

References

- [1] Aharon, M., Elad, M., and Bruckstein, A. M. K-SVD: An algorithm for designing overcomplete dictionaries for sparse representation. *IEEE Transactions on Signal Processing*, 54(11):4311–4322, 2006.
- [2] Alvarez-Ramos, V., Ponomaryov, V., Reyes-Reyes, R., and Gallegos-Funes, F. Satellite image super-resolution using overlapping blocks via sparse representation. In *International Kharkiv Symposium on Physics and Engineering of Microwaves, Millimeter and Submillimeter Waves (MSMW'2016)*, pages 1–4, Kharkiv, Ukraine, 2016.
- [3] Alvarez-Ramos, V., Ponomaryov, V., and Sadovnychiy, S. Image super-resolution via wavelet feature extraction and sparse representation. *Radio-engineering*, 27(2):603, 2018.
- [4] Amro, I., Mateos, J., Vega, M., Molina, R., and Katsaggelos, A. K. A survey of classical methods and new trends in pansharpening of multispectral images. *EURASIP Journal on Advances in Signal Processing*, 2011(1):1–22, 2011.
- [5] Attarde, V. V. and Khaparde, A. Super resolution of image using sparse representation of image patches with LASSO approximation on CUDA platform. In *2018 Second International Conference on Intelligent Computing and Control Systems (ICICCS)*, pages 1533–1538. IEEE, 2018.
- [6] Baker, S. and Kanade, T. Limits on super-resolution and how to break them. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 24(9):1167–1183, 2002.
- [7] Baraniuk, R. G., Candes, E., Elad, M., and Ma, Y. Applications of sparse representation and compressive sensing [scanning the issue]. *Proceedings of the IEEE*, 98(6):906–909, 2010.
- [8] Beck, A. and Teboulle, M. A fast iterative shrinkage-thresholding algorithm for linear inverse problems. *SIAM Journal on Imaging Sciences*, 2(1):183–202, 2009.
- [9] Bioucas-Dias, J. M. and Figueiredo, M. A. T. A new twist: Two-step iterative shrinkage/thresholding algorithms for image restoration. *IEEE Transactions on Image Processing*, 16(12):2992–3004, 2007.
- [10] Boyd, S., Parikh, N., Chu, E., Peleato, B., and Eckstein, J. Distributed optimization and statistical learning via the alternating direction method of multipliers. *Foundations and Trends in Machine Learning*, 3(1):1–122, 2011.
- [11] Bruce, A. G., Sardy, S., and Tseng, P. Block coordinate relaxation methods for nonparametric signal denoising. In Szu, H. H., editor, *Wavelet Applications V*, volume 3391, pages 75 – 86. International Society for Optics and Photonics, SPIE, 1998.

-
- [12] Buche, S. B., Dhondse, S. A., and Khobragade, A. N. Satellite image processing on parallel computing: A technical review. In *IEEE International Conference on Green Engineering and Technologies (IC-GET-2016)*, pages 1–9, Coimbatore, India, 2016.
- [13] Cai, T. T. and Wang, L. Orthogonal matching pursuit for sparse signal recovery with noise. *IEEE Transactions on Information theory*, 57(7):4680–4688, 2011.
- [14] Candès, E. J. and Wakin, M. B. An introduction to compressive sampling. *IEEE signal processing magazine*, 25(2):21–30, 2008.
- [15] Capel, D. and Zisserman, A. Super-resolution from multiple views using learnt image models. In *Computer Vision and Pattern Recognition (CVPR-2001)*, volume 2, pages 627–634, Kauai, HI, USA, 2001. IEEE.
- [16] Chan, R. H., Chan, T. F., Shen, L., and Shen, Z. Wavelet algorithms for high-resolution image reconstruction. *SIAM Journal on Scientific Computing*, 24(4):1408–1432, 2003.
- [17] Chang, K., Ding, P. L. K., and Li, B. Single image super-resolution using collaborative representation and non-local self-similarity. *Signal Processing*, 149:49–61, 2018.
- [18] Chang, K., Ding, P. L. K., and Li, B. Single image super resolution using joint regularization. *IEEE Signal Processing Letters*, 25(4):596–600, 2018.
- [19] Chaudhuri, S. *Super-Resolution Imaging*. Kluwer Academic Publishers, Norwell, MA, USA, 2001.
