User Dependent Analysis

Assignment #2

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# Part 1: Assignment 1

## Phase 1:

In the first phase of the assignment we were given raw data for a select number of users that consisted of sensor data. There was IMU sensor data and EMG sensor data available for actions with either a fork or a spoon. Along with this data there was information provided regarding the video frames that corresponded with the separate eating and non-eating actions. This was used during the synchronization of the data in order to have ground truth data. The IMU data contained 10 different sensor information (OriX, OriY, OriZ, OriW, AccX, AccY, AccZ, GyroX, GyroY, GyroZ.) and the EMG was not utilized for this project due to poor synchronization. There were many issues in synchronizing the EMG data with the video frame data, this stems from the sampling rates for EMG data being inconsistent and therefore we cannot guarantee accuracy for EMG ground truth data.

The synchronization of the IMU data required the assumptions that the frames per second was 30fps and that the sampling rate was 50 Hz or 50 samples per second. The data was synchronized using these assumptions and we were able to separate the Eating actions using the start and end frames and the Non-Eating actions (the actions in between the end frame and the next start frame).

## Phase 2:

### Synchronization

### Feature Extraction

# Part 2: Assignment 2

## User Dependent Analysis

### Decision tree

### Support Vector Machine

### Neural Net Machine

## User Independent Analysis

### Decision Tree

### Support Vector Machine

### Neural Net Machine

## Conclusion