Week 2 (November 29-December 6)

Tools used:

Python

Goal:

Objective:

1. Identify the start and stop of a “look away” instance.
2. Find the duration of this “look away” instance
3. Find the average “x” value for this “look away” instance
4. Average X vs median X… prevent
   1. To eliminate bias due to distractions in one direction over the other
5. Find peak to each distraction found
6. (IF time permits) interpolate missing data rather than removing the (-1)

Things to think about:

Use peak algorithm and then find the x values (left and right of the peak) until it reaches threshold

How accurate is this threshold?

What about missing data? (the -1). Will it affect interpretation of data?

Results:

1. When trying to find the start and end points above a threshold for detecting baby distraction, ran into some troubles:
   1. Not all time values (x axis) accommodated for a x distance value (y axis) that exceeds the threshold limit.
      1. Tried to solve for this by calculating slope between two points and determining the time value for the x distance value (y axis) at the threshold
   2. There seemed to be multiple x distance values (y axis) for one time value (x axis)
      1. Solution was to simply remove all the occurrences (and the corresponding x distance value (y axis)
2. Create method that stores all results into Excel file
   1. Start time – the time that indicates the starting point in which a baby is distracted
   2. End time – the time that indicates the ending point in which a baby is distracted
   3. Average X Distance – the average amount of distance that the baby is looking away from the target
   4. Median Center – the calculated median that acts as the center of the target for which the baby is supposed to pay attention to
   5. Mean Center – the calculated mean that acts as the center of the target for which the baby is supposed to pay attention to
   6. Data Distraction Percent – the actual data points that represent a segment of time in which the baby is distracted. This percentage is represented by the sum of all the data points / total time
   7. Calculated distraction Percent – this is the same as above, however, the duration of how long the baby is distracted is calculated based on the interpolation between start and end time points within a certain distraction episode