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RESEARCH INTERESTS

Computational Imaging, Optimization with Deep Priors, Deep Learning, Sparsity and Compressive Sensing.

EDUCATION

Washington University in St. Louis, St. Louis, MO Aug. 2018 – Expected 2022
Ph.D. student in Computer Science
Advisor: Prof. Ulugbek Kamilov

Washington University in St. Louis, St. Louis, MO Aug. 2015 – May. 2018
M.S. in Data Analytics & Statistics
M.S. in Computer Science & Engineering

Sichuan University, Chengdu, China Sep. 2011 – Jun. 2015
B.S. in Electronic and Information Engineering
Advisor: Prof. Qinggong Guo

HONORS & AWARDS

- NeurIPS 2019 Travel Award
- CSE Dept. Honor, 2019

PUBLICATIONS

[1] X. Xu, **Y. Sun**, J. Liu, B. Wohlberg, and U. S. Kamilov, "Provable Convergence of Plug-and-Play Priors with MMSE denoisers." **IEEE Signal Process. Lett.**, in press.

[2] **Y. Sun**, Z. Wu, B. Wohlberg, and U. S. Kamilov, "Scalable Plug-and-Play ADMM with Convergence Guarantees." arXiv:1912.07087, **preprint**.

[3] 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.**, in press.

[4] 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.**, in press.

[5] Z. Wu, **Y. Sun**, A. Matlock, J. Liu, L. Tian, and U. S. Kamilov, "SIMBA: Scalable Inversion in Optical Tomography using Deep Denoising Priors." arXiv:1911.13241. **IEEE J. Sel. Topics Signal Process.**, in press.

[6] **Y. Sun***, J. Liu*, and U. S. Kamilov, "Block Coordinate Regularization by Denoising," **IEEE Trans. Comput. Imag.**, in press.

[7] G. Song, **Y. Sun**, J. Liu, 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, 2020.

[8] J. Liu, **Y. Sun**, and U. S. Kamilov, "Infusing Learned Priors into Model-Based Multispectral Imaging," IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (**CAMSAP 2019**).

[9] **Y. Sun**, J. Liu, and U. S. Kamilov, "Block Coordinate Regularization by Denoising," Proc. Ann. Conf. Neural Information Processing Systems (**NeurIPS 2019**), pp. 382–392. **Acceptance rate: 1428/6743 = 21%**

[10] Z. Wu, **Y. Sun**, J. Liu, and U. S. Kamilov, "Online Regularization by Denoising with Application to Phase Retrival," Workshop on Learning for Computational Imaging, **ICCVW 2019**, pp. 3887-3895. [**Oral**]

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

[12] **Y. Sun**, S. Xu, Y. Li, L. Tian, B. Wohlberg, and U. S. Kamilov, "Regularized Fourier Ptychography using an Online Plug-and-Play Algorithm," Proc. IEEE Int. Conf. Acoustics, Speech and Signal Process. (**ICASSP 2019**), pp.7665-7669. [**Oral**]

[13] J. Liu, **Y. Sun**, X. Xu, and U. S. Kamilov, "Image Restoration using Total Variation Regularized Deep Image Prior," Proc. IEEE Int. Conf. Acoustics, Speech and Signal Process. (**ICASSP 2019**), pp.7715-7719.

[14] **Y. Sun**, B. Wohlberg, and U. S. Kamilov, "Plug-In Stochastic Gradient Method," Proc. International Biomedical and Astronomical Signal Processing Frontiers Workshop (**BASP 2019**), p.75.

[15] **Y. Sun** and U. S. Kamilov, "Stability of Scattering Decoder For Nonlinear Diffractive Imaging," Proc. 4th International Traveling Workshop on Interactions between Sparse models and Technology (**iTWIST 2018**), p.31. [**Oral**]

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

PROFESSIONAL SERVICES

- Reviewer of IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)
- Reviewer of IEEE Transaction on Computational Imaging (TCI)
- Reviewer of IEEE Transaction on Signal Processing (TSP)
- Reviewer of IEEE Signal Processing Letters (SPL)
- Reviewer of SPIE Journal on Electronic Imaging (JEI)
- Student Member, IEEE (2018-present)

TEACHING SERVICE

As Course Teaching Assistant:

- CSE 585T Sparse Model for Imaging, Wash U. 2018 Fall.
- ESE 415 Optimization, Wash U. 2018 Spring.
- CSE 427S Cloud Computing and Big Data Application, Wash U. 2016 Fall, 2017 Spring, 2017 Fall.

SUPERVISED STUDENTS

Current Students (Co-advised with Prof. Kamilov):

- Mingyang Xie (B.S. CSE)

Past Students (Co-advised with Prof. Kamilov):

- Weijie Gan (M.S. CSE, 2020), *Now Ph.D. student at Wash U.*
- Zihui Wu (B.S. CSE, 2020), *Now Ph.D. student at Caltech*
- Max Torop (M.S. CSE, 2019), *Now Ph.D. student at Northeastern U.*
- Shiqi Xu (M.S. ESE, 2019), *Now Ph.D. student at Duke U.*
- Jiaming Liu (M.S. ESE, 2018), *Now Ph.D. student at Wash U.*
- Zach Pewitt (M.S. ESE, 2018), *Now at Boeing*
- Josehp Han (M.S. ESE, 2018), *Now at Deloitte*
- Jialong Zhang (M.S. ESE, 2018), *Now at Schlumberger*
- Fangying Zhai (M.S. ESE, 2018)
- Chunyuan Li (M.S. CSE, 2018)