CSCE 867 Computer Vision
Final Project Abstract

<u>Title</u>: Hand Gesture Controlled Computer

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<u>Topic</u>: Research project

<u>Background</u>

An important topic in the field of computer vision is motion detection and gesture control. With the advancement of augmented and virtual reality and computer vision in general, being able to detect motion and control applications using gestures becomes increasingly important. In this research project a program will be developed that is capable of detecting hand gestures from a webcam on a computer. Using the coordinates of the identified hand, the movement of the computer mouse will be controlled using the same program. The ability to right and left click with the mouse will be controlled by two other separate hand gestures.

<u>Timeline</u>

March 11 - 15: Develop a Python program that accesses the webcam of the computer. Capture frames in the video that can be sent to a object detection model.

March 18 - 22: Use an existing hand detection model to develop a Python program that can recognize a hand in the webcam video.

March 25 - 29: Use the coordinates of the identified hand to control the computer's mouse. Use PyAutoGUI to control the mouse using Python code.

April 1 - 5: Develop a hand detection model using a custom made convolutional neural network (CNN), specialized filters, or other techniques learned in class.

April 8 - 12: Add the ability to detect two other hand gestures in both models. These two additional hand gestures should be able to control right and left clicks of the mouse.

April 15 - 19: Test the ability of each model to control the computer's mouse and perform right and left clicks. Record results from each model and compare results.

April 22 - 26: Write up final project report and prepare for final presentation.