Dual-domain Hierarchical Phoneme Classification

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Abstract
Phonemes are smallest unit of human speech in any language. We use both frequency and time domain features for English phoneme classification. We use a hierarchy of phonemes based on their manners of pronunciation and applied non-parametric conditional classification at each node. The classifier is tested on three novel datasets and the results are significantly better than parametric methods.

Motivation
Accurate classification of phonemes can lead to better understanding of speech variations such as accents, dialects and disorders. Phoneme based speech recognizers can be robust for such variations.

Data Preparation
- Crawling online dictionaries
- Google Translate
- Oxford Dictionary
- Merriam-Webster
- Segmentation
- Silent Removal
- Normalization

Techniques

Results

Phoneme Hierarchy

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