Y. Hu, J. Liu, C. Eldeniz, W. Gan, and Y. Chen (US Patent Application 20230122658)

3. “Systems and methods of reconstructing magnetic resonance images using deep learning” with H. An, W. Gan, C. Eldeniz, and J. Liu, 04/2023 (US Patent 12,000,918)

4. “System and Method for Robust Sensor Localization Based on Euclidean Distance Matrix,” with D. Liu, H. Mansour, and P. T. Boufounos, 11/2020 (US Patent 10,823,845)

5. “System and Method for Fused Radar Imaging Under Position Ambiguity of Antennas,” with H. Mansour, D. Liu, and P. T. Boufounos, 06/2020 (US Patent 10,677,915)

6. “Sparsity Enforcing Neural Network,” with H. Mansour and D. Liu, 05/2020 (US Patent 10,657,446)

7. “System and Method for Fusing Outputs of Sensors Having Different Resolutions,” with J. Castorena and P. T. Boufounos, 03/2020 (US Patent 10,582,121)

8. “System and Method for Determining Structure of Material,” with D. Liu and H. Mansour, 02/2020 (US Patent 10,571,408)

9. “System and Method for Radar Imaging Using Distributed Moving Platforms Under Unknown Position Perturbations,” with D. Liu and P. T. Boufounos (US Patent 10,545,232)

10. “Systems and Methods for Multi-Spectral Image Super-Resolution,” with D. Liu, B. Wen, H. Mansour, and P. T. Boufounos, 11/2019 (US Patent 10,482,576)

11. “Online convolutional dictionary learning,” with K. Degraux, P. T. Boufounos, and D. Liu, 09/2019 (US Patent 10,409,888)

12. “Systems and Methods of Fusing Multi-angle View HD Images Based on Epipolar Geometry and Matrix Completion,” with D. Liu, Y. Ma, H. Mansour, Y. Taguchi, P. T. Boufounos, and A. Vetro, 02/2019 (US Patent 10,212,410)

13. “Method and System for Motion Adaptive Fusion of Optical Images and Depth Maps Acquired by Cameras and Depth Sensors,” with P. T. Boufounos, 12/2018 (US Patent 10,148,873)

14. “System and Method for Radar Imaging Using Distributed Arrays and Compressive Sensing,” with D. Liu and P. T. Boufounos, 08/2018 (US Patent 10,042,046)

15. “System and Method for Through-the-Wall-Radar-Imaging using Total-Variation Denoising, with H. Handa, H. Mansour, and D. Liu, 05/2018 (US Patent 9,971,019)

