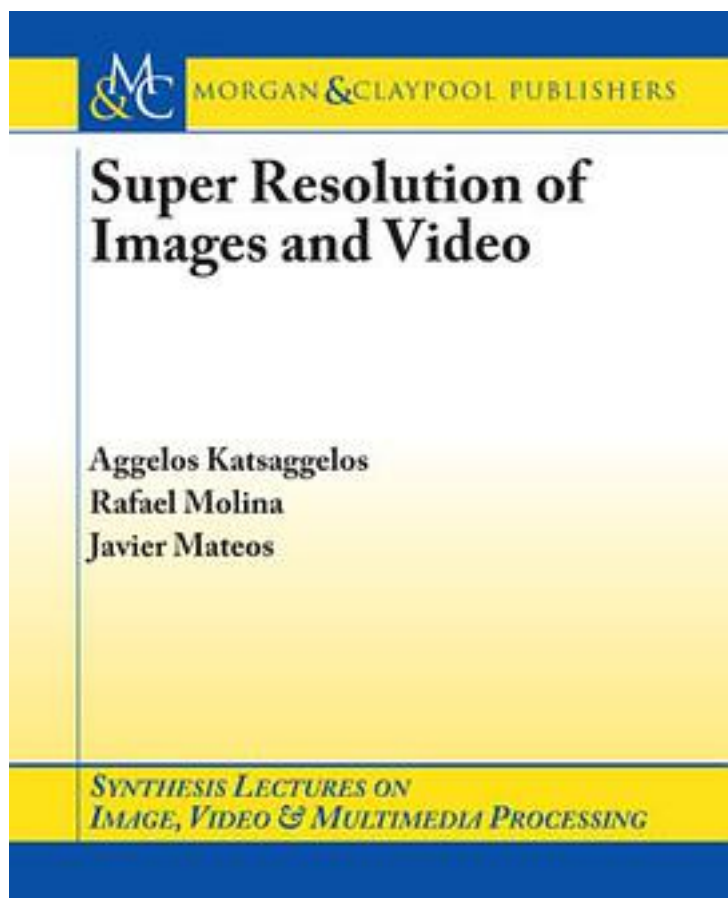# Super Resolution of Images and Video

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This book focuses on the super resolution of images and video. The authors use of the term super resolution (SR) is used to describe the process of obtaining a high resolution (HR) image, or a sequence of HR images, from a set of low resolution (LR) observations. This process has also been referred to in the literature as resolution

enhancement (RE). SR has been applied primarily to spatial and temporal RE, but also to hyperspectral image enhancement. This book concentrates on motion based spatial RE, although the authors also describe motion free and hyperspectral image SR problems. Also examined is the very recent research area of SR for compression, which consists of the intentional downsampling, during pre-processing, of a video sequence to be compressed and the application of SR techniques, during post-processing, on the compressed sequence. It is clear that there is a strong interplay between the tools and techniques developed for SR and a number of other inverse problems encountered in signal processing (e.g., image restoration, motion estimation). SR techniques are being applied to a variety of fields, such as obtaining improved still images from video sequences (video printing), high definition television, high performance color Liquid Crystal Display (LCD) screens, improvement of the quality of color images taken by one CCD, video surveillance, remote sensing, and medical imaging. The authors believe that the SR/RE area has matured enough to develop a body of knowledge that can now start to provide useful and practical solutions to challenging real problems and that SR techniques can be an integral part of an image and video codec and can drive the development of newcoder-decoders (codecs) and standards.

作者介绍:

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