Abstract

The dress code violation detection system is crucial for assessing clothing appropriateness in public areas. This study aims to improve this system using advanced computer vision and machine learning techniques to more effectively categorize people's attire in images and videos. To enhance adaptability and create a user-friendly graphical interface for system management and deployment, we have generated a unique dataset from various contexts mix of Western and Arabic clothing. This allows users to interact with graphical components, including the ability to upload images or use live video for clothing detection. Moreover, we have taken privacy concerns into account and implemented robust privacy measures. For this research, we utilized data from the DeepFashion dataset, the People Segment Dataset, and various web sources. Specifically for clothing detection, we've made a significant contribution by creating a labeled dataset containing 1520 images representing diverse clothing styles. You can access this Dress Code dataset publicly through [insert link]. We conducted a systematic review of dress code identification using the latest YOLOv8 machine learning model to distinguish between proper and improper clothing choices. To annotate images and define bounding boxes, we used the CVAT tool (Computer Vision Annotation Tool) and then trained the dataset using YOLOv8 in PyCharm and Google Colab. Our testing results showed an F1-score of 0.83 and an mAP of 0.84. The system is capable of identifying appropriate and inappropriate attire, whether through camera inputs or image uploads, powered by the latest YOLOv8 model. These findings underscore the technology's potential to redefine dress code enforcement and monitoring, providing a more efficient and accurate means of ensuring compliance.

Keywords: YOLO, Machine Learning, Dress Code, Appropriate, Inappropriate.