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Invited talks

1. CIRM, Marseille, France, Inverse Problem Workshop, 10/2025

2. Johns Hopkins University, Baltimore, MD, Deep Reconstruction Workshop, 03/2025

3. University of Lille, France, SigMA seminar, 06/2024

4. University of Rennes, France, IETR Seminar, 06/2024

5. University of Cote d’Azur, Sophia Antipolis, France, i3S Seminar, 06/2024

6. Inria Saclay, Paris, France, DATAIA Seminar, 06/2024

7. Gordon Research Conference on Image Science, Sunday River, ME, 06/2024

8. University of Bologna, Italy, Summer School on Mathematics ML for Image Analysis, 06/2024

9. UCLouvain, Louvain-la-Neuve, Departement of Mathematical Engineering, 05/2024
10. International Centre for Mathematical Sciences, Edinburgh, Scotland, 04/2024
11. Heriot-Watt University, Edinburgh, Scotland, School of Engineering and Physical Sciences, 04/2024
12. Inria Saclay, Paris, France, Le Séminaire Palaisien, 04/2024
13. ENS Ulm, Paris, France, Data Science Center Seminar, 03/2024
14. University of Wisconsin–Madison, WI, USA, ECE Machine Learning in Medical Imaging, 03/2024
15. Langevin Institute, Paris, France, 02/2024
16. Saint Louis University, St. Louis, MO, USA, AI for Medicine Workshop, 10/2023
17. University of Michigan, Ann Arbor, MI, USA, Generative AI Symposium, 09/2023
18. International Congress on Industrial and Applied Mathematics, Tokyo, Japan, 08/2023
19. AFOSR Workshop on Materials Science and Machine Learning, Dayton, OH, USA, 07/2023
20. International Symposium on Computational Sensing, Luxembourg, 06/2023 (plenary)
21. University College London, The United Kingdom, High-Beams Seminar, 05/2023
22. Bilkent University, Ankara, Turkey, 05/2023
23. BASP, Villars-sur-Ollon, Switzerland, 02/2023
24. Mathematics and Image Analysis (MIA), Berlin, Germany, 01/2023
25. EPFL, Lausanne, Switzerland, Seminar Series in Imaging, 12/2022
26. Université de Bordeaux, Bordeaux, France, Institut de Mathématiques de Bordeaux, 12/2022
27. ENS de Lyon, Lyon, France, Machine Learning and Signal Processing Seminars, 12/2022
28. Workshop on Mathematical Models for Plug-and-play Image Restoration, Paris, France, 12/2022
29. Machine Learning Photonics Workshop, Como, Italy, 08/2022
30. Google, Mountain View, CA, USA, Computational Imaging Workshop, 07/2022
31. CVPR 2022, New Orleans, LA, USA, UG2+ workshop, 06/2022
32. Koc University, Istanbul, Turkey, KUIS AI Meetings, 05/2022
33. IPMS 2022, Malta, “Inverse Problems with Deep Learning” Symposium, 05/2022
34. Boston University, MA, USA, ECE Seminar, 03/2022
35. University of Wisconsin, Madison, WI, USA, SILO Seminar Series, 03/2022
36. WashU, St. Louis, MO, USA, EECE Seminar, 03/2022
37. University of Liverpool, UK, “Mathematical Imaging Techniques” Seminar, 02/2022
38. National Science Foundation, Alexandria, VA, USA, CIF Town-hall, 01/2022

39. Purdue University, Lafayette, IN, USA, Computational Imaging Seminar, 12/2021
40. WashU, St. Louis, MO, USA, Imaging Science Seminar, 11/2021
41. CNRS GDR, Toulouse, France, “Neural Networks for Inverse Problems”, 09/2021
42. IST, Lisbon, Portugal, “Mathematics, Physics, and Machine Learning” Seminar Series, 06/2021
43. SLAC National Accelerator Laboratory, Menlo Park, CA, AI-at-SLAC, 07/2021
44. KLA Corporation, Seminar of Transfer Learning and Domain Adaptation, 07/2021
45. University of California Riverside, CA, USA, ECE Seminar, 03/2021
46. SIAM Conference on Computational Science and Engineering, 03/2021
47. Stanford University, CA, USA, Seminar Series on “Image Systems Engineering,” 02/2021
48. Rutgers University, New Brunswick, NJ, USA, “Information Processing” Seminar Series, 02/2021
49. CVPR 2020, Seattle, WA, Workshop on Computational Cameras and Displays, 06/2020
50. Rice University, Houston, TX, ECE Seminar, 04/2020
51. University of Minnesota, Minneapolis, MN, ECE Colloquium, 02/2020
52. Google, Mountain View, CA, USA, Computational Imaging Workshop, 01/2020
53. IPAM UCLA, Los Angeles, CA, USA, Workshop on Deep Learning and Medical Applications, 01/2020
54. Washington University, St. Louis, MO, USA, Imaging Science Seminar, 11/2019
55. Argonne National Laboratory, Lemont, IL, USA, 11/2019
56. WashU, St. Louis, MO, USA, Applications of AI in Radiology, 11/2019
57. ICCV 2019, Seoul, South Korea, Learning for Computational Imaging Workshop, 10/2019
58. Korea University, Seoul, South Korea, 10/2019
59. Institut d'Etudes Scientifiques, Cargèse, France, School on Imaging in Wave Physics, 09/2019
60. Los Alamos National Laboratory, Los Alamos, NM, USA, 08/2019
61. Oak Ridge National Laboratory, Oak Ridge, TN, USA, AI Summer Institute Seminar, 08/2019
62. Brown University, Providence, RI, USA, ICERM Workshop on Computational Imaging, 03/2019
63. University of Iowa, Iowa City, IA, USA, ECE seminar, 11/2018
64. iTWIST 2018, Marseille, France, 11/2018 (plenary)
65. University of Liverpool, UK, “Mathematical Imaging Techniques” Seminar, 02/2022
66. National Science Foundation, Alexandria, VA, USA, CIF Town-hall, 01/2022
67. Purdue University, Lafayette, IN, USA, Computational Imaging Seminar, 12/2021
68. WashU, St. Louis, MO, USA, Imaging Science Seminar, 11/2021

