

# Seminar Inverse Problems in Image Processing and Computer Vision

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List of Papers

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## 1 Optimization Methods for Inverse Problems (November - December)

- Goldstein, T. and Osher, S. (2009). The Split Bregman Method for L1-Regularized Problems. *SIAM Journal on Imaging Sciences*, 2(2):323–343
- Condat, L. (2014). A Generic Proximal Algorithm for Convex Optimization - Application to Total Variation Minimization. *IEEE Signal Processing Letters*, 21(8):985–989
- Ochs, P., Dosovitskiy, A., Brox, T., and Pock, T. (2013). An Iterated L1 Algorithm for Non-smooth Non-convex Optimization in Computer Vision. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 1759–1766

## 2 Blind and Non-Blind Deconvolution (November - January)

- Pan, J., Sun, D., Pfister, H., and Yang, M.-H. (2016b). Blind Image Deblurring Using Dark Channel Prior. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*
- Pan, J., Hu, Z., Su, Z., and Yang, M.-H. (2016a). L0-Regularized Intensity and Gradient Prior for Deblurring Text Images and Beyond. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 8828:1–14
- Cho, S., Wang, J., and Lee, S. (2011). Handling Outliers in Non-Blind Image Deconvolution. In *International Conference on Computer Vision (ICCV)*, pages 495–502

### 3 Super-Resolution and Upsampling (November - January)

- Babacan, S. D., Molina, R., and Katsaggelos, A. K. (2011). Variational Bayesian Super Resolution. *IEEE Transactions on Image Processing*, 20(4):984–999
- Liu, C. and Sun, D. (2014). On Bayesian Adaptive Video Super Resolution. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 36(2):346–360
- Ma, Z., Liao, R., Tao, X., Xu, L., Jia, J., and Wu, E. (2015). Handling Motion Blur in Multi-Frame Super-Resolution. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 5224–5232
- Ferstl, D., Reinbacher, C., Ranftl, R., Ruether, M., and Bischof, H. (2013). Image Guided Depth Upsampling Using Anisotropic Total Generalized Variation. In *International Conference on Computer Vision (ICCV)*, pages 993–1000

### 4 Image Filtering, Artifact Removal, and Dehazing (November - January)

- Ham, B., Cho, M., and Ponce, J. (2015). Robust Image Filtering using Joint Static and Dynamic Guidance. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 4823–4831
- Ono, S. and Yamada, I. (2016). Color-Line Regularization for Color Artifact Removal. *IEEE Transactions on Computational Imaging*, 2(3):204–217
- Heide, F., Egiazarian, K., Kautz, J., Pulli, K., Steinberger, M., Tsai, Y.-T., Rouf, M., Pajk, D., Reddy, D., Gallo, O., Liu, J., and Heidrich, W. (2014). FlexISP: A Flexible Camera Image Processing Framework. *ACM Transactions on Graphics*, 33(6):1–13
- Bahat, Y. and Irani, M. (2016). Blind dehazing using internal patch recurrence. In *IEEE International Conference on Computational Photography (ICCP)*, pages 1–9
- Chen, C., Do, M. N., and Wang, J. (2016). Robust Image and Video Dehazing with Visual Artifact Suppression via Gradient Residual Minimization. In *European Conference on Computer Vision (ECCV)*, pages 576–591

## 5 Motion Analysis (November - January)

- Brox, T. and Malik, J. (2011). Large Displacement Optical Flow: Descriptor Matching in Variational Motion Estimation. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 33(3):500–513
- Werlberger, M., Trobin, W., Pock, T., Wedel, A., Cremers, D., and Bischof, H. (2009). Anisotropic Huber-L1 Optical Flow. In *Proceedings of the British Machine Vision Conference (BMVC)*

## 6 Deep Learning to Solve Inverse Problems (December - January)

- Dong, C., Loy, C. C., He, K., and Tang, X. (2014). Learning a Deep Convolutional Network for Image Super-Resolution. In *European Conference on Computer Vision (ECCV)*, pages 184–199
- Kappeler, A., Yoo, S., Dai, Q., and Katsaggelos, A. K. (2016). Video Super-Resolution With Convolutional Neural Networks. *IEEE Transactions on Computational Imaging*, 2(2):109–122
- Dosovitskiy, A., Fischery, P., Ilg, E., Hausser, P., Hazirbas, C., Golkov, V., van der Smagt, P., Cremers, D., and Brox, T. (2015). FlowNet: Learning Optical Flow with Convolutional Networks. In *International Conference on Computer Vision (ICCV)*, pages 2758–2766

## 7 Applications in Biomedical Imaging (December - January)

- Kubecka, L., Jan, J., and Kolar, R. (2010). Retrospective Illumination Correction of Retinal Images. *International Journal of Biomedical Imaging*, 2010(9):780262
- Marrugo, A. G., Sorel, M., Sroubek, F., and Millán, M. S. (2011). Retinal Image Restoration by Means of Blind Deconvolution. *Journal of Biomedical Optics*, 16(11):116016
- Fischer, P., Pohl, T., Maier, A., and Hornegger, J. (2015). Surrogate-Driven Estimation of Respiratory Motion and Layers in X-Ray Fluoroscopy. In *International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, pages 282–289, LNCS Vol. 9349, Part I