

Kannada Speech Disorder Detection and Assistance Using Deep Learning

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Abstract: *The advent of artificial intelligence (AI) and machine learning (ML) has revolutionised how languages are processed, understood, and utilised, clearing the path for innovations in accessibility and communication. This paper presents a Speech Sound Disorder Detection System that leverages advanced AI models like Network of Long Short- Term Memory (LSTM) and Generative Adversarial Networks (GANs) to address the dual challenges of Kannada text prediction and audio generation. The proposed system features a modular architecture comprising a user interface, an application layer, machine learning models, and a robust data layer. The user inputs text, which undergoes preprocessing and is transmitted via the ML models. The LSTM model predicts the next word or sequence, while the GAN model generates realistic and contextually appropriate synthetic sequences. These outputs then transformed into audio using a text-to-speech module and displayed or played back to the user. The research highlights the efficacy of these models in generating coherent and grammatically accurate predictions, demonstrating their applicability in linguistic domains with limited datasets. Comprehensive testing validated the system's scalability, accuracy, and responsiveness under diverse conditions.*

Keywords: Machine learning, deep learning, audio, Kannda, accuracy

