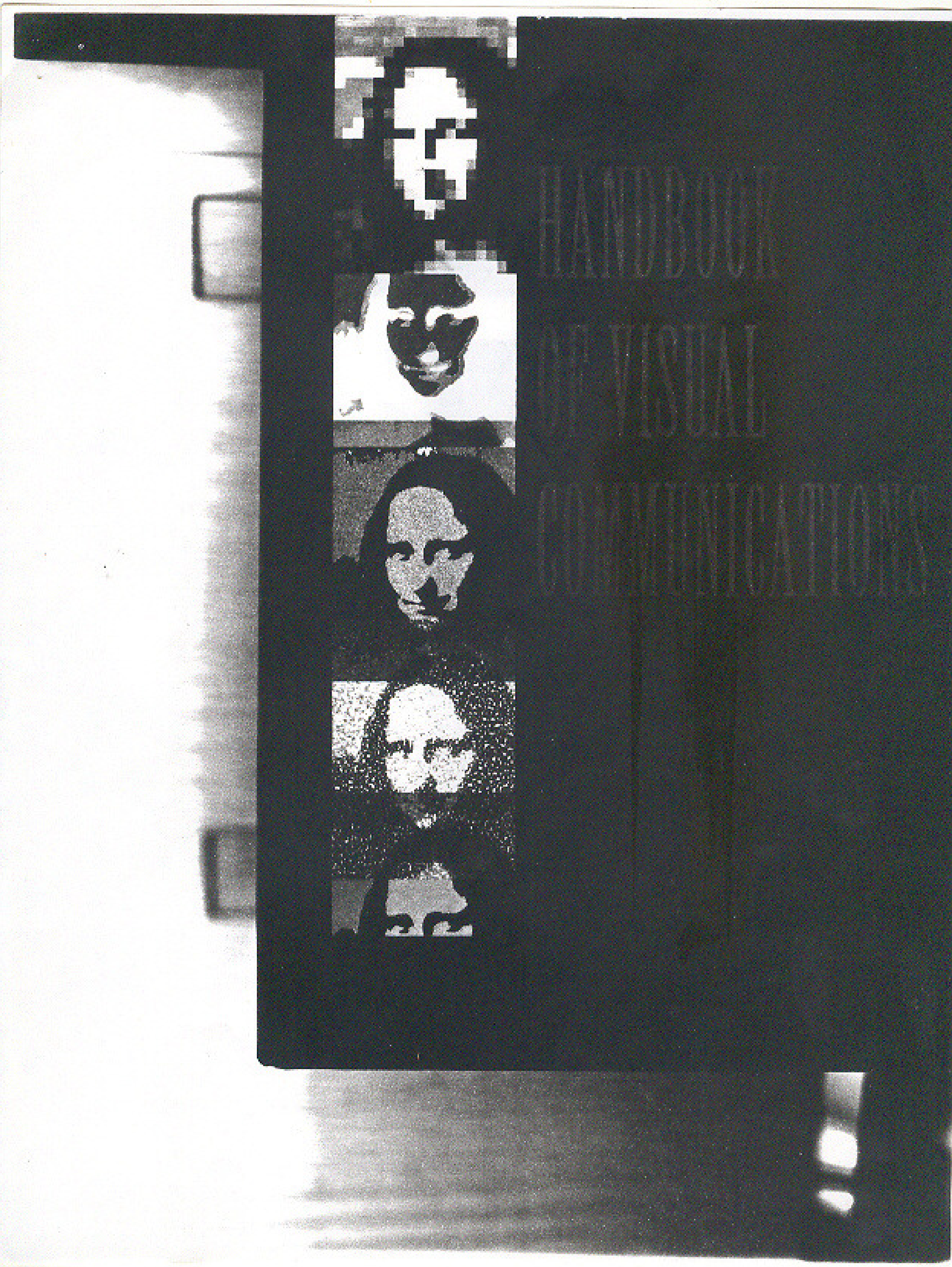
HANDBOOK
OF VISUAL
COMMUNICATIONS

Handbook of Visual Communications

Edited by

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John W. Woods

ECSE Department
Rensselaer Polytechnic Institute
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Chapter 7
Transform Coding

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This chapter presents the role of discrete transforms, especially discrete cosine transform (DCT) and lapped orthogonal transform (LOT), in image coding. The application of these transforms both in still frame and image sequence coding is illustrated. Other functions such as quantization, motion estimation, human visual sensitivity, and variable length coding that are inherent to the overall coding scheme are also described.

7.1 Introduction

While various discrete transforms [1–8] such as Walsh–Hadamard, Haar, slant, discrete Fourier (DFT), DCT, discrete sine (DST), LOT, and discrete wavelet transform (DWT) have been investigated for application to image coding, only DCT has emerged as the most practical and efficient transform. The LOT [5, 6] and DWT (see [7, 8] and Chapter 8 in this book) have been extensively simulated in still frame and image sequence coding and have proven to be formidable competitors to the DCT. It is to be cautioned that transform by itself is only a part of the overall compression scheme, as the coding process may involve

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