- [20] Chavez-Roman, H. and Ponomaryov, V. Super resolution image generation using wavelet domain interpolation with edge extraction via a sparse representation. *IEEE Geoscience and remote sensing Letters*, 11(10):1777–1781, 2014.
- [21] Cheeseman, P., Kanefsky, B., Kraft, R., Stutz, J., and Hanson, R. Super-resolved surface reconstruction from multiple images. In Heidbreder, G. R., editor, *Maximum Entropy and Bayesian Methods. Fundamental Theories of Physics*, volume 62 of *An International Book Series on The Fundamental Theories of Physics: Their Clarification, Development and Application*, pages 293–308. Springer, Dordrecht, 1996.
- [22] Chen, H., He, X., Qing, L., Wu, Y., Ren, C., Sheriff, R. E., and Zhu, C. Real-world single image super-resolution: A brief review. *Information Fusion*, 2021.
- [23] Chen, W. Simultaneously sparse and low-rank matrix reconstruction via non-convex and nonseparable regularization. *IEEE Transactions on Signal Processing*, 66(20):5313–5323, 2018.

-
- [24] Cheng, M., Wang, C., and Li, J. Single-image super-resolution in RGB space via group sparse representation. *IET Image Processing*, 9(6):461–467, 2014.
- [25] Chiang, M.-C. and Boulton, T. E. Efficient super-resolution via image warping. *Image and Vision Computing*, 18(10):761–771, 2000.
- [26] Chillet, D. and Hübner, M. Special issue on design and architectures of real-time image processing in embedded systems. *Journal of Real-Time Image Processing*, 9(1):1–3, 2014.
- [27] Chopade, P. and Patil, P. Image super resolution scheme based on wavelet transform and its performance analysis. In *International Conference on Computing, Communication & Automation*, pages 1182–1186. IEEE, 2015.
- [28] Dai, T., Cai, J., Zhang, Y., Xia, S.-T., and Zhang, L. Second-order attention network for single image super-resolution. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition*, pages 11065–11074, Long Beach, CA, USA, 2019. IEEE.
- [29] Daubechies, I., Defrise, M., and Mol, C. D. An iterative thresholding algorithm for linear inverse problems with a sparsity constraint. *Communications on Pure and Applied Mathematics*, 57(11):1413–1457, 2004.
- [30] Deka, B., Gorain, K. K., Kalita, N., and Das, B. Single image super-resolution using compressive sensing with learned overcomplete dictionary. In *Fourth National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG)*, pages 1–5, Jodhpur, India, 2013. IEEE.
- [31] Deka, B., Handique, M., and Datta, S. Sparse regularization method for the detection and removal of random-valued impulse noise. *Multimedia Tools and Applications*, 76(5):6355–6388, 2016.
- [32] Demirel, H. and Anbarjafari, G. Image resolution enhancement by using discrete and stationary wavelet decomposition. *IEEE Transactions on Image Processing*, 20(5):1458–1460, 2011.
- [33] Dennison, P. E., Halligan, K. Q., and Roberts, D. A. A comparison of error metrics and constraints for multiple endmember spectral mixture analysis and spectral angle mapper. *Remote Sensing of Environment*, 93(3):359–367, 2004.
- [34] Dong, C., Loy, C. C., He, K., and Tang, X. Learning a deep convolutional network for image super-resolution. In *European conference on computer vision*, pages 184–199. Springer, 2014.
- [35] Dong, W., Zhang, L., Shi, G., and Wu, X. Image deblurring and super-resolution by adaptive sparse domain selection and adaptive regularization. *IEEE Transactions on Image Processing*, 20(7):1838–1857, 2011.
- [36] Donoho, D. L. and Elad, M. On the stability of the basis pursuit in the presence of noise. *Signal Processing*, 86(3):511–532, 2006.

-
- [37] Elad, M. *Sparse and Redundant Representations: From Theory to Applications in Signal and Image Processing*. Springer-Verlag, New York, 1 edition, 2010.
- [38] Elad., M. and Aharon, M. Image denoising via sparse and redundant representations over learned dictionaries. *IEEE Transactions on Image Processing*, 15(12):3736–3745, 2006.
- [39] Elad, M., Starck, J.-L., Querre, P., and Donoho, D. Simultaneous cartoon and texture image inpainting using morphological component analysis (MCA). *Applied and Computational Harmonic Analysis*, 19:340–358, 11 2005.
