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# Basic Prediction Techniques in Modern Video Coding Standards

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# Basic Prediction Techniques in Modern Video Coding Standards

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# Preface

This book is intended as a basic technical guide for the latest video coding standard with general descriptions of the latest video compression standard technologies. The H.264/advanced video coding (AVC) scheme as a video compression standard has been applied in a variety of multimedia services over the last 10 years. As the latest video coding standard, High Efficiency Video Coding (HEVC) standard technology is also expected to be used in a variety of ultrahigh-definition (UHD) multimedia and immersive media services over the next 10 years.

The structure of the H.264/AVC standard scheme is explained in contrast with earlier technologies, and the HEVC video compression technology is presented. The history and background of the overall video coding technology and the hybrid video codec structure are explained in the Introduction. A detailed explanation of the modules and functions of the hybrid video codec is presented in Chap. 2. Detailed descriptions of intra-prediction, inter-prediction, and RD optimization techniques of H.264/AVC standard modules of the video codec follow. The high degree of video quality achieved using this standard results in computational complexity in the video encoding system. Thus, fast algorithms and schemes for reduction in HEVC encoding system computational complexity are presented and analyzed in Chap. 6.

A complete, comprehensive, and exhaustive analysis of HEVC and the H.264/AVC video codec is beyond the scope of this book. However, the latest technologies used in the codec are presented in an attempt to gain an understanding of both structure and function. Basic principles of video data compression based on removal of correlations between data are presented and explained. Therefore, this book will help interested readers to gain an understanding of the latest video codec technology.

Seoul, Republic of Korea — Byung-Gyu Kim
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