Inpainting and Visual Interpolation

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Abstract:

Inpainting, or image interpolation, has broad applications in visual perception, digital media, and information technologies. Compared with other classical interpolation problems (such as polynomial-, spline-, Shannon- or wavelet-interpolations), inpainting imposes extra challenges mainly due to the complexity of both missing domains and missing signals, especially the geometric features of images. In this talk, we focus on our recent efforts in applying the variational-PDE approach to inpainting, and reveal some major applications of nonlinear PDEs, stochastic modeling, geometric measure theory, and Gamma-convergence in contemporary mathematical imaging and vision.

(Joint work with several authors in the past few years, especially with the applied math group at UCLA.)