

## **Abstract**

### **Web Proctoring Model using Deep Learning Architecture**

Technology has endowed us with numerous benefits and conveniences. Online testing is one of them and has a lot of significance in recruitment. Gone are the days when candidates had to travel all the way from their place to an allotted testing centre to take up the exam. This whole testing process requires a lot of planning, preparation, manpower and expense. Proctoring or invigilation is an indispensable part of the testing procedure that ensures its fairness and authenticity. A proctor ensures the genuineness of the test taker and further ensures that he/she doesn't indulge in any malpractice and/or use any unfair means to attempt the exam

Online examination is conducting a test online to measure the knowledge of the participants on a given topic. In the olden days, everybody had to gather in a classroom at the same time to take an exam. With online examination students can do the exam online, in their own time, with their own device, regardless of where they live. You only need a browser and an internet connection. Educational institutions can easily set up exams through online assessment platforms. There are a plethora of options to choose from, and often one test can be combined with another for quick evaluation of various parameters.

Deep-learning architectures such as deep neural networks, deep belief networks, recurrent neural networks and convolutional neural networks have been applied to fields including computer vision, machine vision, speech recognition, natural language processing, audio recognition, social network filtering, machine translation, bioinformatics, drug design, medical image analysis, material inspection and board game programs, where they have produced results comparable to and in some cases surpassing human expert performance. In deep learning, each level learns to transform its input data into a slightly more abstract and composite representation. In an image recognition application, the raw input may be a matrix of pixels; the first representational layer may abstract the pixels and encode edges; the second layer may compose and encode arrangements of edges; the third layer may encode a nose and eyes; and the fourth layer may recognize that the image contains a face. Importantly, a deep learning process can learn which features to optimally place in which level on its own.

Web Proctoring Model using deep learning architecture is one of the most advanced form of proctoring, a combination of human intervention and AI technology, minimizing the need for human intervention. Face recognition helps authenticate the candidates' identity. The system records the audio-video and screen share feeds and simultaneously monitors them for any suspicious activities using advanced video and audio analytics. This type of proctoring works by limiting candidate logins to specific IP addresses and blocking copy-pasting. It does not allow the candidate to switch the window or access any other application during the test. Automated proctoring also tracks mouse movement, candidate movement and other set functions. Removal of the location and time constraint make automated proctoring economical and foolproof.