**Sentiment Speech Analysis using Neutrosophy**

*Submitted in partial fulfillment of the requirements for the degree of*

**Bachelor of Technology**

In

**Computer Science and Engineering with specialization in Information Security**

by

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May, 2020

**DECLARATION**

I hereby declare that the thesis entitled “Speech Sentiment Analysis using Neutrosophy” submitted by me, for the award of the degree of Bachelor of Technology in Computer Science and Engineering with specialization in Information Security to VIT is a record of bonafide work carried out by me under the supervision of Dr. Ilanthenral K.

I further declare that the work reported in this thesis has not been submitted and will not be submitted, either in part or in full, for the award of any other degree or diploma in this institute or any other institute or university.

Place : Vellore

Date : 29th May 2020

**Signature of the Candidate**

**CERTIFICATE**

This is to certify that the thesis entitled “**Speech Sentiment Analysis using Neutrosophy**” submitted by **Kritika Mishra (16BCI0041)**, School of Computer Science and Engineering, VIT, for the award of the degree of Bachelor of Technology in Computer Science and Engineering with specialization in Information Security, is a record of bonafide work carried out by him / her under my supervision during the period, 01. 12. 2018 to 30.04.2019, as per the VIT code of academic and research ethics.

The contents of this report have not been submitted and will not be submitted either in part or in full, for the award of any other degree or diploma in this institute or any other institute or university. The thesis fulfills the requirements and regulations of the University and in my opinion meets the necessary standards for submission.

Place : Vellore

Date : 29th May 2020

**Signature of the Guide**

**Internal Examiner External Examiner**

**Head of the Department**

B. Tech Computer Science and Engineering with specialization in Information Security

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**KRITIKA MISHRA**

**EXECUTIVE SUMMARY**

With the increasing data over the internet it is becoming more and more difficult to analyze every bit and make sure it can be used efficiently for all the businesses specially when it is in form of plain text. One useful technique using Natural Language Processing is sentiment analysis. There are various algorithms which can be used to classify textual data based on various scales ranging from just positive-negative, positive-neutral-negative to a wide spectrum of emotions. While a lot of work has been done on text, a lot lesser has been done on audio datasets. An audio file contains a lot more features which can be extracted from its amplitude and frequency than a plain text file. Another not so explored topic in NLP is neutrosophy which deals with the concept of indeterminacy highlighting the fact that fuzzy logic does not incorporate the uncertainties and inaccuracies of data.

This project aims to perform sentiment analysis on audio files by calculating their single valued neutrosophic sets and clustering them into positive-neutral-negative and comparing these results with those obtained by performing the same the operations on the text files of the audios.

**Keywords:** Sentiment Analysis, Speech Analysis, Neutrosophic Sets, Indeterminacy, SVNS, Clustering Algorithm, K-Means

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**ABBREVIATIONS**

|  |  |
| --- | --- |
| NLTK | Natural Language Processing Toolkit |
| NLP | Natural Language Processing |
| VADER | Valence Aware Dictionary Sentiment Reasoner |
| MFCC | Mel Frequency Cepstral Coefficients |
| SVNS | Single Valued Neutrosophic Sets |
|  |  |