



INFORMATICS  
INSTITUTE OF  
TECHNOLOGY

INFORMATICS INSTITUTE OF TECHNOLOGY

In Collaboration with

UNIVERSITY OF WESTMINSTER

**EyeBot: Near Real Time Computer Vision Syndrome Prediction Using Computer Vision**

Thesis by Zuha Mursheed

Supervised by Mr. Ragu Sivaraman

Submitted in partial fulfilment of the requirements for the BEng in Software  
Engineering degree at the University of Westminster.

**May 2022**

## **ABSTRACT**

With the increased use of digital screens for work and study, the typical person is being exposed to more digital screens, which can be damaging to the eyes and psychologically if the necessary steps are not taken to balance. A human eye muscle is relaxed, but when it focuses on a nearby object, such as a screen, it becomes stressed, which can cause a variety of problems ranging from headaches to depression due to its relationship with mental health and the brain. Because computer users prioritize completing tasks, they often overlook their eye health, which leads to Computer Vision Syndrome.

In order to maintain and notify the computer user while using the digital screen, the computer will monitor the human's eye nature and emotion through a web camera and while noticing sign of Computer Vision Syndrome the computer will notify the user to take the required precautions such as take a break, take a specific kind of exercise and others depending on the persons health condition. This system will be achieved by computer vision which will use a deep learning model such as Convolutional Neural Network. A background system will be running while the user will be carrying out his/her usual work.

*EyeBot* will provide a novel solution and design with a new architecture in order to combine features such as eye blink rate and detect difference in the muscle around the eye in order to detect Computer Vision Syndrome in other words Digital Eye Strain.

**Keywords:** Computer Vision, Deep Learning, Convolutional Neural Network, Image Processing, Computer Vision

**Subject Descriptors:** Computing methodologies >> Artificial intelligence >> Computer vision >> Computer vision problems >> Object detection