- [40] Farsiu, S., Robinson, D., Elad, M., and Milanfar, P. Advances and challenges in super-resolution. *International Journal of Imaging Systems and Technology*, 14(2):47–57, 2004.
- [41] Fernandez-Beltran, R., Latorre-Carmona, P., and Pla, F. Single-frame super-resolution in remote sensing: a practical overview. *International Journal of Remote Sensing*, 38(1):314–354, 2017.
- [42] Foldiak, P. and Endres, D. Sparse coding. *Scholarpedia*, 3(1):2984, 2008. revision #145589.
- [43] Gao, B., Lan, P., Chen, X., Zhang, L., and Sun, F. Accelerated split Bregman method for image compressive sensing recovery under sparse representation. *KSIIT Transactions on Internet & Information Systems*, 10(6), 2016.
- [44] Gao, L., Hong, D., Yao, J., Zhang, B., Gamba, P., and Chanussot, J. Spectral superresolution of multispectral imagery with joint sparse and low-rank learning. *IEEE Transactions on Geoscience and Remote Sensing*, 59(3):2269–2280, 2020.
- [45] Glasner, D., Bagon, S., and Irani, M. Super-resolution from a single image. In *12th International Conference on Computer Vision*, pages 349–356, Kyoto, Japan, 2009. IEEE.
- [46] Goldstein, T. and Osher, S. The split Bregman method for L1-regularized problems. *SIAM journal on imaging sciences*, 2(2):323–343, 2009.
- [47] Gregor, K. and LeCun, Y. Learning fast approximations of sparse coding. In *Proceedings of the 27th International Conference on Machine Learning*, pages 399–406, 2010.
- [48] Gu, S., Zuo, W., Xie, Q., Meng, D., Feng, X., and Zhang, L. Convolutional sparse coding for image super-resolution. In *Proceedings of the IEEE International Conference on Computer Vision*, pages 1823–1831, 2015.
- [49] Guo, M., Zhang, H., Li, J., Zhang, L., and Shen, H. An online coupled dictionary learning approach for remote sensing image fusion. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 7(4):1284–1294, 2014.

-
- [50] Hale, E. T., Yin, W., and Zhang, Y. A fixed-point continuation method for ℓ_1 -regularized minimization with applications to compressed sensing. CAAM Technical Report TR07-07, Rice University, Houston, Texas, 77005, U.S.A, July 2007.
- [51] Hawe, S., Seibert, M., and Kleinsteuber, M. Separable dictionary learning. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, pages 438–445, 2013.
- [52] He, C., Liu, L., Xu, L., Liu, M., and Liao, M. Learning based compressed sensing for SAR image super-resolution. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 5(4):1272–1281, 2012.
- [53] Hou, B., Zhou, K., and Jiao, L. Adaptive super-resolution for remote sensing images based on sparse representation with global joint dictionary model. *IEEE Transactions on Geoscience and Remote Sensing*, 56(4):2312–2327, 2018.
- [54] Irani, M. and Peleg, S. Super resolution from image sequences. In *10th International Conference on Pattern Recognition*, volume 2, pages 115–120, Atlantic City, NJ, USA, 1990. IEEE.
- [55] Kim, J., Lee, J. K., and Lee, K. M. Accurate image super-resolution using very deep convolutional networks. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, pages 1646–1654, 2016.
- [56] Lee, H., Battle, A., Raina, R., and Ng, A. Y. Efficient sparse coding algorithms. In Schölkopf, B., Platt, J. C., and Hoffman, T., editors, *Advances in Neural Information Processing Systems 19 (NIPS-2006)*, pages 801–808, Vancouver, BC, Canada, 2007. MIT Press.
- [57] Lei, L., Xi, F., Chen, S., and Liu, Z. A sparse representation denoising algorithm for finger-vein image based on dictionary learning. *Multimedia Tools and Applications*, 80(10):15135–15159, 2021.
- [58] Li, S., Yin, H., and Fang, L. Group-sparse representation with dictionary learning for medical image denoising and fusion. *IEEE Transactions on Biomedical Engineering*, 59(12):3450–3459, 2012.
- [59] Li, S., Yin, H., and Fang, L. Remote sensing image fusion via sparse representations over learned dictionaries. *IEEE Transactions on Geoscience and Remote Sensing*, 51(9):4779–4789, 2013.
