North South University

Department of Electrical and Computer Engineering

Senior Design Project Report

Detection of Violent Activities Using Deep Learning Algorithms

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Approval

"Detection of Violent Activities Using Deep Learning Algorithms" is the title of the Senior Project report by **Tasmiah Sarker, ID #1912844642, Fayeeka Simran, ID #1911656642, Zahiduzzaman Anik, ID #1632091042** is approved for partial fulfillment of the Degree of Bachelor of Science in Computer Science and Engineering and has been considered acceptable.

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Declaration

We take great pleasure in submitting our senior design project report on **"Detection of Violent Activities Using Deep Learning Algorithms"** by **Tasmiah Sarker, ID #1912844642, Fayeeka Simran, ID #1911656642, Zahiduzzaman Anik, ID #1632091042** of the Department of Electrical and Computer Engineering, North South University. Under the supervision of **Dr. Atiqur Rahman**, Associate Professor of the Department of Electrical and Computer Engineering, North South University. This report is prepared as a requirement of the Senior Design Project CSE/EEE/ETE 499 which is a two semester long design course. We also guarantee that this Senior Design Project report has not previously been presented in whole or in part as part of any Degree at any university. We also agree to indemnify the institution for any loss or harm caused by a breach of the foregoing agreement. The paper is well-written and completely unique. Any text in the report that has been replicated or reprinted from elsewhere has been properly referenced.

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Abstract

The creation of a method for violence detection in surveillance footage using automatic analysis is crucial. In this study, we propose a deep neural network to recognize violent videos. A convolutional neural network and an ImageNet model that has already been trained are used to extract frame level characteristics from a movie. Then, using a long short-term memory variation that makes use of fully connected layers and leaky rectified linear units, the frame level features are aggregated. Convolutional neural networks are capable of recording localized spatio-temporal information that allow the analysis of local motion in the video, in addition to long short-term memory. On three common benchmark datasets, the accuracy of recognition is used to further assess the performance. We also contrasted the findings of our system with those from other methodologies to ascertain the capabilities of our proposed model. The suggested solution outperforms cutting-edge techniques while processing the videos in real-time.