69. CNRS GDR, Toulouse, France, “Neural Networks for Inverse Problems”, 09/2021
70. IST, Lisbon, Portugal, “Mathematics, Physics, and Machine Learning” Seminar Series, 06/2021
71. SLAC National Accelerator Laboratory, Menlo Park, CA, AI-at-SLAC, 07/2021
72. KLA Corporation, Seminar of Transfer Learning and Domain Adaptation, 07/2021
73. University of California Riverside, CA, USA, ECE Seminar, 03/2021
74. SIAM Conference on Computational Science and Engineering, 03/2021
75. Stanford University, CA, USA, Seminar Series on “Image Systems Engineering,” 02/2021
76. Rutgers University, New Brunswick, NJ, USA, “Information Processing” Seminar Series, 02/2021
77. CVPR 2020, Seattle, WA, Workshop on Computational Cameras and Displays, 06/2020
78. Rice University, Houston, TX, ECE Seminar, 04/2020
79. University of Minnesota, Minneapolis, MN, ECE Colloquium, 02/2020
80. Google, Mountain View, CA, USA, Computational Imaging Workshop, 01/2020
81. IPAM UCLA, Los Angeles, CA, USA, Workshop on Deep Learning and Medical Applications, 01/2020
82. Washington University, St. Louis, MO, USA, Imaging Science Seminar, 11/2019
83. Argonne National Laboratory, Lemont, IL, USA, 11/2019
84. WashU, St. Louis, MO, USA, Applications of AI in Radiology, 11/2019
85. ICCV 2019, Seoul, South Korea, Learning for Computational Imaging Workshop, 10/2019
86. Korea University, Seoul, South Korea, 10/2019
87. Institut d'Etudes Scientifiques, Cargèse, France, School on Imaging in Wave Physics, 09/2019
88. Los Alamos National Laboratory, Los Alamos, NM, USA, 08/2019
89. Oak Ridge National Laboratory, Oak Ridge, TN, USA, AI Summer Institute Seminar, 08/2019
90. Brown University, Providence, RI, USA, ICERM Workshop on Computational Imaging, 03/2019
91. University of Iowa, Iowa City, IA, USA, ECE seminar, 11/2018
92. iTWIST 2018, Marseille, France, 11/2018 (plenary)
93. WashU, St. Louis, MO, USA, Imaging Science Seminar, 09/2018
94. SIAM Imaging Sciences Workshop 2018, Bologna, Italy, 06/2018
95. NC State University, Raleigh, NC, USA, Distinguished Seminar Series, 03/2018
96. WashU, St. Louis, MO, USA, Imaging Science Seminar, 10/2017
97. WIPS-LEARN workshop, Louvain-la-Neuve, Belgium, 08/2017 (plenary)
98. OSA Imaging and Applied Optics Congress 2017, St. Francisco, CA, USA, 06/2017

99. Boston University, Boston, MA, CSE Colloquia, 04/2017

100. WashU, St. Louis, MO, CSE Colloquia, 04/2017

101. Harvard University, Cambridge, MA, SEAS ISS Seminar, 04/2017

102. Imperial College, London, UK, Seminar, 04/2017

103. BASP 2017, Villars-sur-Ollon, Switzerland, 01/2017

104. NYU Tandon School of Engineering, Brooklyn, NY, Seminar, 06/2016

105. Tufts University, Medford, MA, ECE Colloquia, 04/2016

106. Jiao Tong University, Shanghai, China, Institute of Natural Sciences, 03/2016

107. Harvard University, Cambridge, MA, ISS Seminar, 04/2015

108. NYU-Polytechnic Institute, Brooklyn, NY, 04/2012

Teaching

Teaching at WashU (2017-present)

Spring 2025	ESE 351 Signals and Systems
Fall 2024	CSE 534A/ESE 513 Large-Scale Optimization for Data Science
Fall 2023	CSE 534A/ESE 513 Large-Scale Optimization for Data Science
Spring 2023	ESE 415 Optimization
Fall 2022	CSE 534A/ESE 513 Large-Scale Optimization for Data Science
Spring 2022	ESE 415 Optimization
Fall 2021	CSE 534A/ESE 513 Large-Scale Optimization for Data Science
Spring 2021	ESE 415 Optimization
Fall 2020	CSE 534A/ESE 513 Large-Scale Optimization for Data Science
Spring 2020	ESE 415 Optimization
Spring 2019	ESE 415 Optimization
Fall 2018	CSE 585T Sparse Modeling for Imaging and Vision
Spring 2018	ESE 415 Optimization
Spring 2017	CSE 585T Sparse Modeling for Imaging and Vision

