Project Proposal

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Class	CS 584 - Machine Learning
Type	Project

Project Title

Speech Classification and Emotion Recognition using Advance Machine Learning Techniques

Team Members

Evelyn Martin - A20495420

Jasleen Kaur Bhatia - A20495939

Sri Hari Sivashanmugam - A20480978

Description

We intend to build a machine learning model that is capable of taking in an voice as an input and to be able to classify it into the different classes. And also as a future work, we intend to add another model to this pipeline which will be able to detect the emotion of the person who is speaking.

Brief survey

Speech is the simplest and most common form of human communication. Speech recognition systems were created with the goal of creating a human computer interface that would allow people and machines to communicate similarly. In order to do voice recognition, a system must be trained. Any speech recognition algorithm

that extracts voice characteristics and performs speech recognition must be taught on the computer a succinct summary of the suggested strategy. This involves training a system so that voice recognition can be carried out. The machine has to be trained using any of the speech recognition algorithms which would extract the features of the voice and perform speech recognition.

Our proposed approach will going to focus on three important issues and we will be implementing-

1. The features used to characterize different emotions.
2. The classification techniques used in research.
3. The important design criteria of emotional speech databases. Moreover, we are going to increase the the average classification accuracy of speaker independent speech emotion recognition systems

Preliminary plans (Milestone)

Item Number	Item Name
1	Data Collection and cleaning
2	Data Preprocessing
3	Understanding the data and Visualizations
4	Model building
5	Predicting
6	Improving the model
7	Curating the findings into report

References

1. https://en.wikipedia.org/wiki/Multilaye_r_perceptron
2. https://ijcrt.org/papers/IJCRT2105931.pdf
3. J. Ma, H. Jin, L. Yang, J. Tsai, “Ubiquitous Intelligence and Computing”, Third International Conference, UIC 2006, Vol. 4159.
4. J. Nicholson, K. Takahashi, R. Nakatsu, “Emotion recognition in speech using neural networks”, Neural Computing & Applications, 2000, Vol. 9, No. 4, pp. 290-296.