Chapter 2
Crime and Childhood on OSN:
A Machine Learning Approach to Analyzing Media Narratives and Their Effects

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ABSTRACT

The rising popularity of crime-related content on online streaming platforms has sparked concern over its impact on children's behavior and psychology. This study uses a machine learning-based framework to explore how crime narratives in digital media influence young audiences. By applying Natural Language Processing (NLP) techniques such as BERT for sentiment analysis and convolutional neural networks (CNNs) for visual content evaluation, the research assesses how exposure to violent

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themes shapes children's views on justice, authority, and social behavior. Drawing from data sources like OSN Streaming Metadata (2023), Twitter Child Media Perception Dataset (2023), and IMDb Crime Show Reviews (2023), results show a 35% increase in fear responses and a 20% rise in aggressive tendencies among frequent viewers. With an 87% success rate in identifying crime-heavy content, the AI models prove effective for automated media screening. The study emphasizes the role of AI in creating safer content environments for children.

INTRODUCTION

The exponential growth of online streaming networks (OSNs) (Pajola et al., 2024) such as Netflix, Amazon Prime, and Disney+ has reshaped content consumption patterns, especially among younger audiences (Miyazaki et al., 2024). As of 2024, children aged 8–15 spend an average of 3.5 hours daily on streaming platforms, with over 28% of their viewed content containing crime, violence, or investigative themes (Statista, 2024). While such narratives are often dramatized for entertainment, their influence on impressionable minds is becoming a critical area of concern.

Recent studies, such as those by the American Academy of Pediatrics (2023) (Seidenberger et al., 2025), indicate a 38% increase in fear-induced responses and a 22% rise in aggression-related behaviors among children frequently exposed to crime-centric media (Rawat et al., 2025). These behavioral shifts underscore the urgent need for systematic content analysis and moderation frameworks.

To address this, our study introduces an AI-powered framework (Rondeau et al., 2022) utilizing state-of-the-art technologies in Natural Language Processing (NLP) (Rajavat et al., 2024) and Computer Vision (CV). Specifically, we deploy BERT (Bidirectional Encoder Representations from Transformers) (Rawat and Rajavat,2024a) for sentiment and narrative analysis of scripts and subtitles, coupled with Convolutional Neural Networks (CNNs) (Mishra et al., 2024) to analyze violent visual patterns in streaming videos (Rawat and Rajavat,2024b). For audio components, Wav2Vec 2.0 is applied to detect aggressive tone patterns in voiceovers and dialogues. Additionally, transformer-based multi-modal fusion models have been implemented to integrate text, image, and audio signals for more holistic detection.

This Research Leverages Multiple Datasets, Including:

- OSN Streaming Metadata (2023) containing over 5,000 hours of crime-related content,
- Twitter Child Media Perception Dataset (2023) featuring over 120,000 tweets expressing public sentiment on children's media exposure,