

Software Requirements Specification

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Speaker verification with score normalizations-SVM

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1.0. Purpose

1.1. Introduction

This Software Requirements Specification provides a complete description of all the functions and specifications of the speaker verification with score normalization –SVM’s.

The expected audience of this document is the faculty, including the faculty who will use this system. It will also serves as a reference for Speech students.

1.2. Scope

The speaker verification using score normalization-SVM is used to verify the particular speech signal against the claimed speakers and using DET curve we plot the error probabilities.

1.3. Glossary

Term	Definition
DET	Detection Error Trade-off
IEEE	Institute of Electrical and Electronic Engineers
SRS	Software Requirements Specification
SVM	Support Vector Machine

1.4. References

[IEEE] Ce Zhang, Rong Zhang, Bo Xu, 2011. “Exploring implicit score normalization techniques in speaker verification”

Ronald Auckenthaler, Michel Carey, Harvey Lloyd-Thomas,2000,”Score normalization for speaker verification systems”, Digital Signal Processing.

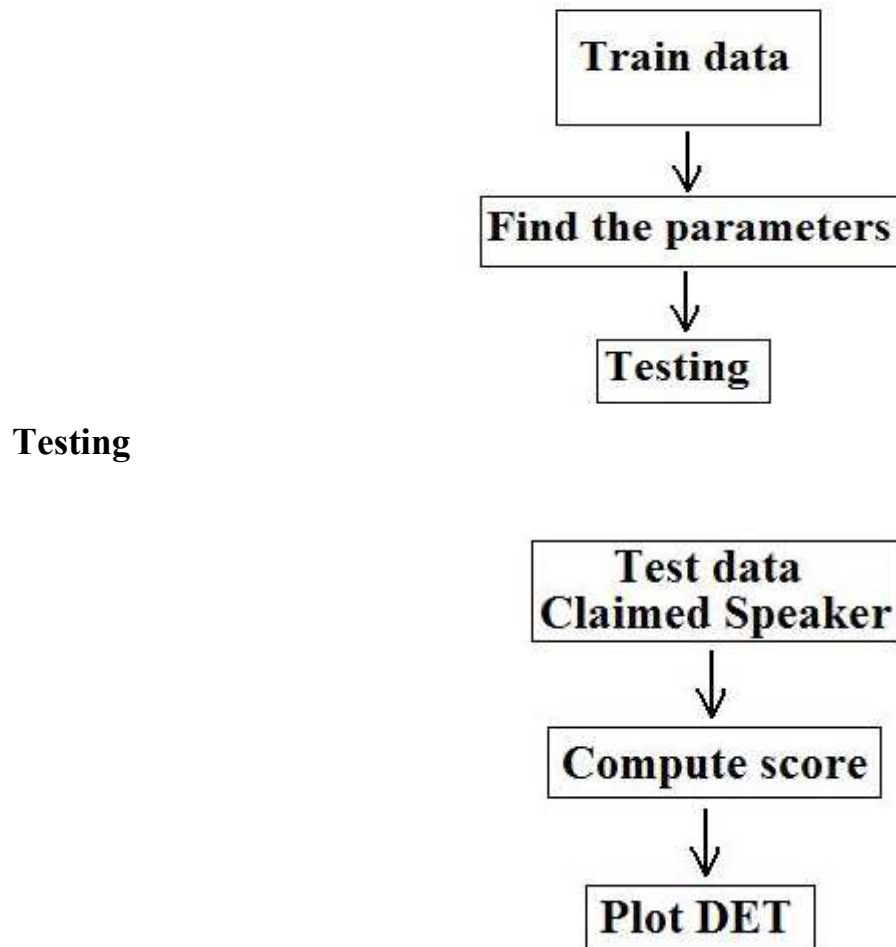
1.5. Document overview

The remainder of this document is two chapters, the first providing a full description of the project, i.e we provided flow diagram of the project, and in the second we provided the detailed functional requirements and its implementations.

2.0. Overall description

The present project is to verify the particular given feature vector against the claimed speakers using SVM and score normalization techniques.

2.1. Flow Diagram



3.0. Requirement specifications

3.1. External interface specifications

None

3.2. Functional Requirements

3.2.1. Training Data

Given data consists of training data and testing data. Training data consists of female speakers and fifty male speakers. We have to develop a model such it classify the speaker accurately it comes under multi-class SVM model.

3.2.1. Extended Training

We compute scores for the given test data. For this we should have target data as well as imposter data. Target data is the data which belongs to the particular speaker, imposter data is the data which is the data formed by pooling all the train data except that particular speaker data. From this we compute scores

3.2.1. Testing

We are given the test data which we have to compare the feature vectors of the claimed speaker and then obtain scores, and by plotting DET's we can come to know the error tradeoff in the data for the claimed speakers.

3.2.1. Score Normalization and DET plot

Because of the variabilities in the obtained scores we perform score normalization on the obtained scores. Then we plot the DET curve to see the error trade-off the claimed speakers