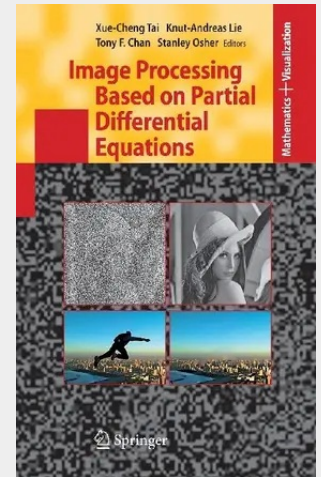


Image Processing Based on Partial Differential Equations

Proceedings of the International Conference on PDE-Based Image Processing and Related Inverse Problems, CMA, Oslo, August 8-12, 2005

The book contains twenty-two original scientific research articles that address the state-of-the-art in using partial differential equations for image and signal processing. The articles arose from presentations given at the international conference on PDE-Based Image Processing and Related Inverse Problems, held at the Centre of Mathematics for Applications, University of Oslo, Norway, August 8-12, 2005. The purpose of the conference was to bring together international researchers to present various aspects of new developments in using numerical techniques for partial differential equations to analyse and process digital images. Various aspects of new trends and techniques in this field were discussed in the conference, covering the following topics: • Level set methods and applications • Total variation regularization and other nonlinear filters • Noise analysis and removal • Image inpainting • Image deblurring • Optical flow estimation • Image segmentation • Image registration • Analysis and processing of MR images and brain mapping • Image construction techniques • Level set methods for inverse problems. Inverse problems for partial differential equations have large areas of applications. Although image analysis and PDE inverse problems seem to be unrelated at a first glance, there are many techniques used in one of these two areas that are useful for the other. One goal of the conference was to highlight some of the recent efforts in merging some of the techniques for these two research areas.

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