Name: Harshitaa Yarramsetti
Roll Number: SSNCE195002048

Idea 1: The proposed solution could be a ML model integrated with a GUI that is used for medical image manipulation. The ML model in question could be a CNN that works on images and an image processing library could be used to perform the associated operation on the images provided based on the output of the CNN.
Priority: High
Practicality: High since images are less CPU intensive to model.

Idea 2: We could capture videos with different backgrounds to reduce model sensitivity to different backgrounds and use a high number of test subjects and sample the videos by some arbitrary frame frequency.
Priority: Low
Practicality: Low since lots of participants will cause sharp increase in RAM requirement. LSTM+CNN has to be implemented which is very highly CPU intensive.

Idea 3: The test subjects can be photographed with surgical gloves that will replicate a clinical environment and the finger and hand shapes can be accounted for when obfuscated by gloves.
Priority: Low
Practicality: Medium since the radiology labs may not require gloves to operate images.

Idea 4: The coordinate data for the hand's movement can be extracted and used to find the gesture. The center and extremities can be considered and used.
Priority: Low
Practicality: Low since the coordinate data could be the same for transformed images once rotated, etc.

Name : Ashwini Ramesh Kumar
Register Number: SSNCE195002016

Idea 1: Human - friendly interactions.
Instead of number based gestures for accomplishing a task, example., 3 for zooming in, an actual zoom in gesture of spreading thumb and index finger away can be inputted.
This way, the person interacting need not remember which number to be used for a particular interaction, but can simply utilize the actions used everyday, making the system user friendly.
Priority: High
Practicality: Achievable, as done in other researches and systems.

Idea 2: Temporal system instead of Spatital system
The proposed idea only accounts to number based gestures, which are static.
Instead, the gesture should be an actual representation of the action to be done.
Example., moving index finger from right to left for navigating to next page.
This needs a motion based input or a video to be processed, rather than a static single image.

Hence, RNNs must be utilized instead of CNNs to extract features from the continuous video input.
Priority: High
Practicality: To achieve the human friendly system as mentioned in idea 3, RNNs must be used, as it must capture the motion of the hand.Achievable as it is present in current systems.

Name : Arun Pradeep
Register Number: SSNCE195002014

Idea 1: We can use segmentation to separate the hand gestures from the background and use a CNN model for image classification to identify the gestures and use image processing library to associate the gestures with the actions.
Priority: High
Practicality: High since images are less computational intensive to model.

Idea 2: We can track the hand gestures with a spatial coordinate system, which can be used the identify same gestures in any way possible, that is, invariant to the size and tilt of the hand.
Priority: Low
Practicality: Gathering coordinate data is difficult than capturing images.

Name : Bhavna Magendiren
Register Number: SSNCE195002021

Idea 1: We can capture the hand gestures at different angles and different backgrounds using videos, to reduce the sensitivity to hand tilts and different background. Then we can create a model using LSTM to process the videos to classify the gestures.
Priority: High
Practicality: We can capture all most any hand gestures invariant to the differences in the environment.

Idea 2: We can use data augmentation like mirroring, cropping and varying the light exposure to increase the shortage of dataset and use the same to train the CNN model to capture all the possibilities.
Priority: Low
Practicality: Data augmentation can lead to data bias, i.e. the augmented data distribution can be quite different from the original one.

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