

Digital Signal Processing for Music

Part 25: Waveform Coding

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Introduction

» Goal

Encode waveform in a way that the decoded waveform is as close to the original waveform as possible

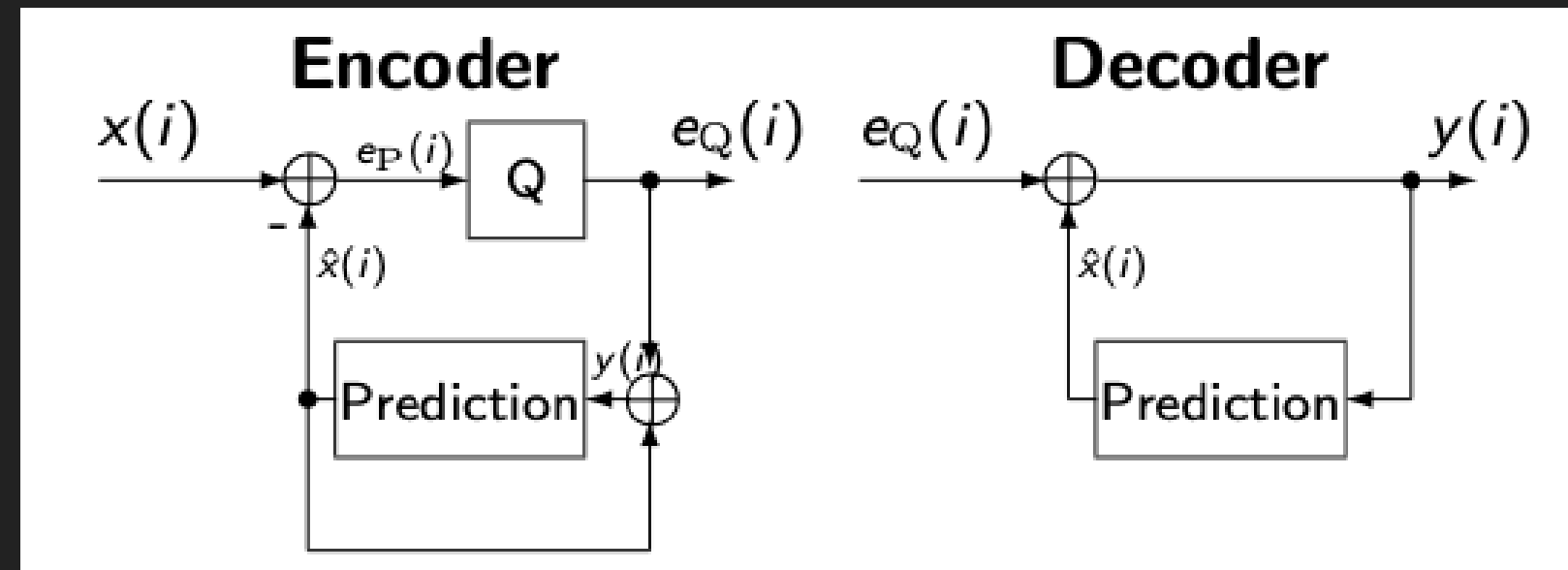
» Approaches:

» PCM (analogue to digital)

» Non-linear quantization

» **DPCM & ADPCM**

DPCM



- » Predictor is updated from **reconstructed signal**
- » No transmission of predictor coefficients necessary
- » *Reconstruction error*

$$\begin{aligned} e(i) &= x(i) - y(i) \\ &= x(i) - (\hat{x}(i) + e_Q(i)) \\ &= e_P(i) - e_Q(i) \\ &= q(i) \end{aligned}$$

- » Reconstruction error **identical** to quantization error

ADPCM