- [60] Li, X. and Orchard, M. T. New edge-directed interpolation. *IEEE Transactions on Image Processing*, 10(10):1521–1527, 2001.
- [61] Liebel, L. and Körner, M. Single-image super resolution for multispectral remote sensing data using convolutional neural networks. *ISPRS - International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XLI-B3:883–890, 2016.

-
- [62] Liu, S., Zhang, G., and Liu, W. Group sparse representation based dictionary learning for SAR image despeckling. *IEEE Access*, 7:30809–30817, 2019.
- [63] Mairal, J., Bach, F., and Ponce, J. Sparse modeling for image and vision processing. *arXiv preprint arXiv:1411.3230*, 2014.
- [64] Mairal, J., Elad, M., and Sapiro, G. Sparse representation for color image restoration. *IEEE Transactions on Image Processing*, 17(1):53–69, 2007.
- [65] Marques Junior, A., De Souza, E. M., Müller, M., Brum, D., Zanotta, D. C., Horota, R. K., Kupssinskü, L. S., Veronez, M. R., Gonzaga, L., and Cazarin, C. L. Improving spatial resolution of multispectral rock outcrop images using RGB data and artificial neural networks. *Sensors*, 20(12):3559, 2020.
- [66] Mikaeli, E., Aghagolzadeh, A., and Azghani, M. Single-image super-resolution via patch-based and group-based local smoothness modeling. *The Visual Computer*, 36(8):1573–1589, 2020.
- [67] Mittal, A., Soundararajan, R., and Bovik, A. C. Making a “completely blind” image quality analyzer. *IEEE Signal Processing Letters*, 20(3):209–212, 2012.
- [68] Miura, S., Kawamoto, Y., Suzuki, S., Goto, T., Hirano, S., and Sakurai, M. Image quality improvement for learning-based super-resolution with PCA. In *1st Global Conference on Consumer Electronics (GCCE-2012)*, pages 572–573, Tokyo, Japan, 2012. IEEE.
- [69] Mousavi, H. S. and Monga, V. Sparsity based super resolution using color channel constraints. In *2016 IEEE International Conference on Image Processing (ICIP)*, pages 579–583. IEEE, 2016.
- [70] Moustafa, M., Ebeid, H. M., Helmy, A., Nazmy, T. M., and Tolba, M. F. Rapid real-time generation of super-resolution hyperspectral images through compressive sensing and GPU. *International Journal of Remote Sensing*, 37(18):4201–4224, 2016.
- [71] Moustafa, M. S., Ebied, H. M., Helmy, A. K., Nazamy, T. M., and Tolba, M. F. Acceleration of super-resolution for multispectral images using self-example learning and sparse representation. *Computers & Electrical Engineering*, 62:249–265, 2017.
- [72] Mullah, H. U. and Deka, B. A fast satellite image super-resolution technique using multicore processing. In Abraham, A., Muhuri, P. K., Muda, A. K., and Gandhi, N., editors, *Advances in Intelligent Systems and Computing*, volume 734. Springer, Cham, March 2018.
- [73] Nasrollahi, K. and Moeslund, T. B. Super-resolution: a comprehensive survey. *Machine Vision and Applications*, 25(6):1423–1468, 2014.
- [74] Ng, M., Lam, E., and Tong, C.-S. Superresolution imaging: theory, algorithms and applications. *Multidimensional Systems and Signal Processing*, 18(2–3):57–58, 2007.

-
- [75] Pan, Z., Yu, J., Huang, H., Hu, S., Zhang, A., Ma, H., and Sun, W. Super-resolution based on compressive sensing and structural self-similarity for remote sensing images. *IEEE Transactions on Geoscience and Remote Sensing*, 51(9):4864–4876, 2013.
- [76] Park, S. C., Park, M. K., and Kang, M. G. Super-resolution image reconstruction: a technical overview. *IEEE Signal Processing Magazine*, 20(3):21–36, 2003.
- [77] Pickup, L. C., Capel, D. P., Roberts, S. J., and Zisserman, A. Bayesian methods for image super-resolution. *The Computer Journal*, 52(1):101–113, 2007.
- [78] Potetz, B. and Lee, T. S. Statistical correlations between two-dimensional images and three-dimensional structures in natural scenes. *Journal of the Optical Society of America*, 20(7):1292–1303, 2003.
