

ABSTRAK

Fadhlan Faidh, 2025. **Rancang Bangun Sistem Pendeteksi Lagu Melalui Voice Recognition Menggunakan Metode CNN Berbasis Website.**

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Kata kunci: AI, Voice Recognition, Deep Learning, Lagu, Deteksi

Identifikasi lagu berdasarkan potongan melodi yang diingat, seperti humming, sering menjadi tantangan karena perbedaan tempo, intonasi, dan kualitas suara. Penelitian ini merancang sistem berbasis web yang mampu mengenali lagu dari input humming menggunakan metode Convolutional Neural Network (CNN). Tahapan pengembangan mencakup perekaman data humming dari sukarelawan, augmentasi data, ekstraksi fitur menggunakan Mel Spektrogram dB, dan pelatihan model CNN. Model ini diintegrasikan ke dalam aplikasi web dengan framework Flask. Evaluasi sistem menggunakan confusion matrix terhadap lima lagu daerah menghasilkan akurasi sebesar 78%, dengan nilai precision dan recall yang bervariasi antar lagu. Hasil penelitian menunjukkan bahwa sistem mampu mengidentifikasi sebagian besar lagu dengan baik. Sistem ini memberikan solusi bagi pengguna yang kesulitan mengingat judul lagu hanya dari senandung, serta membuka peluang pengembangan lebih lanjut dalam bidang voice recognition berbasis deep learning.

ABSTRACT

Fadhlan Faidh, 2025. **Design and Development of a Song Detection System Through Voice Recognition Using the CNN Method Based on a Website**. Final Project, Study Program Informatics S1, Universitas Bhinneka Nusantara, Advisor 1 : Chaulina Alfianti Oktavia

Keyword: AI, Voice Recognition, Deep Learning, Song, Detection

Identifying songs based on remembered melody fragments, such as humming, is often challenging due to variations in tempo, intonation, and sound quality. This research designs a web-based system capable of recognizing songs from humming input using the Convolutional Neural Network (CNN) method. The development stages include recording humming data from volunteers, data augmentation, feature extraction using Mel Spectrogram dB, and CNN model training. The model is integrated into a web application using the Flask framework. System evaluation using a confusion matrix on five traditional Indonesian songs resulted in an accuracy of 78%, with varying precision and recall values across the songs. The results show that the system is able to identify most of the songs accurately. This system offers a solution for users who struggle to recall song titles from humming alone and opens up opportunities for further development in deep learning-based voice recognition.