ABSTRACT

Hiragana is one of the basic alphabets used in Japanese. Hiragana is a

phonetic symbol, each letter represents one syllable. Hiragana letters are formed

from curved lines and strokes. However, the detection of hiragana letters causes

many errors because people still rely on their vision to detect the hiragana letters,

especially for people who are familiar with hiragana letter for the first time, it will

be difficult and not very clear to read the letters. Therefore, the Convolutional

Neural Network (CNN) method will be used to detect handwritten hiragana letters

and help people who first get to know hiragana letters when the letters are too

difficult to detect by the human eyes.

This final project research uses the YOLOv8 model as a handwritten

hiragana letter detection algorithm. YOLOv8 model is one of the newest algorithm

models from YOLO and widely used because it has the advantages if faster speed

in real-time applications and more accurate than previous models. The hiragana

letters to be detected are basic letters in total 46 characters.

This research uses the YOLOv8 model run on Google Collaboratory with

the Ultralytics library version 8.0.20 using the Python programming language, the

dataset used is a dataset collected from the internet which is annotated using the

Roboflow framework. From the test results, the best model is YOLOv8l using SGD

optimizer and learning rate 0.01 with a precision value is 98.5%, recall value is

95.7%, f1-score value is 97.1% and mAP value is 95.5%.

Keyword: Hiragana Characters, YOLOv8, Convolutional Neural Network (CNN),

Python. mAP, Recall, F1score, precission

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