

Real Time Online Exam Proctoring System

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Abstract— Massive open online courses (MOOCs) and other forms E-Learning's continue to increase in popularity and reach. The rapid growth of the e-learning industry has created needs for various supporting technologies. One area that is gaining significance is the virtual proctoring space. The ability to evidently proctor remote online examinations is an important limiting factor to the scalability of this next stage in education. Currently, human proctoring is the most common approach of evaluation, by either requiring the test taker to visit an examination center, or by monitoring them visually during exams via a webcam. However, such methods are labor-intensive and costly. Our project, is a automated analytics system which performs online exam proctoring. The system hardware includes a webcam, for the purpose of monitoring the visual environment of the test location. The system includes _ve basic components which continuously estimate the key behavior cues: user authentication, active window detection, multiple people detection, constant check on who is giving the test and phone detection. By combining the continuous Estimation components, we design a webpage which classify whether the test taker is cheating at any moment during the test. Henceforth, Assessment providers, educational institutions and a MOOC's can become valuable partners by enabling assessments to be administered cheaper and faster. Also this helps test-takers to give exam at convenience of their homes at a suitable time.

Keywords: Online Exam Proctoring (OEP), User Authentication, Active Window Detection, Multiple People Detection, Face Recognition and Phone Detection

I. INTRODUCTION

Massive open online courses (MOOCs) offer the potential to greatly expand the reach of today's educational institutions, both by providing a wider range of educational resources to enrolled students and by making educational resources available to persons who cannot access a campus due to location or schedule constraints. Instead of taking courses in a typical classroom on campus, now students can take courses anywhere in the world using a computer, where educators deliver knowledge via various types of multimedia content. It is stated that 70% of higher education institutions believe that online education is a critical component of their long-term strategy. Exams are a critical component of any educational program, and online educational programs are no exception. In any exam, there is a possibility of cheating, and therefore its detection and prevention is important. Educational credentials must reflect actual learning in order to retain their value to society. But the academic cheating activity is on the rise. When exams are administered in a conventional and proctored classroom environment, the students are monitored by a human proctor throughout the exam. In contrast, there is no convenient way to provide

human proctors in online exams. As a consequence, there is no reliable way to ensure against cheating. Without the ability to proctor online exams in a convenient, inexpensive, and reliable manner, it is difficult for MOOC providers to offer reasonable assurance that the student has learned the material, which is one of the key outcomes of any educational programs, including online education. The common testing procedure for online learners is that the students come to an on-campus or university certified testing center and take an exam under human proctoring. New emerging technologies like Criterion and Proctor allow students to take tests anywhere as long as they have an Internet connection. However, they still rely on a person watching the exam-taking. For example, Criterion employs a human proctor watching a test taker through a webcam from a remote location. The proctor is trained to watch and listen for any unusual behaviors of the test taker, such as unusual eye movements, or removing oneself from the field of view. He can alert the test taker or even stop the testing. In this project, we introduce a web based system to perform automatic and continuous online exam proctoring (OEP). The overall goal of this system is to maintain academic integrity of exams, by providing real-time proctoring to detect the majority of cheating behaviors of the test taker.

II. MOTIVATION

To demonstrate and maintain academic integrity, some institutions require proctor supervision of online exams. However, proctoring can be very expensive. Costs to students can include fees at testing centers, costs to purchase the Remote Proctor, time to find an approved proctor, and effort required to coordinate a time for the exam. Costs to the institution include salaries of staff to administer a proctoring process, approval of proctors, maintaining testing centers, and potential loss of enrollments and revenue since not all institutions require proctors for online exams.

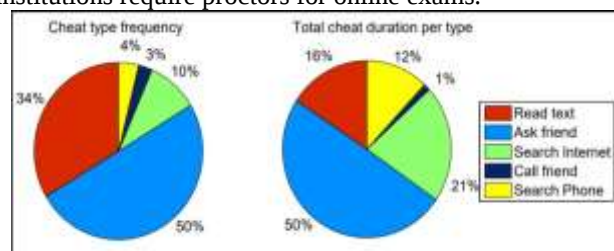


Fig. 1: Statistics of cheating behavior in an OEP

III. LITERATURE SURVEY

Literature review was done for various works which was essential to know how serious the action of cheating is considered and what all work have been done to minimize them. The paper [1] presents a conceptually simple, extensible, and general framework for object instance segmentation. Our