Teaching Assistant at EPFL (2007-2013)

a. Signals and Systems I: Autumn 2011, Autumn 2012, Autumn 2013
   ★ Education Award 2013 from Life Sciences Department of EPFL (with M. Unser)
b. Signals and Systems II: Spring 2012, Spring 2013, Spring 2014
c. Introduction to Object Oriented Programming: Autumn 2008
d. Introduction to Communication Systems: Autumn 2007

Student supervision

Current and Former PhD students

1. Chicago Park (CSE, 2024-present)

2. Edward Chandler (CSE, 2023-present)
3. Yuyang Hu (ESE, 2022-present)
4. Flora Sun (Imaging Science, 2022-present)
5. Shirin Shoushtari (ESE, 2022-present)
6. Weijie Gan (CSE, 2020-2025)
    - Currently: Advanced Senior AI Research Scientist at Accenture
    - PhD Thesis: “Computational Imaging under Incomplete Information”
7. Jiaming Liu (ESE, 2019-2024)
    - Currently: Postdoctoral Fellow at Stanford University with Prof. Akshay Chaudhari
    - PhD Thesis: “Learning-based Artifacts Removing Priors for Computational Imaging”

    ★ 2025 Outstanding Doctoral Dissertation Award for the Best PhD Thesis in WashU ESE
8. Xiaojian Xu (CSE, 2017-2022)
    - Currently: AI Research Scientist at GE HealthCare, Bellevue, WA, USA
    - PhD Thesis: “Model-based Deep Learning for Computational Imaging”
9. Yu Sun (CSE, 2018-2022)
    - Currently: Assistant Professor of ECE at Johns Hopkins University, MA, USA
    - PhD Thesis: “Integrating Physical Models and Learning Priors for Computational Imaging”

    ★ 2023 Turner Dissertation Award for the Best PhD Thesis in WashU CSE

Postdoctoral researchers
1. Yuanhao Wang (PhD from KAUST, Saudi Arabia, 2023-present)

Visiting PhD students supervised at WashU
1. Paul Goyes (Universidad Industrial de Santander, Santander, Colombia, 2023)
2. Olivier Leblanc (UC Louvain, Belgium, 2023)
3. Tomas Kerepecky (Czech Technical University, Czech Republic, 2021-2022)
4. Guangxiao Song (Donghua University, China, 2018-2020)

BS/MS students supervised at WashU
1. Eugene Joo (2024-2025)
2. Naveen Asokan (2023-2024)
3. Haoyu Zhang (2023-2024)
4. Harry Gao (2022-2024)
5. Albert Peng (2023-2024)
6. Vincent Siu (2023-2024)
7. Kyle Wolford (2024)
8. Hanson Li (2024)
9. Rahul Chavali (2024)
10. Daedalus Chen (2024)
11. David Chen (2024)
12. David Wang (2024)
13. Jason Zhao (2024)
14. Gabi Wurgaft (2023)
15. Haoyu Quan (2023)
16. Yubo Wang (2023)
17. Emma McMillian (2023)
18. Emily Sheehan (2023)
19. Chang (Jason) Ti (2023)
20. Henry Li (2023)
21. Rose Lev (2023)
22. Eddy Sul (2023)
23. Nan Huang (2023)
24. Chaoye Jin (2022-2023)
25. Chicago Park (2022-2023)

26. Eddie Choi (2022-2023)
27. Eddie Chandler (2020-22)
28. H. Tillman James (2022)
29. Xiangping Ouyangg (2022)
30. Dian Jin (2022)
31. Ian Hudson (2022)
32. Julia Zeng (2022)
33. Flora Sun (2021-22)
34. Wentao Shangguan (2021-22)
35. Yuyang Hu (2021-22)
36. Junhao Hu (2022)
37. Yixuan Luo (2022)
38. Zihao Zou (2022)
39. Renhao Liu (2020-21)
40. Ann Zhou (2021)
41. Yanpeng Yuan (2021)
42. Ziwen Wang (2021)
43. Guangyu Meng (2020)
44. Rob Schurz (2020)
45. Abdalla Bani (2020)
46. Yongcheng Song (2020)
47. Yukun Li (2020)
48. Peter Ming (2020)
49. Mingyang Xie (2019-20)
50. Weijie Gan (2018-19)
51. Jiaming Liu (2018-19)
52. Shu Pan (2019)
53. Julia Dai (2019)
54. Yiran Sun (2019)
55. Ryogo Suzuki (2019)
56. Max Torop (2019)
57. Shiqi Xu (2018-19)
58. Melena Abijaoude (2018)

