

Abstract

Injuries sustained among the elderly because of falls are a major problem worldwide. According to Shadi Khawandi, 28%–35% people in the age group of 65 and over suffer at least one fall in a year. Fall detection device was researched since the early 21st century by Norbert Noury which is expected to be useful to call the closest person who can provide first aid after the fall event, so as to reduce the rate of decline in health conditions in the elderly. Since then, this fall detection has been successfully developed into many types. Some are in the form of wearable devices, and some are in the form of video-based monitoring systems. In fact, that in two cases out of three, the accident occurs at home. Therefore the authors will focus on developing a Fall Detection Video-based Monitoring system. The problem is, the performance results from video-based crash detection systems use some of the algorithms in previous studies not very well. Meanwhile, Convolution Neural Network (CNN) has been widely implemented in computer vision by producing high performance. Therefore, the author will try to do a fall monitoring system based on video using CNN. Video datasets will be processed into a series of image frame. The frames will be classified using Convolutional Neural Network (CNN). Research has been done successfully, and the proposed system can achieve the best accuracy till 96,67% and the best f1-score till 92,30%

Keywords: Fall Detection video-based, Convolutional Neural Network, Video classification
