

## **ABSTRACT**

Today classification of gender is one of the most important procedures in speech processing. A successful gender classification approach can boost the performance of many different applications as well as face recognition, smart human-computer interface and computer aided physiological or psychological analysis. Gender identification task from children's speech is a challenging problem as there's no significant difference in the acoustic properties of male and female children. The gender differences in frequency characteristics emerge at the age of 7 and increase significantly at the age of 12. In this thesis, children gender classification system makes investigation on the efficient features to discriminate the gender from children's speech. The Mel Frequency Cepstral Coefficient (MFCC) method is used for extracting features from speech signals. Voice samples for feature dataset are collected from children of age ranged from 6 to 11 years, both male and female. Features are evaluated using nonlinear classifiers namely Artificial Neural Network (ANN), Random Forest (RF), Logistic Regression (LR), Support Vector Machine (SVM) and Gaussian Naive Bayes (GNB). This gender classification system is implemented by applying Python programming language and the experimental results has been analyzed. From the results RF classifier achieves the highest accuracy of 83% and performs better compared with other machine learning algorithms to classify the gender of a child using MFCC features of voice.