HALF - SPEECH RECOGNITION USING NEURAL NETWORKS

Abstract: Speech Recognition (SR) is an upsurging field that plays a crucial role in human-computer interaction. This project addresses the critical challenge of understanding unclear speech among audio-impaired individuals by leveraging advanced neural networks, including Recurrent Neural Networks (RNNs), and integrating Machine Learning (ML) models and necessary Natural Language Processing (NLP) techniques. The primary objective is to develop a sophisticated half-speech recognition system capable of deciphering and interpreting speech characterized by unclear articulation. This innovation aims to significantly improve communication and accessibility for individuals facing speech impediments. The training process will involve exposing the models to the Half-Speech data, particularly those exhibited by individuals with audio impairments, enabling the system to learn and adapt to various linguistic nuances.

The primary objective of Half-Speech Recognition lies in harnessing the power of Deep Learning. The pivotal concepts involved in the implementation of this system revolve around Neural Networks, with a particular emphasis on the utilization of Recurrent Neural Networks (RNNs) as the primary technology. Since, RNNs renowned for their efficacy in processing speech-related data and producing desired outputs, they can significantly enhance the accuracy and efficiency of speech recognition, particularly in scenarios characterized by unclear articulation.

The secondary objective of Half-Speech Recognition revolves around the dynamic integration of Machine Learning (ML) and the versatile programming language, Python. Machine Learning serves as a complementary force, augmenting the adaptability and resilience of the system. The Machine Learning techniques are used to identify intricate patterns within the half-speech data. Python, renowned for its flexibility and extensive libraries, emerges as the ideal programming language for implementing and fine-tuning the intricate algorithms driving the Half-Speech Recognition system. This harmonious blend of Machine Learning methodologies and Python programming enhances the project's technical strengths and accuracies in recognising half-speech of individuals with audio impairments.

Softwares used: Python, Machine Learning, Deep Learning

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