

ABSTRACT

Taekwondo is one of the most popular martial arts sports in Indonesia. In Taekwondo martial art, there are types of movement techniques and moves that can be learned by disconnecting from the *sabeum* at the relevant *dojang*, which are then continued for independent practice in each other's yard or in places suitable for practicing Taekwondo, such as sports halls and empty fields. However, there are obstacles for ordinary people who learn this movement because they do not know the names of the movement techniques and moves in Taekwondo martial arts when they see people practicing or participating in Taekwondo competitions which causes them to have difficulty practicing with the *sabeum*.

The YOWO architecture is a method in deep learning that is used for localizing types of human movement. YOWO uses a combination of 3D-CNN with 2D-CNN. RGB is a feature extraction that aims to divide the color into three (3) channels, namely Red, Green, and Blue. The YOWO architecture is suitable for motion detection in the form of video input and frames.

The results obtained after testing the average precision of Taekwondo martial arts movements, namely *momtong jireugi*, were 97.92% with the best accuracy, precision, recall, and f1-score variables respectively being 99.70%, 99.18%, 93.90%, and 96.31% , with parameter batch size: 16, learning rate: 0.0001, num frames: 8, 3D-CNN dimension: 2, 2D-CNN dimension: 1, epochs: 10, num workers: 5, and dataset ratio 60%:40%.

Keywords: Taekwondo martial arts, basic movement detection system for self-defense, YOWO Architecture, RGB