

# Online Proctoring System to Avoid Defrauding

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**Abstract:** *Online remote control has thrived during these Covid19 pandemic conditions. All schools and educational institutions have been closed and students are now completing their studies through online applications. However, there are significant difficulties in carrying out the assessments. Some schools have switched to an assignment format, where students can simply copy and paste their answers from the Internet. If our way of life becomes the new normal, a solution is needed. It is difficult to allow students to take the test at home over the Internet while being supervised by a supervisor for the duration of the exam. Due to the effort, it is not possible to continue to apply this method on a large scale. To solve this problem, we developed an AI in Python that can observe students using their laptops or the system's webcam and microphone, allowing supervisors to monitor multiple students at the same time. Our AI has four vision-based capabilities tied together so they can work together. Gaze tracking, mouth opening or closing, person counting, and cell phone detection are four features. In addition, the voiceover from the microphone is captured, converted to text, and compared with the test text to show the amount of frequently reported words by each student taking the individual test.*

**Keywords:** Online Proctoring, face recognition, Tabs switching, Head pose

## 1. Introduction

Everything has been digitized in this digital age and people are starting to move into the field of automation. Covid19 suddenly had a big impact on everyone's life. In particular, students were severely affected. They have to stay home and complete their studies online. Each faculty member and their school university management have followed several techniques to create their own comfortable platforms for educating students over the internet. Academics have switched to an online teaching style. This is an important issue not only from an academic point of view it also from an examination point of view. Conducting a misconduct-free assessment is an important task to be accomplished. Over the past six years, the number of Internet users in India has nearly doubled. This turned out to be a boon for academics as many students were able to continue their education. This also allows for online exams introducing the concept of an online Ph.D. at the university level. Web-based administration refers to a form of computerized monitoring using modern monitoring software. Invigilators can remotely monitor during a supervised exam. To ensure the legitimacy of the review they use video audio and various anti-cheat tools.

Grading manual remote tests online is a difficult business because many students cannot be tested at the same time. An instructor can monitor students with all of their senses during manually compiled tests at the centers. They can detect student voices and movements and quickly ensure that the event goes smoothly. Online exams limit progress because teachers are not onsite. A good remote online monitoring solution will make it easy for you to detect motion and sound.

## 2. Literature Survey

In this paper [1] the author describes scholarly deception in the web-based fraud atmosphere of distance education that has established itself over the past decade, according to the authors. Students can find multiple online administrators to write their research papers, fulfill their school obligations, or sign up for the benefit of registered students to complete an entire course online with just a few taps. Simple work. While higher education institutions look to the Internet as a way to increase student enrollment, the number of fraudulent Internet companies that support academic fraud is also growing at a higher rate. It has become more difficult to manage academic dishonesty in the online environment, leaving staff and school administrators difficult to understand how to prevent such behavior in traditional and online classrooms.

In this paper [2] this study was developed to provide a good link to the strengths of the Internet authorization frameworks currently in use. A program should also take advantage of this opportunity to develop testing security standards and rules and ensure that contestants and others are aware of them. It must clearly and publicly state how and where violations and attempts to undermine test integrity may be reported even anonymously. The information obtained must be protected against theft and hackers.

In this paper [3] the purpose of this study was to compare online test scores of curated and non-authorized online assessments. The experimental performance of 147 students who tried different parts of an online course was compared using direct mixed-effects models, with almost all students having no distribution and no part of the test. The rest use internet administration. Students scored 17 points lower on average and spent significantly less time on online tests

including administrative programming than on non-authorized assessments. Large assessment disparities and inequalities in time use have occurred across many exams, both between and within segments of the same course, when several studies have implemented test monitoring software test assigns some tests and others not.

### 3. Problem

It is quite difficult to keep a close eye on students for the duration of the exam. Despite the fact that digital monitoring solutions already exist to ensure the quality of the assessment process without requiring the physical presence of the student in a particular location or the association of the student, students, and examiners in this place, grading is still rarely used in educational institutions.

### 4. Solution

To solve this problem, we want to create an artificial intelligence (AI) that uses Python to monitor activities called online monitoring system. We will be monitoring multiple students at once using this technique. The system will be useful in large-scale operations. We use vision-based techniques such as gaze tracking, mouth detection, person counting, and phone detection. We use basic Python libraries and import modules according to our needs. The system consists of six key components that assess significant student behavior: candidate verification, text and speech detection, active and tilted window detection, eye assessment, recognition phones, and people.

### 5. Existing Approach

Examiners can review student performance through online monitoring. The tester on both sides was in poor shape to expose his image in front of the camera to get rid of his appearance. Some disadvantages include placing the webcam at a certain distance, allowing others to answer questions. The current system does not identify photographs or images; instead, it recognizes the photos as real people and allows applicants to participate in those activities. It also doesn't take into account the distance between the built-in cameras in a standard laptop and the person sitting in front of the camera. It does not detect the presence of anyone in the room other than the candidate. Eyeball movements are not recorded to determine a student's visual acuity during testing.

