

ABSTRAK

Penelitian ini bertujuan untuk mengembangkan model klasifikasi sentimen terhadap data survei suara mahasiswa mengenai layanan pendaftaran mahasiswa baru berbasis teknologi *speech-to-text*. Data diperoleh dari mahasiswa yang kemudian ditranskripsikan menggunakan *Automatic Speech Recognition* dari *Whisper*. Penelitian ini mengadopsi kerangka kerja *Cross-Industry Standard Process for Data Mining* (CRISP-DM) untuk memastikan tahapan penelitian berjalan secara sistematis. Mengingat jumlah data awal yang terbatas sebanyak 36 sampel, dilakukan *template-based data augmentation* sehingga jumlah data meningkat menjadi 1.236 sampel guna memperkaya variasi data dan menghindari *overfitting*. Proses klasifikasi dilakukan menggunakan algoritma *Support Vector Machine* (SVM) dengan perbandingan tiga kernel, yaitu linear, Radial Basis Function (RBF), dan sigmoid, serta empat variasi rasio *splitting* data. Hasil evaluasi menunjukkan bahwa kernel linear dengan rasio 70:30 menghasilkan performa terbaik dengan *accuracy* sebesar 86%, serta nilai *precision*, *recall*, dan *F1-score* yang relatif seimbang pada tiga kelas sentimen. Analisis distribusi sentimen menunjukkan dominasi sentimen netral sebesar 51,4%, diikuti sentimen positif 24,8% dan negatif 23,8%. Temuan ini mengindikasikan bahwa mayoritas tanggapan mahasiswa bersifat informatif, dengan sejumlah pengalaman positif dan kendala teknis yang masih perlu diperbaiki. Secara keseluruhan, kombinasi teknologi *Whisper*, augmentasi data, dan algoritma SVM terbukti efektif dalam mengklasifikasikan sentimen berbasis transkripsi suara untuk mendukung evaluasi layanan pendidikan secara otomatis dan berbasis data.

Kata Kunci: *Analisis Sentimen, Transkripsi Suara, Whisper, Support Vector Machine (SVM), Augmentasi Data, Klasifikasi Teks, Layanan Publik*

ABSTRACT

This study aims to develop a sentiment classification model for student voice survey data regarding new student registration services using speech-to-text technology. The data were collected from students and subsequently transcribed using Automatic Speech Recognition based on the Whisper model. The research adopted the Cross-Industry Standard Process for Data Mining (CRISP-DM) framework to ensure a systematic and structured research process. Due to the limited initial dataset of 36 samples, a template-based data augmentation technique was applied to expand the dataset to 1,236 samples, thereby enriching data variation and reducing the risk of overfitting. The classification process employed the Support Vector Machine (SVM) algorithm by comparing three kernel functions: linear, Radial Basis Function (RBF), and sigmoid, across four different data-splitting ratios. The evaluation results indicate that the linear kernel with a 70:30 training–testing ratio achieved the best performance, with an accuracy of 86%, along with relatively balanced precision, recall, and F1-score across the three sentiment classes. Sentiment distribution analysis revealed a predominance of neutral sentiment at 51.4%, followed by positive sentiment at 24.8% and negative sentiment at 23.8%. These findings suggest that most student responses were informative in nature, accompanied by several positive experiences and technical issues that require improvement. Overall, the integration of Whisper-based transcription, data augmentation, and the SVM algorithm proved effective for classifying sentiment from transcribed speech data to support automated and data-driven evaluation of educational services.

Keywords: *Sentiment Analysis, Audio Transcription, Whisper, Support Vector Machine (SVM), Data Augmentation, Text Classification*