Visiting BS/MS students and interns supervised at WashU

1. Yu-Chieh Yu (National Taiwan University, Taiwan, 2023)
2. Anthony Wang (MIT, MA, USA, 2023)
3. Marien Renaud (Ecole Polytechnique, Paris, France, 2023)
4. Anis Chihoub (Rutgers University, USA, 2022)
5. Hee Yun Suh (John Hopkins University, USA 2022)
6. Yukun Huang (Tsinghua University, China, 2019)
7. Moran Xu (Southeast University, China, 2019)
8. Ishika Jain (Cornell University, 2019)
9. Tram-Anh Nguyen (George Mason University, USA, 2019)
10. Jhoan Hernandez (Benedict College, USA, 2018)
11. Sergio Goodwin (Morehouse College, USA, 2018)

PhD committees

1. Jibe Zhu, “Advancing Intensity Diffraction Tomography with Multiple Scattering Models in Transmission and Reflection Systems,” PhD, Electrical and Computer Engineering, Boston University, MA, USA, 04/2025
2. Jie Wang, “Interference Management For Next-Generation Dynamic Spectrum Sharing,” PhD, Electrical and Systems Engineering, WashU, St. Louis, MO, USA, 03/2025

3. Luke Lozenski, “AI-assisted Model-guided Image Reconstruction Methods for Photoacoustic and Ultrasound Computed Tomography,” PhD, Electrical and Systems Engineering, WashU, St. Louis, MO, USA, 03/2025
4. Louis Delloye, “Accélération d'algorithmes d'optimisation via propagation optique en milieux complexes,” PhD, Physics, Sorbonne University, Paris, France, 12/2024
5. Charles Laroche, “Apprentissage profond pour la restauration d'images pour la photographie numérique,” PhD, Applied Mathematics, Université Paris Cité, Paris, France, 06/2024
6. Gustavo Gratacos, “Tree Recovery by Dynamic Programming,” PhD, Computer Science and Engineering, WashU, St. Louis, MO, USA, 05/2024
7. Xingyi Du, “Injective Mapping under Constraints,” PhD, Computer Science and Engineering, WashU, St. Louis, MO, USA, 04/2023
8. Dan Zeng, “Computationally Uncovering Root System Architecture,” PhD, Computer Science and Engineering, WashU, St. Louis, MO, USA, 05/2022
9. Uri Goldstzejn, “Estimating uterine activity from electrohysterogram measurements via statistical tensor decomposition,” PhD, Biomedical Engineering, WashU, St. Louis, MO, USA, 04/2022
10. Sihao Chen, “Motion Field Integrated Reconstruction Using Deep Learning for MR and PET/MR Respiratory Motion Correction,” PhD, Biomedical Engineering, WashU, St. Louis, MO, USA, 04/2022
11. Suranjana Samanta, “Enhancing PET Functionalities with Novel Geometries and Multimodal Imaging Techniques,” PhD, Electrical and Systems Engineering, WashU, St. Louis, MO, USA, 03/2022
12. Wei Miao, “Control and Learning of Ensemble Systems,” PhD, Electrical and Systems Engineering, WashU, St. Louis, MO, USA, 08/2021
13. Zhenqi Lu, “ Containing an Epidemic in a Local Cluster via Antidote Distribution and Partial Quarantine,” PhD, Electrical and Systems Engineering, WashU, St. Louis, MO, USA, 06/2021
14. Huayi Zeng, “Data Driven Architectural Geometric and Photometric Modeling,” PhD, Computer Science and Engineering, WashU, St. Louis, MO, USA, 04/2021
15. Zhihao Xia, “Reasoning about Scene and Image Structure for Computer Vision,” PhD, Computer Science and Engineering, WashU, St. Louis, MO, USA, 05/2021
16. Eric Cawi, “Machine Learning Workflows, Separability, and Covariance Bounds,” PhD, Electrical and Systems Engineering, WashU, St. Louis, MO, USA, 12/2020
17. Jonathan Dong, “A computational tour on random matrices: imaging through complex media and optical computing,” PhD, École Normale Supérieure, Paris, France, 11/2020
18. Weimin Zhou, “Deep Learning for Task-Based Image Quality Assessment in Medical Imaging,” PhD, Electrical and Systems Engineering, WashU, St. Louis, MO, USA, 10/2020
19. Tianben Ding, “Multi-Dimensional Super-Resolution Imaging of Protein Aggregates Using Transient Binding of Single Fluorescent Molecules,” PhD, Electrical and Systems Engineering, WashU, St. Louis, MO, USA, 07/2020
20. K M Shihab Udding, “Ultrasound guided Diffuse Optical Tomography for breast cancer diagnosis: Algorithm Development,” PhD, Biomedical Engineering, WashU, St. Louis, MO, May 2020
21. Yijian Xiang, “Cognitive Radar Detection in Nonstationary Environments and Target Tracking,” PhD, Electrical and Systems Engineering, WashU, St. Louis, MO, USA, 05/2020
22. Xiangyi Xu, “Embedded Sensing System for Whispering-Gallery-Mode Optical Resonators,” PhD, Electrical and Systems Engineering, WashU, St. Louis, MO, USA, 08/2019
23. Darko Ivanovich, “Polarization Division Multiplexing for Optical Data Communications,” DSc, Computer Science and Engineering, WashU, St. Louis, MO, USA, 08/2019
24. Liu Chen, “Structured Indoor Modeling,” PhD, Computer Science and Engineering, WashU, St. Louis, MO, USA, 08/2019
25. Jingwei Lu, “Multi-dimensional extension of the alternating minimization algorithm in x-ray computed tomography,” PhD, Electrical and Systems Engineering, WashU, St. Louis, MO, USA, 08/2019
26. Zhiyang Huang, “Toward Controllable and Robust Algorithms for Surface Reconstruction from Spatial Curves,” PhD, Computer Science and Engineering, WashU, St. Louis, MO, USA, 08/2019
27. Diego Carrera, “Learning and adaptation to detect changes and anomalies in high-dimensional data,” PhD, Doctoral Program in Information Technology, Politecnico di Milano, Milan, Italy, 11/2018
28. He Huang, “Novel Sensing Mechanisms for Chemical and Bio-sensing Using Whispering Gallery Mode Microresonators,” PhD, Electrical and Systems Engineering, WashU, St. Louis, MO, USA, 01/2018

