Recognition and Assessment of Tae Kwon Do Moves using Kinect Camera Sensor

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Abstract

Tae Kwon Do is a martial art originating from Korea. The number of Tae Kwon Do's students is not proportional to the number of instructors (Sabeum) making the learning process quite hampered especially for beginners. This study offers an alternative system to assess Tae Kwon Do moves. Microsoft Kinect has a technology where it can recognize the movement that is being done by someone and then assess the movement, whether good or need more practice. The AdaBoost (Adaptive Boosting) algorithm is used in this research because it can get the best final hypothesis for data received by Kinect of its input, in order to be further processed. Movement that is used as data in this research only movement apkubi momtong baro jireugi, ap kubi eolgol araee makki, and ap seogi momtong ap chagi. The result of movements recognition system has accuracy 84.5%, precision 81.4%, sensitivity 76.7%, specificity 88.3%, and F-score 76.7% then the assessment has root mean square error value for ap kubi momtong baro jireugi is 35.3%, ap kubi eolgol makki is 19.3%, and ap seogi eolgol ap chagi is 29.6%. The optimal distance for digital frame recording is 3 m.
References


Index Terms

Computer Science
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Keywords

AdaBoost, Tae Kwon Do, Kinect