Violence Detection in Images Using Deep Neural Networks

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DOI: 10.37789/rochi.2020.1.1.x

# ABSTRACT

## The technology has evolved and expanded so much over the last decades, that is present in everybody’s life in every little aspect, and more and more significantly at children’s disposal. Starting from this reality, it is necessary the identification of the images that contain scenes of violence or emotionally disturbing scenes, images that contain blood or depicts human bodies with open wounds, violent fires or presence of guns and weapons. Machine learning is capable of extracting features from images and learn to identify the images that depicts inappropriate scenes for children, using different techniques: either through traditional ML methods, or using SVN or deep neural networks.

## Author Keywords

Machine learning; computer vision; violence; violence detection; images; neural network; deep learning.

## ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.   
See: <http://www.acm.org/about/class/1998/> for more information and the full list of ACM classifiers and descriptors. Mandatory Section: On the submission page only the classifiers’ letter-number combination will need to be entered.

## General Terms

Human Factors; Design; Measurement.   
If you choose more than one ACM General Term, separate the terms with a semi-colon. See list of ACM terms at: <http://www.sheridanprinting.com/sigchi/generalterms.htm>. Optional section to be included in your final version.

# INTRODUCTION

The common adage “A picture is worth a thousand words” denotes exactly how an image can influence a child, especially if we are talking about inappropriate images. Studies [1] have shown that aggressive or antisocial behaviour is heightened in children after watching violent television or films. Science tells us that early exposure to extremely fearful events affects the developing brain, particularly in those areas involved in emotions and learning [2]. When children see images that are emotionally disturbing, images that depicts the world in an inadequate manner for their young minds to comprehend, they can learn fear from situations they should not be exposed to. The brain stores what we see, and how often do we hear people say, “I have seen something I will not forget my entire life”. If that is the case for mature persons, then even more importance should be given to what children are allowed to see.

In order to prevent the exposure of children to graphic and violent images, these images must be identified first. Since parents cannot be physically near their children every single time, they must rely on the technology they use to do that.

Violence is “the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, which either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation” [3].

# REFERENCES

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