

Basic Image Processing Techniques

2.1	Basic Gray-Level Image Processing Alan C. Bovik Introduction • Notation • Image Histogram • Linear Point Operations on Images • Nonlinear Point Operations on Images • Arithmetic Operations Between Images • Geometric Image Operations • Acknowledgment	21
2.2	Basic Binary Image Processing Alan C. Bovik Introduction • Image Thresholding • Region Labeling • Binary Image Morphology • Binary Image Representation and Compression • Acknowledgment	39
2.3	Basic Tools for Image Fourier Analysis Alan C. Bovik Introduction • Discrete-Space Sinusoids • Discrete-Space Fourier Transform • Two-Dimensional Discrete Fourier Transform • Understanding Image Frequencies and the Discrete Fourier Transform • Related Topics in this Handbook • Acknowledgment	57
2.4	Image Processing Education Umesh Rajashekar, Alan C. Bovik, Daniel Sage, Michael Unser, Lina J. Karam, and Reginald L. Lagendijk Introduction • IP-LAB: A Tool for Teaching Image-Processing Programming in Java Using Image] • Java-based Educational Software for Image and Two-Dimensional Signal Processing • SIVA — The Signal, Image, and Video Audio-Visualization Gallery • VcDemo — The Image and Video Compression	73