

INTISARI

MENDETEKSI BAHASA ISYARAT SIBI DENGAN TRANSFER LEARNING

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Tunarungu didefinisikan sebagai istilah terhadap suatu individu yang memiliki gangguan pendengaran (Anugerah et al., 2020). Menurut WHO (2013), jumlah penderita tunarungu di dunia mencapai lebih dari 360 juta jiwa. Dengan jumlah yang cukup banyak tersebut, maka interaksi antara orang biasa dan tunarungu akan mengalami kesusahan. Dibutuhkan cara untuk berkomunikasi antara kedua belah pihak. Salah satunya dengan bahasa isyarat. Sebelum bisa berkomunikasi dengan bahasa isyarat, orang harus mengenal bahasa isyarat itu sendiri. Dengan perkembangan teknologi, muncul beberapa cara yang menggunakan teknologi untuk mendeteksi bahasa isyarat.

Dalam penelitian ini, akan dibangun model yang dapat mendeteksi bahasa isyarat SIBI dengan bantuan model *transfer learning* berbasis EfficientNet. Model akan dilatih agar bisa mendeteksi 24 huruf abjad SIBI. Model akan mengalami 2 kali tahapan evaluasi. Tahapan pertama berupa evaluasi *hyperparameter tuning* dimana dalam hal ini adalah penggunaan *dropout*. Setelah mendapatkan nilai *dropout* terbaik, model akan dievaluasi lagi dengan pemberian *dataset* baru.

Hasil dari penelitian ini dapat disimpulkan menjadi 2 kesimpulan. Hal pertama adalah model dengan penerapan nilai *dropout* sebesar 0.1 menjadi model dengan hasil akurasi tertinggi, yaitu sekitar 98%. Hal terakhir yang bisa disimpulkan adalah model berhasil mendeteksi 24 jenis huruf bahasa isyarat SIBI dengan tingkat akurasi sebesar 99% setelah diberikan *dataset* baru untuk dideteksi.

Kata Kunci : Bahasa Isyarat, SIBI, *Transfer Learning*, *EfficientNet*

ABSTRACT

SIBI SIGN LANGUAGE DETECTION USING TRANSFER LEARNING BASED ON EFFICIENTNET

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Deaf is defined as a condition where someone is having a hearing problem or condition (Anugerah et al., 2020). Based on WHO (2013), it is said that there are more than 360 million people around the world that is deaf. With that amount huge amount of people, it will be hard for both deaf and normal people to interact with each other. There needs to be a solution that can help both community to communicate with one another. One of the solution that can help is by using sign language. Before being able to communicate with sign language, there is a need to know first about the sign language itself. By using technology, there are many answers to that problem.

This paper tries to answer that challenge by building a deep learning model that can detect SIBI sign language. The model will be made using the transfer learning method that is based on the EfficientNet model. The model will be trained so that it can detect 24 images as output. The model will undergone 2 evaluation step. The first evaluation starts by comparing the dropout rate. The model will be given a certain amount of dropout rate and will be measured its accuracy based on the dropout rate that is given. The final evaluation is conducted by allowing the model to detect a new dataset that it never seen before.

There are 2 conclusions that can be noted from this research. The first conclusion is the dropout rate. A value of 0.1 in the dropout rate is concluded as the best value that can create a model with the best result. By using this metrics, the model is able to achieve an accuracy around 98%. For the final test, the model that has been given a new dataset as input is able to detect 24 classes of SIBI language letters by gaining an accuracy around 99%

Keywords: Sign Language, SIBI, Transfer Learning, EfficientNet