# CSCE 5222 - Feature Engineering

# Project Proposal

## Project Title:

Hand Gesture Human-Computer Interaction

## Team Members:

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## Idea description:

Natural user interfaces have become increasingly important in today's world, because of advances in ubiquitous computing. The existence of computers and the usage of human-computer interaction tools in our society will undoubtedly have a beneficial influence on our civilizations. Whether it was back in the day when technology was less advanced or today when technology has advanced so much that we spend the majority of our time communicating, playing, doing our jobs with machines, and so on, human beings have used and continue to use a wide range of gestures to communicate and interact with one another. Human gestures are a type of nonverbal interaction that can be the most natural, intuitive, and creative method to engage with computers. Our primary objective is to make human-computer connection seem as natural as human-human contact. The goal of this study is to detect static hand gesture pictures (i.e. frames) based on hand shapes and orientations taken from an input video captured under steady illumination and with a basic background.

## Goals and Objectives:

Our primary objective is to make human-computer connection seem as natural as human-human contact. We may utilize Computer Vision and Convolutional Neural Networks for Hand Gesture Recognition based on the description to communicate information from a human to a computer.

## Motivation:

The motivation of this study is to create a human-computer connection by targeting simple forms generated by hand at various apps running on a computer. When we communicate with other people, our hand gestures play a crucial role because they express a lot of information in a variety of ways. Hand gestures, according to this theory, would be an appropriate choice for conveying sentiments or operating dynamic computer applications with simpler hand gestures.

## Significance:

It has the potential to improve customer pleasure. For example, a user can control a Computer with only hand gestures.

## Literature Survey:

1. GestIA: Control your computer with your hands.
2. Sixth Sense Technology: Life Beyond Physical Sciences.

**Features:** Convolutional Matrices can be used as features

## Expected outcome:

We may control and interact with the system using the gestures provided. For example, if we wish to open a camera, we may do the task using hand gestures.

## References:

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