- [79] Potra, F. A. and Wright, S. J. Interior-point methods. *Journal of Computational and Applied Mathematics*, 124(1-2):281–302, 2000.
- [80] Rathore, M. M. U., Paul, A., Ahmad, A., Chen, B.-W., Huang, B., and Ji, W. Real-time big data analytical architecture for remote sensing application. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 8(10):4610–4621, 2015.
- [81] Ren, H., Pan, H., Olsen, S. I., and Moeslund, T. B. Greedy vs. l1 convex optimization in sparse coding: Comparative study in abnormal event detection. In *ICML’15 Workshop: FEAST 2015: ICML Workshop on Features and Structures*, 2015.
- [82] Ren, R., Gu, L., Fu, H., and Sun, C. Super-resolution algorithm based on sparse representation and wavelet preprocessing for remote sensing imagery. *Journal of Applied Remote Sensing*, 11(2):1–16, 2017.
- [83] Rencker, L., Bach, F., Wang, W., and Plumbley, M. D. Sparse recovery and dictionary learning from nonlinear compressive measurements. *IEEE Transactions on Signal Processing*, 67(21):5659–5670, 2019.
- [84] Renza, D., Martinez, E., and Arquero, A. A new approach to change detection in multispectral images by means of ERGAS index. *IEEE Geoscience and Remote Sensing Letters*, 10(1):76–80, 2012.
- [85] Romano, Y., Isidoro, J., and Milanfar, P. RAISR: rapid and accurate image super resolution. *IEEE Transactions on Computational Imaging*, 3(1):110–125, March 2017.
- [86] Rubinstein, R., Bruckstein, A. M., and Elad, M. Dictionaries for sparse representation modeling. *Proceedings of the IEEE*, 98(6):1045–1057, 2010.
- [87] Rubinstein, R., Zibulevsky, M., and Elad, M. Efficient implementation of the K-SVD algorithm using batch orthogonal matching pursuit. Technical Report 40, Computer Science Department, Technion, Haifa, Israel, 2008.

-
- [88] Sabeti, E., Song, P. X., and Hero, A. O. Data discovery using lossless compression-based sparse representation. In *2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pages 5539–5543, 2021.
- [89] Salvador, J. Chapter 5 - sparse coding. In Salvador, J., editor, *Example-Based Super Resolution*, pages 65–78. Academic Press, 2017.
- [90] Shah, V. P., Younan, N. H., and King, R. L. An efficient pan-sharpening method via a combined adaptive PCA approach and contourlets. *IEEE Transactions on Geoscience and Remote Sensing*, 46(5):1323–1335, 2008.
- [91] Shahdoosti, H. R. and Ghassemian, H. Fusion of MS and PAN images preserving spectral quality. *IEEE Geoscience and Remote Sensing Letters*, 12(3):611–615, 2015.
- [92] Shao, Z., Wang, L., Wang, Z., and Deng, J. Remote sensing image super-resolution using sparse representation and coupled sparse autoencoder. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 12(8):2663–2674, 2019.
- [93] Slabaugh, G., Boyes, R., and Yang, X. Multicore image processing with OpenMP. *IEEE Signal Processing Magazine*, 27(2):134–138, 2010.
- [94] Song, P., Deng, X., Mota, J. F. C., Deligiannis, N., Dragotti, P. L., and Rodrigues, M. R. D. Multimodal image super-resolution via joint sparse representations induced by coupled dictionaries. *IEEE Transactions on Computational Imaging*, 6:57–72, 2020.
- [95] Stark, H. and Oskoui, P. High-resolution image recovery from image-plane arrays, using convex projections. *The Journal of the Optical Society of America*, 6(11):1715–1726, 1989.
- [96] Starovoitov, V., Makarau, A., Zakharov, I., and Dovnar, D. Multispectral image enhancement based on fusion and super-resolution. In *15th European Signal Processing Conference*, pages 2174–2178. IEEE, 2007.
- [97] Su, C., Zhuang, Y., Huang, L., and Wu, F. Steerable pyramid-based face hallucination. *Pattern Recognition*, 38(6):813–824, 2005.
- [98] Sun, J., Sun, J., Xu, Z., and Shum, H.-Y. Gradient profile prior and its applications in image super-resolution and enhancement. *IEEE Transactions on Image Processing*, 20(6):1529–1542, 2011.
