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Education

- **Ph.D. (2008-2015)** , Korea Advanced Institute of Science and Technology (KAIST), Dept. of Bio and Brain Engineering, South Korea.
  - Thesis : High speed imaging system and interpolation algorithm for irregularly undersampled data
  - Advisor : Jong Chul, Ye, Ph.D.
  - Keyword : Structured low rank matrix completion, Annihilation filter, Hankel matrix, Image inpainting, irregular sampling, parallel MRI, dynamic MRI, Compressed sensing, ADMM
- **B.S. (2004-2008)**, Korea Advanced Institute of Science and Technology (KAIST), Dept. of Bio and Brain Engineering, South Korea.

Work Experience

- **Associate Professor (2023.09∼)**, Korea University, School of Electrical Engineering,
- **Assistant Professor (2021.02∼ 2023.08)**, DGIST, Dept. of Electrical Engineering and Computer Science (EECS),
- **Staff Engineer (2019.09∼ 2021.02)**, Samsung Reserach, Camera T/F - Global AI Center
- **Postdoc. (2016.06∼ 2019.08)**, École polytechnique fédérale de Lausanne (EPFL), Biomedical Imaging Group (PI : Michael Unser)
- **Postdoc. (2015.03∼2016.05)**, Korea Advanced Institute of Science and Technology (KAIST), Bioimaging Signal Processing Lab. (PI : Jong Chul, Ye)

Research Interest

- *Machine learning*, *Signal/Image processing*, *Inverse problems*, *Video processing*

Peer-reviewed Publications

- Minsu Kim, Giseop Kim, K. H. Jin, and Sunwook Choi, "BroadBEV: Collaborative LiDAR-camera Fusion for Broad-sighted Bird's Eye View Map Construction," *IEEE International Conference on Robotics and Automation* (**ICRA**), 2024, Accepted.
- Nari Hong, Boil Kim, Jaewon Lee, Han Kyoung Choe, K. H. Jin*, and Hongki Kang*, "Machine learning-based high-frequency neuronal spike reconstruction from low-frequency and low-sampling-rate recordings," Nature Communications (**Nat. Comm.**) 15, 635, 2024
- Minsu Kim, Yongjun Lee, Woo Kyoung Han, and K. H. Jin, "Learning Residual Elastic Warps for Image Stitching under Dirichlet Boundary Condition," *IEEE/CVF Winter Conference on Applications of Computer Vision* (**WACV**), 2024

- Minsu Kim, Jaewon Lee, Byeonghun Lee, Sunghoon Im and K. H. Jin, "Implicit Neural Image Stitching With Enhanced and Blended Feature Reconstruction," *IEEE/CVF Winter Conference on Applications of Computer Vision* (**WACV**), 2024
- M. Kang, P. Chikontwe, S. Kim, K. H. Jin, E. Adeli, K. M. Pohl, and Sang Hyun Park, "One-shot Federated Learning on Medical Data using Knowledge Distillation with Image Synthesis and Client Model Adaptation," *Medical Image Computing and Computer Assisted Interventions* (**MICCAI**), 2023, Accepted
- B. Pak, J. Lee, and K. H. Jin, "B-spline Texture Coefficients Estimator for Screen Content Image Super-Resolution," *Proc. of the IEEE/CVF Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2023, **Highlight** (10% of accepted papers, 2.5% of submissions).
- W. K. Han, B. Lee, S. H. Park, and K. H. Jin, "ABCD : Arbitrary Bitwise Coefficient for De-quantization," *Proc. of the IEEE/CVF Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2023.
- S. Shin, M. W. Kim, K. H. Jin, K. M. Yi, Y. Kohmura, T. Ishikawa, J. H. Je, and J. Park, "Deep 3D reconstruction of synchrotron X-ray computed tomography for intact lungs," *Scientific Reports* 13, Article number:1738, 2023
- J. Lee, K. P. Choi, K. H. Jin, "Learning Local Implicit Fourier Representation for Image Warping," *Proc. European Conference on Computer Vision* (**ECCV**), 2022.
- J. Lee and K. H. Jin, "Local Texture Estimator for Implicit Representation Function," *Proc. of the IEEE/CVF Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2022.
- J. Yoo, K. H. Jin, H. Gupta, J. Yerly, M. Stuber, and M. Unser, "Time-dependent Deep Image Prior for Dynamic MRI," *IEEE Trans. on Medical Imaging* 40.12 (2021): 3337-3348, 2021
- K. H. Jin, "Deep Block Transform for Autoencoders," *IEEE Signal Processing Letters*, vol.28: 1016-1019, 2021
- J. Min, K. H. Jin, M. Unser, and J. C. Ye, "Grid-Free Localization Algorithm Using Low Rank Hankel Matrix For Super-Resolution Microscopy," *IEEE Trans. on Image processing*, vol. 27, no. 10, pp. 4771-4786, Oct. 2018.
- K. Lee, Y. Li, K. H. Jin, and J. C. Ye,"Unified Theory for Recovery of Sparse Signals in a General Transform Domain," *IEEE Trans. on Information Theory*, vol. 64, no. 8, pp. 5457-5477, Aug. 2018.
- H. Gupta, K. H. Jin, Ha. Nguyen, M. T. McCann and M. Unser, "CNN-Based Projected Gradient Descent for Consistent Image Reconstruction," *IEEE Trans. on Medical imaging*, vol. 37, no. 6, pp. 1440-1453, June 2018.
- H. Choi† and K. H. Jin†, "Predicting cognitive decline with deep learning of brain metabolism and amyloid imaging," Behavioural Brain Research, vol 344, (2018), pp 103-109. † co-first author
- K. H. Jin and J. C. Ye, "Sparse and Low-Rank Decomposition of a Hankel Structured Matrix for Impulse Noise Removal," *IEEE Trans. on Image processing*, vol. 27, no. 3, pp. 1448-1461, March 2018.
- M. T. McCann, K. H. Jin, and M. Unser, "Convolutional Neural Networks for Inverse Problems in Imaging: A Review." *IEEE Signal Processing Magazine*, vol. 34, no. 6, pp. 85-95, Nov. 2017.
- K. H. Jin, M. T. McCann, E. Frosty, and M. Unser, "Deep Convolutional Network for Inverse Problems in Imaging," *IEEE Trans. on Image processing*, vol. 26, no. 9, pp. 4509-4522, Sept. 2017.
- J. C. Ye, J. M. Kim, K. H. Jin, and K. Lee, "Compressive Sampling using Annihilating Filter-based Low-Rank Interpolation," *IEEE Trans. on Information Theory*, vol. 63, no. 2, pp. 777-801, Feb. 2017.
- K. H. Jin, D. Lee, J. Um, J. Lee, S. Park and J. C. Ye, "MRI artifact correction using sparse + low-rank decomposition of annihilating filter-based Hankel matrix," *Magnetic Resonance in Medicine* 78, no. 1 (2017): 327-340.

