

Institut für Statistik

Vortrag

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SR für Statistik (NT03098), Kopernikusgasse 24, 3.OG.

Learning Regularization Parameters via Weak Optimal Transport

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We introduce a novel method for data-driven tuning of regularization parameters in total-variation image denoising. Our approach leverages the semi-dual Brenier formulation of weak optimal transport between the distributions of clean and noisy images to devise a new loss function for total variation parameter learning. Our loss has a close connection to the traditional bilevel quadratic setting, but it leads to fully explicit monolevel problems, which are, in fact, convex under certain conditions. For training, we introduce a new conditional-gradient-type method, which can handle a complex and unbounded constraint set with computations up to numerical precision. Numerical experiments demonstrate the effectiveness of our approach and suggest promising avenues for future extensions.

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