- [99] Sun, J., Xu, Z., and Shum, H.-Y. Image super-resolution using gradient profile prior. In *2008 IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 1–8, Anchorage, AK, 2008. IEEE.
- [100] Sun, J., Zheng, N.-N., Tao, H., and Shum, H.-Y. Image hallucination with primal sketch priors. In *2003 IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, volume 2, pages 729–736, Madison, WI, USA, 2003. IEEE.

-
- [101] Tan, H., Xiao, H., Liu, Y., Zhang, M., and Wang, B. LASSO approximation and application to image super-resolution with CUDA acceleration. In *2017 2nd International Conference on Image, Vision and Computing (ICIVC)*, pages 483–488, Chengdu, 2017. IEEE.
- [102] Tian, C., Xu, Y., Zuo, W., Zhang, B., Fei, L., and Lin, C.-W. Coarse-to-fine CNN for image super-resolution. *IEEE Transactions on Multimedia*, 23:1489–1502, 2020.
- [103] Tian, J. and Ma, K.-K. A survey on super-resolution imaging. *Signal, Image and Video Processing*, 5(3):329–342, 2011.
- [104] Tsai, R. Multiframe image restoration and registration. *Advance Computer Visual and Image Processing*, 1:317–339, 1984.
- [105] Tu, T.-M., Huang, P. S., Hung, C.-L., and Chang, C.-P. A fast intensity-hue-saturation fusion technique with spectral adjustment for ikonos imagery. *IEEE Geoscience and Remote sensing letters*, 1(4):309–312, 2004.
- [106] Tu, T.-M., Su, S.-C., Shyu, H.-C., and Huang, P. S. A new look at IHS-like image fusion methods. *Information Fusion*, 2(3):177–186, 2001.
- [107] Vandewalle, P., Süsstrunk, S., and Vetterli, M. A frequency domain approach to registration of aliased images with application to super-resolution. *EURASIP Journal on Advances in Signal Processing*, 2006:1–14, 2006.
- [108] Vega, M., Mateos, J., Molina, R., and Katsaggelos, A. K. Super-resolution of multispectral images. *The Computer Journal*, 52(1):153–167, 2009.
- [109] Wang, Z. and Bovik, A. C. A universal image quality index. *IEEE Signal Processing Letters*, 9(3):81–84, 2002.
- [110] Xia, G.-S., Hu, J., Hu, F., Shi, B., Bai, X., Zhong, Y., Zhang, L., and Lu, X. Aid: A benchmark data set for performance evaluation of aerial scene classification. *IEEE Transactions on Geoscience and Remote Sensing*, 55(7):3965–3981, 2017.
- [111] Xu, J., Qi, C., and Chang, Z. Coupled K-SVD dictionary training for super-resolution. In *2014 IEEE International Conference on Image Processing (ICIP)*, pages 3910–3914, Paris, France, 2014. IEEE.
- [112] Xu, M. and Xie, B. Online update joint dictionary learning method for hyper-spectral image super resolution. In *International Conference on Mechatronics and Intelligent Robotics*, pages 191–199, Kunming, China, 2018. Springer.
- [113] Xu, S. and Gao, F. Single-image super resolution based on group sparse representation via GAUSSIAN. *International Journal of Circuits, Systems and Signal Processing*, 11:118–128, 2017.
- [114] Yan, Q., Xu, Y., Yang, X., and Nguyen, T. Q. Single image superresolution based on gradient profile sharpness. *IEEE Transactions on Image Processing*, 24(10):3187–3202, 2015.

-
- [115] Yang, J., Wright, J., Huang, T. S., and Ma, Y. Image super-resolution via sparse representation. *IEEE Transactions on Image Processing*, 19(11):2861–2873, 2010.
- [116] Yang, W., Xue, B., Wang, C., et al. Image super resolution reconstruction based MCA and PCA dimension reduction. *Advances in Molecular Imaging*, 8(01):1, 2018.
- [117] Yang, W., Liu, J., Yang, S., and Guo, Z. Image super-resolution via nonlocal similarity and group structured sparse representation. In *IEEE Conference on Visual Communications and Image Processing (VCIP)*, pages 1–4, Singapore, 2015. IEEE.
- [118] Yang, X., Wu, W., Chen, W., Jeon, G., and Yan, B. Remote sensing image super-resolution using dual-dictionary pairs based on sparse presentation and multiple features. In *Proceedings of International Conference on Internet Multimedia Computing and Service (ICIMCS '14)*, pages 90–94, New York, USA, 2014. ACM.
