Text-Independent Speaker Identification

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System Model

System

Speech Database → Host PC → EVM

Training and Test Sets → Data Transfer to EVM → Feature Extraction & Vector Quantization
Overview

speech →

SAMPLING

FEATURE

EXTRACTION

VECTOR

QUANTIZATION

SPEAKER

CODEBOOK

DECISION
Feature Extraction

sampled signal → [Block]

PRE-EMPHASIS

AUTOCORRELATION

LPC

CEPSTRUM

CEPSTRAL WEIGHTING
Training Set

Feature Clustering

Determine Cluster Centroid

Code Book

Training Waveform

Centroid: ▲
Sample: △
S(n)
Speech Signal

Feature Extraction

VQ CodeBook
Speaker 1

VQ CodeBook
Speaker 2

VQ CodeBook
Speaker n

Decision Logic

Recognized Speaker
Task List

• VQ Codebook generation research
• Database selection and procurement
• MatLab implementation of algorithm
• Research feature extraction on DSP
• Implement Training/Matching algorithms in C
• Attempt to Model with Ptolemy
Ptolemy Implementation
Results