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Real-Time Automated Detection of Violent Content in Animated Cartoons Using YOLOv9

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Abstract : The detection of violent content in animated cartoons is anessential step toward safeguarding young audiences and promoting responsible media consumption. This study introduces an automated approach to identify violent scenes in cartoons using advanced object detection models. A custom dataset comprising 1,200 frames was curated from various animated sources, focusing on four key classes: Explosion, Blood, Fight, and Gunshot. Data augmentation techniques, including rotation, scaling, and color adjustments, expanded the dataset to 2,000 frames, enhancing diversity and model generalization. YOLO versions 8, 9, and 10 were trained and evaluated on this dataset. Among these, YOLOv9 achieved the highest performance with a mean Average Precision (mAP) of 94%, demonstrating superior accuracy and robustness. These findings highlight YOLOv9's potential as a reliable tool for detecting violent content in animated media, contributing to the development of effective content moderation systems.

Keywords : cartoon violence detection, YOLO model, computer Vi sion, Real-time content analysis
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