29. Homayoon Ranjbar, “Reconstruction Algorithms for Novel Joint Imaging Techniques in PET,” PhD, Electrical and Systems Engineering, WashU, St. Louis, MO, USA, 12/2017
30. Kevin Degraux, “Methods for Solving Regularized Inverse Problems: From Non-Euclidean Fidelities to Computational imaging Applications,” PhD, Engineering Sciences, Université catholique de Louvain (UCL), Louvain-la-Neuve, Belgium, 09/2017

Interns supervised at MERL

1. Yanting Ma (North Carolina State University, 2017)
2. Bihan Wen (with Dehong Liu, UIUC, 2017)
3. Kevin Degraux (Université Catholique de Louvain, 2016)
4. Hsiou-Yuan Liu (UC Berkeley, 2016)
5. Juan Castorena (New Mexico State University, 2015)

Students supervised at EPFL (co-supervised with Prof. Michael Unser)

1. Sander Kromwijk (student at EPFL, 2014)
2. Mamoun Benkirane (student at EPFL, 2014)
3. Julien Schwab (student at EPFL, 2013)
4. Abbas Kazerouni (intern from Sharif University, 2012)
5. Ipek Baz (student at EPFL, 2012)
6. Bugra Tekin (student at EPFL, 2012)
7. Pedram Pad (intern from Sharif University, 2011)

Research awards by students

1. Jiaming Liu, Outstanding Dissertation Award for the Best PhD Dissertation in Electrical Engineering, 2025
2. Chicago Park, Best Student Paper Award finalist, IEEE CAMSAP 2023
3. Yu Sun, Turner Dissertation Award for the Best PhD Dissertation in Computer Science, 2023
4. Yuyang Hu, Outstanding Master’s Research Award from WashU ESE, 2023
5. Edward Chandler, Research Excellence Award in Computer Science from WashU CSE, 2023

Research funding

(All costs are direct)