- H. Choi† and K. H. Jin†, "Fast and robust segmentation of the striatum using deep convolutional neural networks," *Journal of Neuroscience Methods* 274 (2016): 146-153, † co-first author
- K. H. Jin, D. Lee, and J. C. Ye, "A general framework for compressed sensing and parallel MRI using annihilating filter based low-rank Hankel matrix," *IEEE Trans. on Computational Imaging*, vol. 2, no. 4, pp. 480-495, Dec. 2016.
- D. Lee†, K. H. Jin†, E. Kim, S. Park, and J. C. Ye "Acceleration of MR parameter mapping using annihilating filter-based low rank Hankel matrix (ALOHA)," *Magnetic Resonance in Medicine* 76, no. 6 (2016): 1848-1864, † co-first author
- J. Lee†, K. H. Jin†, and J. C. Ye, "Reference-free single-pass EPI Nyquist ghost correction using annihilating filter-based low rank Hankel structured matrix," *Magnetic Resonance in Medicine* 76, no. 6 (2016): 1775-1789, † co-first author
- K. H. Jin and J. C. Ye, "Annihilating filter based low rank Hankel matrix approach for image inpainting," *IEEE Trans. on Image Processing*, vol. 24, no. 11, pp. 3498-3511, Nov. 2015.
- J. Lim, K. Lee, K. H. Jin, S. Shin, S. Lee, Y. Park,and J. C. Ye, "Comparative study of iterative reconstruction algorithms for missing cone problems in optical diffraction tomography", *Optics Express* 23, no. 13 (2015): 16933-16948.
- D. Yee, K. H. Jin, J. S. Yahng, H. Yang, C. Y. Kim, and J. C. Ye, "High-speed terahertz reflection three-dimensional imaging using beam steering," *Optics Express* 23, no. 4 (2015): 5027-5034.

Before 2015, 7 papers have been published.

Invited Speach

- "Local Texture Estimator for Implicit Neural Representation," UNIST Colloquium, 06APR2022, South Korea
- "Time-dependent Neural Network for Unsupervised Dynamic MRI Reconstructions," ICAMD, 08DEC2021, Jeju, South Korea
- "Implicit Fourier representation for arbitrary-scale super resolutions," Korean Computer Vision Society, 29NOV2021, South Korea
- "Machine Learning," Gachon University, 18NOV2021, South Korea
- "Deep Networks for Inverse Problems : Application to Biomedical Imaging," Korean Basic Science Institute, 05Dec 2019, South Korea
- "Deep Convolutional Neural Network for Inverse Problems in Imaging," Turing/LMS Workshop, Inverse Problems and Data Science, 8-10 May 2017, Edinburgh, UK

Awards

- 2019 IEEE SPS Best Paper Award for the noted paper : Kyong Hwan Jin, Michael T. McCann, Emmanuel Froustey, and Michael Unser, "Deep Convolutional Neural Network for Inverse Problems in Imaging" IEEE Transactions on Image Processing, Volume 26, No. 9, September 2017
- Grant on EPFL Fellows co-funded by Marie Sklodowska-Curie (2015 call, European Union's Horizon 2020)
  (http://research-office.epfl.ch/funding/internal-non-profit/epfl-fellows-marie-curie)
- Samsung Humantech Paper Award - Silver Medal (2015, South Korea),
  (https://humantech.samsung.com/saitext/index.jsp)
- Samsung Humantech Paper Award - Participation Prize (2004, South Korea)
- The Presidential Science Scholarship (2004-2008, South Korea)

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