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**CSc 59929- Introduction to Machine Learning Fall 2019**  
**Proposal - “ Facial Recognition”**

**Facial Recognition**

Facial recognition system is a technology which is able to verify the face of a person either through the digital image or any video sources like webcam. There are multiple areas that facial recognition that have been significantly useful such as phone protection, door security system, interviews and many other areas. From the home security system where people are able to access the face of the person ringing the bell to accessing the phone by using your face, this system has changed the world of technology. This system analyzes the patterns based on the person's facial textures and shape with consideration of the light intensity, angle, aging and facial expression.

For this system, I will be using LBPH algorithm which stands for Local Binary Patterns Histograms. This algorithm labels the pixels of an image by thresholding the neighborhood of each pixel and considers the results as a binary number. There are several parameters that this algorithms will be using such as radius, neighbors, grid X, grid Y of the background and the face. This algorithms describes the original image in a better way by analyzing the facial characteristics by using a concept of sliding window with different parameters. After the generation of the image we use the grid X and grid Y to divide the image into multiple grids and extract in histogram of each region of the face. This algorithm was used because this can not only used in the areas of the detection of the body but also detect the objects and can be used for the social cause. There have been so many gun violence in many schools this year and past year and my main objective is to use this project is to use this in various social causes by broadening the concept and help the society.

