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Anti-Plagiarism System for Exam Monitoring

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The rise of academic dishonesty through exam cheating has created more advanced and complex plagiarism detection systems. These systems are proprietary; they come with financial, hardware, privacy, and cloud requirements that can't be covered by all educational institutions. An open-source real-time video plagiarism detection system focused on suspicious gaze direction and cheating device detection, which can run on accessible hardware, is proposed. For the gaze direction detection, the system uses the MediaPipe Face Mesh landmarks, a Kalman filter, horizontal ratio, vertical ratio, and dynamic thresholds to obtain an accuracy of 92.4% with a latency of under 100 ms on our own proposed gaze direction manually annotated dataset. The object detection part is done by two YOLOv8 models fine-tuned with two specific datasets to offer an 88.6% smartphone detection 92.5% smartwatch detection with under 200 ms latency. The system runs only on a CPU with a memory footprint under 820 MB, with over 25 FPS. It only stores the suspicious parts in the entire video, making it suitable to use on small educational institution systems and reducing privacy concerns for storage

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