1. “Innovative algorithms for computing solutions to imaging inverse problems using pretrained (generative) models,” Unrestricted Gift from Google Research, 2024, $20,000 (PI)
2. “Deep-Learning-Augmented Quantitative Gradient Recalled Echo (DLA-qGRE) MRI for in vivo Clinical Evaluation of Brain Microstructural Neurodegeneration in Alzheimer Disease,” NIH R01, 04/2023-03/2028, $1,279,472 (Co-I)
3. “Robust and Rapid 3D High-Resolution Cranial bone imaging for pediatric patients using MRI,” NIH R01, 12/2021-11/2026, $1,604,319 (Co-I)
4. “Polymer Threading and Confinement into Nanoscale Porous Upcycling Catalyst,” DOE BES, 08/2022-07/2026, $369,518, (Co-PI)
5. **“**CAREER: Reconciling Model-Based and Learning-Based Imaging: Theory, Algorithms, and Applications,” NSF, 07/2021-06/2026, $306,206 (PI)
6. “Optimizing Multiscale Light Sheet Imaging,” Beckman Center for Light-Sheet Microscopy and Data Science, 06/2021-05/2026, $1,200,000 (Co-PI)
7. “Digital Biomarkers for Fetal Growth Restriction based on Multi-Scale, Multiphysics Modeling and Machine Learning,” Wellcome Leap, 10/2022-09/2025, $1,024,239 (Co-PI)
8. “Beyond breast density: Novel clinically relevant risk measures for breast cancer in black women,” Department of Defense, 09/2023-08/2025, $446,755 (Co-I)
9. “MR measured regional hypoxia as an early biomarker in cerebral small vessel disease,” NIH R01, 04/202-03/2025, $2,198,877 (Co-I)
10. “Machine Learning Toolkit for Atomic Force Microscopy,” WashU EECE/CSE Seed Grant, 12/2022-12/2024, $25,000 (PI)
11. “Developing a Toolkit for Advancing Lignin Disassembly Technology,” Moore Foundation, 11/2022-10/2024, $901,639 (Co-PI)

12. "URoL: Epigenetics 2-Collaborative Research: Revealing how epigenetic inheritance governs the environmental challenge response with transformative 3D genomics and machine learning," NSF, 08/2019-07/2024, $317,722 (Co-PI)
13. "Advancing Breast Cancer Risk Assessment Among White and Black Women Using Artificial Intelligence," Siteman Investment Program, 07/2022-06/2024, $100,000 (Co-PI)
14. "Enabling Non-Invasive Lipid Profiling with Intermodal Deep Learning (ENLiPID)," Chan Zuckerberg Initiative (CZI) Scialog Award, 08/2021-01/2023, $50,000 (PI)
15. "CIF: Small: Collaborative Research: Signal Processing for Nonlinear Diffractive Imaging: Acquisition, Reconstruction, and Applications," NSF, 07/2018-06/2022, $151,944 (PI)
16. "Online Plug-and-Play Algorithms for Sequential Image Reconstruction," Los Alamos National Laboratory, 05/2020-12/2021, $71,502 (PI)
17. "Data-Adaptive Imaging for Motion-Robust High-Resolution Dynamic MRI," WashU Seed Grant, 06/2018-05/2019, $25,000 (PI)
18. "Deep Learning for Motion-Robust 4D MRI," Siemens Medical Solutions USA, 09/2018-05/2019, $112,500 (Co-PI)
19. Unrestricted Gift for Research, Mitsubishi Electric Research Laboratory, 2022, $5,000 (PI)

Professional activities and service

Professional societies

- Institute of Electrical and Electronics Engineers (IEEE)
  Senior Member (2020-present)
  Member (2015–2020)
  Student Member (2011–2015)

Technical committees

- IEEE Technical Committee on Computational Imaging
  Advisory Member (2022-2024)
  Member (2016–2019, 2019-2021)
- IEEE Technical Committee on Bio Imaging and Signal Processing
  Member (2023-present)
  Associate Member (2021-2022)

Editorial service

- Senior Editor of IEEE Signal Processing Magazine (2022-2024)
- Associate Editor of IEEE Transactions on Computational Imaging (2019-2022)
- Associate Editor of Biological Imaging from Cambridge University Press (2020-2022)
- Guest Editor of Special issue on "Computational Microscopy" at Elsevier Optics Communication (2021)
- Associate Editor of SPIE Journal of Electronic Imaging (2017-2019)

Conference area chair

- IEEE CVPR 2025, Nashville, TN, USA
- IEEE CVPR 2024, Seattle, WA, USA
- IEEE ICASSP 2024, Seoul, South Korea
- IEEE ISBI 2021, Nice France
- IEEE ICASSP 2019, Brighton, UK
- IEEE ICASSP 2017, New Orleans, LA, USA

