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Qualitative properties of minimizers of Total-Variation regularized problems

Tuesday, August 13, 2024 3:00 PM (1 hour)

The total variation has been successful as a regularizer for inverse problems in imaging, thanks to its ability to preserve discontinuities (edges) and its relative simplicity (convexity). Even if largely outdated by deep learning based method, it still can be useful in some regimes (low noise, large scale images). This talk is about the preservation of edges in total-variation based denoising. We revisit old proofs which show in some settings that no spurious edges are created by this apporach. Our new approach, much simpler and natural than the previous, applies to more settings (color/multispectral data, some higher order models); on the other hand, proving more precise regularity still remains a challenge.

This is joint work with Michał Łasica, Warsaw.

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