**Paper No: PU-SOE-CSE-20**

**Analysis of AI Based Face Detection Techniques**

**Arnold Sachith A Hansa and Smitha Raob**

a. Department of Computer Science & Engineering, School of Engineering Presidency University, Bengaluru, India

b. Department of Computer Science & Engineering, School of Engineering, Presidency University, Bengaluru, India

**Abstract**

In this fast-moving world, computer vision has been gaining lots of importance in the field of Artificial Intelligence. Face Recognition is one among the most important field which has been gaining attention in the recent days due to its application in various fields such as Security and Surveillance applications, marketing sector, computer graphics. Face detection is a technique which is used to detect the faces in a image/video frame. This is the primary and a crucial step carried out before the Face recognition process. Some of the ways to detect human faces in a digital image is by using Haar Based Face Detection, Deep learning-based Face detector, Tiny Face detector, Kernel methods etc. In our study face detection is carried out by using OpenCV and a comparison was carried out between the Haar Cascade model and a deep learning model with the pre-defined constraints in accordance with the properties of the image and the physical distance parameters of the camera position etc. The results of face detection with both the models was analysed on different factors such as accuracy, feasibility, total number of faces detected with reference to the actual number of faces existing in the image. Conclusions were drawn to suggest the best methodology well suited for a non-cooperating scenario where testing and train conditions are different such as non-intrusive based face recognition application.

**Keywords:**

Deep Learning, Face Detection, Machine Learning, Face recognition, Tiny Face Detector

**Publication Details:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Journal Name** | **Vol.** | **Month & Year** | **Page No.** | **Publisher** | **Scimago Ranking** |
| Journal of Engineering Sciences | 10 | Dec. 2019 | 815-821 | Elsevier Ltd | Q1 |