Conference technical or program chair:

- Biomedical and Astronomical Signal Processing (BASP), 5-10 February 2023, Villars, Switzerland
- OSA Mathematics in Imaging, 24-27 June 2019, Munich, Germany

Workshop organization:

- IMSI Computational Imaging, 4-9 October 2024, Chicago, IL, USA

- Computational Cameras and Displays (CCD) workshop at CVPR 2023, June 2023
- Computational Cameras and Displays (CCD) workshop at CVPR 2022, June 2022
- Learning for Computational Imaging (LCI) workshop at ICCV 2021, October 2021
- IMA Computational Imaging, 14-18 October 2019, Minneapolis, MN, USA

Conference session organization:
- "Score-based Methods for Computational Imaging," Asilomar 2025
- "Robust Reconstruction Methods in Computational Imaging," IEEE ICASSP 2024
- "Computational Biomedical Imaging: From Micro to Macro," IEEE CAMSAP 2023
- "AI-driven Imaging Instruments," Electronic Imaging 2021
- "Recent Progress in Computational Microscopy," Electronic Imaging 2020
- "Recent Advances in Signal Processing for Large-Scale Computational Imaging," IEEE ICASSP 2019
- "Computational Biomedical Imaging," BASP 2019
- "Large-Scale Computational Imaging with Wave Models," IEEE ICASSP 2017

University service at WashU

Department of Electrical and Systems Engineering (ESE)
- ESE Doctoral Admissions Committee (2020-present)
- ESE Signals and Imaging Area Committee (2020-present)
- ESE Undergraduate Committee (2024-present)
- ESE Faculty Search Committee (2021-2023, 2025-present)
- ESE Seminar Committee (2019-2021)

Department of Computer Science and Engineering (CSE)
- CSE Seminar Committee (2018-2020)

McKelvey School of Engineering
- Program Faculty for Imaging Sciences PhD Program (2021-present)
- Imaging Science Curriculum Committee (2019-present)
- Co-Organizer (with Matt Lew) of the Imaging Sciences Seminar Series (2024-2025)
- Strategic Planning Committee (2022-2024)
- Imaging Science Pathway Retreat Planning Committee (2020-2023)
- Co-Organizer (with Joseph O'Sullivan) of the Imaging Sciences Seminar Series (2021-2022)

Other service

- Advisory board member for the "St. Louis International Mentoring Program" (2019-present)
- Expert advisory panel member for the non-profit "Buyuk Kelajak" (2018-2019)
- Student representative for Communication Systems Department at EPFL (2008–2011)
- Founded an educational consultancy company "G.e.P. Solutions" (2010–2013)
- Committee member of Erasmus Student Network chapter of EPFL (2009)
- Member of the coaching team for new undergraduate students at EPFL (2009)

Language skills

- Uzbek, Russian, English, French, German, and Spanish

Biography

Ulugbek S. Kamilov is the *Leon and Elizabeth Janssen* Associate Professor of Electrical and Computer Engineering at the University of Wisconsin–Madison, where he founded and leads the Computational Imaging Group (CIG). Prior to joining UW–Madison, he was the *Donald L. Snyder* Associate Professor of Electrical and Systems Engineering and Computer Science and Engineering at WashU. He received his BSc/MSc in Communication Systems (2011) and PhD in Electrical Engineering (2015) from EPFL, Switzerland. His other prior appointments include Visiting Professor at the École Normale Supérieure in Paris (2024), Visiting Faculty

Researcher at Google (2023–2024), and Research Scientist at Mitsubishi Electric Research Laboratories (MERL) (2015–2017).

He is a recipient of the IEEE Signal Processing Society's 2024 Pierre-Simon Laplace Early Career Technical Achievement Award, the 2017 Best Paper Award, and the NSF CAREER Award. He was named a Scialog Fellow for Advancing Bioimaging in 2021 and was a finalist for the EPFL Doctorate Award in 2016. In 2023, he received the Outstanding Teaching Award from WashU's Department of Electrical & Systems Engineering. He currently serves on the IEEE Signal Processing Society's Bioimaging and Signal Processing Technical Committee and has previously served as a Senior Editorial Board Member of IEEE Signal Processing Magazine, Associate Editor of IEEE Transactions on Computational Imaging, and member of the Computational Imaging Technical Committee.