### 6. Drawbacks of Existing System

Current online solutions have a human proctor monitoring 10 students at a time, which is not efficient and we have to rely on a manual proctor sitting at home monitoring the students. If we scale up the traditional online monitoring systems, we will need a large number of monitors to perform the test. We must rely on the proctor's ability to detect misconduct, and when the proctor focuses on one student, other students may cheat. Therefore, concurrent monitoring is not possible. Traditional classroom supervision is also ineffective because the teacher/student ratio is about 1:50.

And if a student skips a test, it takes a long time to reschedule the test for that student.

## 7. Proposed System

The proposed method can be used to detect the above-mentioned problems with the current system. In our proposed system, we'd like to detect eyeball viewer movement and report whether they're looking right, left, or up, which they might do to glance at a notebook or communicate with someone or the other. This identification can be done with the use of Python Dlib and OpenCV's face key point detector for additional image processing. In addition, we will need a facial key point finder that can detect eyeballs in real-time. Before you can move on to image processing, you must first find the eyes, and to find the eyes, you must first find the face. For face detection, we can use dlib's built-in face detector. The eyeballs have been segmented and we can use them. Oral detection is quite similar to visual detection. For this exercise, Dlib's facial key points are again used and the candidate is asked to sit upright (as in the test), and the distance between the key points of the lips is recorded for 100 frames and it has been averaged. When the user opens the lips, the distance between the two points will increase and if the increase in the distance exceeds the specified level for at least three pairs of outer and two pairs of inside, the violation will be identified.

#### Registration

Students who register on a portal for the first time give personal information, an ID card, and a photo, which is recorded in the database and will be used to authenticate them before the exam.

#### Face Recognition

A Webcam is installed in a student's computer or the front camera if the student is taking an exam on a Smartphone. Face Recognition is used to detect the student, and if the face matches the recorded face image, the student is authenticated and authorized to take the test. During the exam, the student's image is continually captured, and if the face does not match the recorded image, a log is saved in the database.

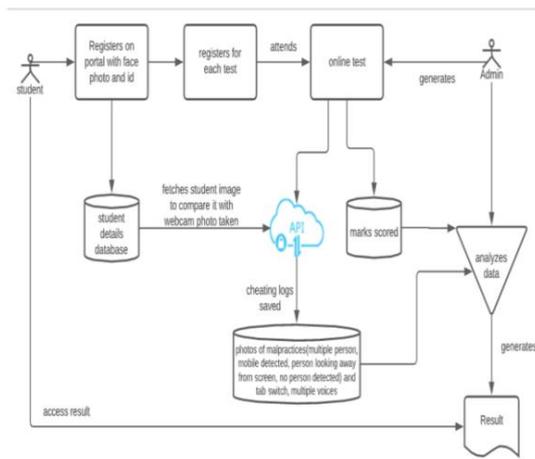
#### Mobile Phone Detection

If a student is caught using a cell phone, it will be recorded in the database as malpractice.

#### Switching the Tabs Detection

If a student switches the current tab while taking an exam, this is considered cheating and will be recorded in the database.

#### System Architecture



## 8. Result

A robust system that identifies and tracks online exam cheating techniques such as sitting with a buddy, using a mobile phone, switching tabs to check answers online, and leaving your seat in when taking the exam.

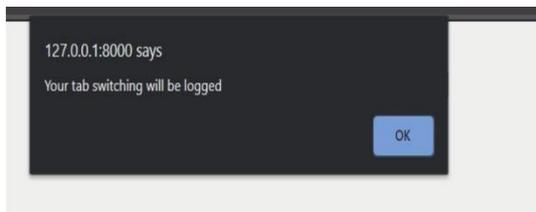


Figure 1: Switching between the tabs



Figure 2: Mobile Detection

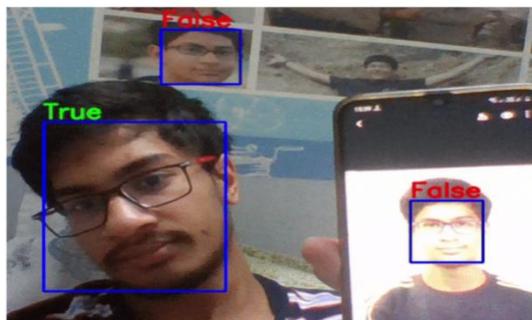


Figure 3: Face Detection

## 9. Conclusion

As online surveillance grows in popularity, there is a huge demand for AI-powered surveillance solutions. It is possible

to build an AI monitoring system with high accuracy. It is important to capture fraud to manage claims. Since most students do not even have computers, it is necessary to develop a mobile monitoring strategy. Through this study, we hope to illustrate that online doctoral exams are the way of the future and that by using online doctoral exams, exam cheating can be greatly reduced.

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