

ABSTRACT

Human Activity Recognition (HAR) is the system capability to recognize the types of human activities. The purpose of HAR is to recognize, detect and classify human activities. In HAR, human activities can be analyzed using a responsive signal obtained from their movement. In this study, used data which based on sensors resulting form accelerometer and gyroscope sensors on a smartphone.

In this final project, parameter exploration in the Long Short Term Memory (LSTM) method, especially learning rate and batch size, to find out the best combination of systems in HAR. In the system's architecture, the data will be processed in the training and testing process using a stacked LSTM model of two layers. The public dataset has been partitioned into 2 sets, where 70% of the dataset will be training data and 30% will be test data. The dataset is classified to identify six types of human activities including walking, walking upstairs, walking downstairs, sitting, standing, and lying.

This final project simulation was carried out twelve times with a combination of varying learning rate and batch size values to find the best performance. The performance parameters used in this final project are accuracy, precision, recall, F1-Score. The model with the best performance was obtained at a learning rate of 0.01 and a batch size of 1024 with an accuracy of 91.61%, precision 91.54%, recall 91.61% dan F1-Score 91.55%.Based on this, it can be seen that the learning rate and batch size greatly affect the performance of the human activity recognition system

Kata Kunci: *Human activity recognition, accelerometer, gyroscope, Long Short Term Memory, learning rate, batch size.*