

# **A Gesture-based Tool for Sterile Browsing of Radiology Images**

## **List of problem statements:**

- The combination of vision and synaptic interactions that were formed along brain development made the humans to recognise body and sign language easily.
- To replicate this skill in computers, some problems need to be solved: how to separate objects of interest in images and which image capture technology and classification technique are more appropriate, among others.
- Sometimes the participants held the hand palm 90<sup>0</sup> rotated, so that trigger fingers not visible to the LMC (Lighting Management Consultant). Time differences between the gesture sets were observed, when the system did not recognize the gesture correctly, which led to longer reaction time of the system.
- Longer reaction time of the system leads to frustration and therefore to less concentration of the radiologist. However, most errors occurred when performing the confirmation gestures. The sequence was not optimal, because the participants were often confused and used the activation gesture again to confirm instead of the correct confirmation gesture. This longer time leads to more exertion in the shoulder muscle causing fatigue over time.
- The hand gestures recognition can be done accurately only if the camera is kept at an appropriate distance from the participants.
- The most significant criticism was the position and the size of the visualization of the current angle. Angle, lighting, and resolution are factors that can easily cause major disruptions in image classification.
- Huge data sets are needed to train the model, and it takes appropriate time and more storage space to store such data.

- Developing such a system requires a significant amount of time and effort due to the significant amount of computation required for training the model and the lack of publicly available data that can be used to validate the accuracy of the model.
- As to increase the accuracy, in recent years there is lot of research on gesture recognition using Kinect sensor and using HD camera but camera and Kinect sensors are more costly.