Godbless Chile, Anisha, Nilsu, Katherine Lentz, Syed Shihan
CSC 212 Homework 4
Prof. Hoque

1. My valence was generally a lot higher than the average but it did follow a trend between which videos caused higher valence and which caused lower. My highest valence was on "Toyota Muppets" probably because I really love Terry Crews. My expressiveness was about average but you can notice that it is higher on videos that are silly compared to the serious video "No time to die". For all of the brow movements they varied but remained pretty low with each video, leading me to believe I am not very expressive with my eyebrows. I also didn't see any lip corner depress. Lastly, I saw much higher numbers than the average, leading me to believe I am more smiley than others.

2. Based on my reading of the paper the browser facial expression analysis works by first asking the user if they are okay with their camera being turned on and tracking their moves. Then it detects the face and tracks if there are any movements and takes note of them. If for at least 90% of the time there was a face detected the data was then saved and used in the study. Now to get into the nitty gritty of how they actually tracked the facial movements. To detect the face in general they used the Nevenvision facial feature trackers to track 22 facial feature points. To detect smiles they used an algorithm developed by Affectiva, that essentially grouped the face into segments and noted if they changed and by how much. The trickier portion of this was taking head pose into account based on the head's pitch, yaw, and roll. It then had to determine the differences in smile position based on where the head was.

3.
   a. If we were to implement it in things like shopping to determine what types of items someone likes then it could hurt the job market and customer experience.
   b. It takes out the human factor in lots of things if computers can actively react to our emotions. It would take away jobs of salesmen and could make shopping feel isolating.
   c. If we instead of completely relying on computers we do a healthy mix of human interaction and using facial expression recognition to improve the human experience.

4. The three unique facial expressions that I would want my computer to recognize are happiness, confusion, and disinterest. These expressions I believe would reflect the most relevant emotions a person feels while interacting with any product. With happiness, the intensity of a person's smile can be used to gauge how much a user enjoys the prototype. As this is the goal of prototyping, creating designs that users like, being able to recognize happiness would be integral for our computer. However while that may be our goal, there are many times where the user has a bad experience with a product typically in the form of confusion and disinterest. Starting with confusion, it is vital for our computer to recognize when users feel confused with the prototype as this would allow us to determine which elements of the design troubled them. With this

information, the product can be refined to improve these deficiencies. Disinterest should be recognized also in order to deem whether or not the prototype is actually engaging.

5. Outer Brow Raiser, Lip Corner Puller, Head Forward, Eyes Turn Left

The raw results of number 1:

Goat 4 sale	mine	avg
Valence	64.2	10.4
Expressiveness	66.3	29.7
Attention	95.7	93.6
Brow Furrow	0.0	5.3
Brow Raise	0.1	5.5
Disgust	0.1	3.4
Inner Brow Raise	2.1	4.9
Lip Corner Depress	0.0	2.1
Smile	66.6	19.6

Time to Die	mine	avg
Valence	2.7	-1.2
Expressiveness	3.5	13.3
Attention	95.7	93.9
Brow Furrow	0.9	4.4
Brow Raise	0.5	4.9
Disgust	0.4	2.3
Inner Brow Raise	0.6	4.0
Lip Corner Depress	0.0	2.3
Smile	3.0	4.5

Tea with the queen	mine	avg
Valence	18.2	10.1
Expressiveness	21.4	25.3

Attention	93.7	93.9
Brow Furrow	0.2	2.3
Brow Raise	1.9	4.7
Disgust	0.7	3.4
Inner Brow Raise	5.3	4.2
Lip Corner Depress	0.0	2.2
Smile	20.5	17.6

Toyota muppets	mine	avg
Valence	76.7	8.5
Expressiveness	83.3	25.6
Attention	92.2	94.4
Brow Furrow	0.0	4.5
Brow Raise	3.5	5.0
Disgust	0.1	3.0
Inner Brow Raise	3.1	4.3
Lip Corner Depress	0.1	2.3
Smile	78.7	16.5

Snickers	mine	avg
Valence	20.7	4.8
Expressiveness	22.3	22.8
Attention	96.3	94.0
Brow Furrow	0.9	3.4
Brow Raise	0.1	5.8
Disgust	0.3	3.1
Inner Brow Raise	0.8	4.7
Lip Corner Depress	0.0	2.3
Smile	21.1	12.6