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Mathematical Models and Operators in Image Processing

Energy minimization models are often used in different image processing problems, such as denoising, deblurring, segmentation and tomography. Incorporating a priori information about the original object into the energy minimization model is called regularization.

Several variants of total variation based regularizations will be analyzed and discussed. Calculus of variations is a mathematical discipline which may provide excellent tools for design, analysis and solving many image processing problems. The presentation will provide a brief introduction to this discipline and give an overview of several important applications.