- [119] Yang, Y. and Newsam, S. Bag-of-visual-words and spatial extensions for land-use classification. In *Proceedings of the 18th SIGSPATIAL International Conference on Advances in Geographic Information Systems (GIS'10)*, pages 270–279, New York, USA, 2010. ACM.
- [120] Yasuma, F., Mitsunaga, T., Iso, D., and Nayar, S. K. Generalized assorted pixel camera: postcapture control of resolution, dynamic range, and spectrum. *IEEE Transactions on Image Processing*, 19(9):2241–2253, 2010.
- [121] Zeyde, R., Elad, M., and Protter, M. On single image scale-up using sparse-representations. In Boissonnat, J.-D., Chenin, P., Cohen, A., Gout, C., Lyche, T., Mazure, M.-L., and Schumaker, L. L., editors, *Curves and Surfaces 2010*, volume 6920 of *Lecture Notes in Computer Science*, pages 711–730. Springer, Berlin, Heidelberg, 2012.
- [122] Zha, Z., Yuan, X., Wen, B., Zhou, J., Zhang, J., and Zhu, C. A benchmark for sparse coding: When group sparsity meets rank minimization. *IEEE Transactions on Image Processing*, 29:5094–5109, 2020.
- [123] Zha, Z., Yuan, X., Wen, B., Zhang, J., Zhou, J., and Zhu, C. Image restoration using joint patch-group-based sparse representation. *IEEE Transactions on Image Processing*, 29:7735–7750, 2020.
- [124] Zha, Z., Yuan, X., Wen, B., Zhou, J., and Zhu, C. Joint patch-group based sparse representation for image inpainting. In Zhu, J. and Takeuchi, I., editors, *Proceedings of The 10th Asian Conference on Machine Learning*, volume 95 of *Proceedings of Machine Learning Research*, pages 145–160. PMLR, 2018.
- [125] Zhang, D., Shao, J., Li, X., and Shen, H. T. Remote sensing image super-resolution via mixed high-order attention network. *IEEE Transactions on Geoscience and Remote Sensing*, 59(6):5183–5196, 2020.

-
- [126] Zhang, J., Zhao, D., and Gao, W. Group-based sparse representation for image restoration. *IEEE Transactions on Image Processing*, 23(8):3336–3351, 2014.
- [127] Zhang, J., Zhao, D., Jiang, F., and Gao, W. Structural group sparse representation for image compressive sensing recovery. In *2013 Data Compression Conference*, pages 331–340, Snowbird, UT, USA, 2013. IEEE.
- [128] Zhang, Y. Problems in the fusion of commercial high-resolution satellite as well as landsat 7 images and initial solutions. *International Archives of Photogrammetry Remote Sensing and Spatial Information Sciences*, 34(4):587–592, 2002.
- [129] Zhang, Y. Problems in the fusion of commercial high-resolution satellite as well as Landsat 7 images and initial solutions. In *International Archives of Photogrammetry Remote Sensing and Spatial Information Sciences*, volume 34, pages 587–592, 2002.
- [130] Zhao, J., Hu, H., Zhou, Z., and Cao, F. Super-resolution reconstruction: using non-local structure similarity and edge sharpness dictionary. *IET Image Processing*, 11(12):1254–1264, 2017.
- [131] Zhao, Y., Yang, J., Zhang, Q., Song, L., Cheng, Y., and Pan, Q. Hyperspectral imagery super-resolution by sparse representation and spectral regularization. *EURASIP Journal on Advances in Signal Processing*, 87:1–10, 2011.
- [132] Zhou, W., Newsam, S., Li, C., and Shao, Z. Patternnet: A benchmark dataset for performance evaluation of remote sensing image retrieval. *ISPRS Journal of Photogrammetry and Remote Sensing*, 145:197–209, 2018.
- [133] Zhu, X. X. and Bamler, R. A sparse image fusion algorithm with application to pan-sharpening. *IEEE Transactions on Geoscience and Remote Sensing*, 51(5):2827–2836, 2013.
- [134] Zhu, Z., Guo, F., Yu, H., and Chen, C. Fast single image super-resolution via self-example learning and sparse representation. *IEEE Transaction on Multimedia*, 16(8):2178–2190, 2014.