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“ADOID”

**A Deep Learning Approach for Detecting Involuntary Disruption
in Speech**

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ABSTRACT

Involuntary Disruption in speech also known as Stuttering/Stammering is a communication disorder characterized by disruptions in the normal flow of speech, which affects millions of people worldwide. Accurate and early detection of stuttering type is crucial for providing appropriate intervention and therapy. In this research, the author proposes a novel approach for stutter type detection using ensemble model according to the SEP-28k dataset.

The SEP-28K dataset, consisting of audio recordings from individuals with various forms of stuttering, including developmental, neurogenic, and psychogenic stuttering is employed for training and testing the ensemble model. The dataset is preprocessed to extract various speech features such as pitch, intensity, spectrograms, and temporal features, which are used as input to the ensemble model.

The ensemble model is constructed by combining pretrained machine learning models, such as VGG16 model and inception model to create an accurate classifier for stutter type detection. The ensemble model leverages the strengths of different algorithms to enhance the stutter type detection system's generalization and overall performance.

Furthermore, additional analysis are conducted to investigate the feature importance and model interpretability, providing insights into the underlying speech characteristics that differentiate between different stutter types. The findings contribute to the understanding of stuttering and provide valuable information for developing personalized interventions for individuals with different types of stuttering.

In conclusion, the research presents a promising approach for stutter type detection using ensemble model based on the SEP-28K dataset. The proposed approach has the capacity to increase accuracy of stutter type detection, leading to more effective and personalized interventions for individuals with stuttering, and ultimately improving their clinical outcomes and quality of life.